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Nursing Intelligence in the AI Era:
Strategic Empowerment of Research,
Education, and Practice

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Abstract Book

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Nursing Intelligence in the AI Era:
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Oral Presentation

Day 1 October 19, 2026			
15:30-16:30	CS02. Digital Health (1)	CS02-0001 - 0004	005
	CS03. Digital Health and Community Care (1)	CS03-0001 - 0004	009
	CS04. Digital Health and Community Care (2)	CS04-0001 - 0005	013
	CS05. Mental Health (1)	CS05-0001 - 0004	018
	CS06. Nursing Education (1)	CS06-0001 - 0004	022
	CS07. Nursing Management & Policy (1)	CS07-0001 - 0005	026
	CS08. Nursing Management & Policy (2)	CS08-0001 - 0005	031
16:30-17:30	CS10. Digital Health (2)	CS10-0001 - 0004	036
	CS11. Digital Health and Community Care (3)	CS11-0001 - 0004	040
	CS12. Digital Health and Community Care (4)	CS12-0001 - 0003	044
	CS13. Mental Health (2)	CS13-0001 - 0003	047
	CS14. Nursing Education (2)	CS14-0001 - 0004	050
	CS15. Nursing Management & Policy (3)	CS15-0001 - 0004	054
	CS16. Nursing Education (3)	CS16-0001 - 0004	058
Day 2 October 20, 2026			
10:50-11:40	CS18. Acute & Critical Care (1)	CS18-0001 - 0004	062
	CS19. Child & Women's Health (1)	CS19-0001 - 0003	066
	CS20. Child & Women's Health (2)	CS20-0001 - 0004	069
	CS21. Community Health (1)	CS21-0001 - 0004	073
	CS22. Digital Health (3)	CS22-0001 - 0004	077
	CS23. Long-term & Palliative Care (1)	CS23-0001 - 0004	081
	CS24. Mental Health (3)	CS24-0001 - 0004	085
11:40-12:30	CS25. Acute & Critical Care (2)	CS25-0001 - 0003	089
	CS26. Child & Women's Health (3)	CS26-0001 - 0003	092
	CS27. Child & Women's Health (4)	CS27-0001 - 0003	095
	CS28. Community Health (2)	CS28-0001 - 0003	098
	CS29. Digital Health (4)	CS29-0001 - 0003	101
	CS30. Long-term & Palliative Care (2)	CS30-0001 - 0003	104
	CS31. Mental Health (4)	CS31-0001 - 0003	107



Evaluating Pretrained Foundation Models for Forecasting Patient-Reported Outcome Deterioration: A Cross-Trial Study in Small Oncology Cohorts

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Purpose : Advances in computational technology have enabled predictive modeling in oncology, though such models have typically been developed using large sample sizes. However, this approach is difficult to apply in settings where sufficient clinical data has not been accumulated. This study aims to evaluate the applicability of a pretrained time-series foundation model for forecasting patient-reported outcome (PRO) trajectories in small clinical samples.

Methods : TimesFM (Google) was applied. Functional Assessment of Cancer Therapy-Prostate (FACT-P) data from docetaxel-treated comparator arms were collected from three independent clinical trials (eligible n=143-391) publicly available through Project Data Sphere. The predictor was defined as the FACT-P trajectory over three visits. The outcome was defined as deterioration indicated by a drop of 10 points or more in FACT-P within the subsequent three visits. TimesFM (zero-shot and LoRA fine-tuned) and logistic regression as a comparator model were evaluated using a cross-trial design. One trial was used for training and the remaining two for testing, with this process repeated across all three trials. Performance was compared using F1-score, precision, recall, and AUCPR.

Results : The deterioration event rate ranged from 16.8% to 19.9%. In six train-test combinations, TimesFM showed slightly higher AUCPR (zero-shot 0.426, LoRA fine-tuned 0.431) than logistic regression (0.370). However, this difference was not consistent across combinations. The three models did not show a substantial difference in F1-score. TimesFM showed higher precision (zero-shot 0.341, LoRA fine-tuned 0.348) than logistic regression (0.298), while logistic regression showed higher recall (0.685) than both TimesFM models (zero-shot 0.569, LoRA 0.555).

Conclusions : Pretrained foundation model showed slightly higher performance than the comparator model on some metrics, but this difference was not consistent. Furthermore, overall performance was not sufficient for clinical use. Future research should use large datasets to construct learning curves identifying the minimum sample size for meaningful PRO prediction.

Keywords : pretrained time-series foundation model, patient-reported outcome, small sample size, deep learning



Development and Temporal Validation of an Explainable Machine Learning Model for Hospital-Onset Bloodstream Infection Among General-Ward Inpatients Undergoing Blood Culture

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Purpose : To develop and temporally validate an explainable machine learning model predicting hospital-onset bloodstream infection (HOBIS) among adult general-ward inpatients undergoing blood culture, using pre-culture clinical and nursing data, and to identify key predictors overall and by culture timing.

Methods : This retrospective study analyzed 11,116 general-ward admissions with blood cultures at a Korean tertiary hospital using electronic health records. The first positive (or first negative) culture was the index event. Expert-validated predictors were extracted from predefined windows before the index culture. Models were developed on 2021 and temporally validated on 2022 data. Logistic regression, random forest, and extreme gradient boosting were compared with no adjustment, class weighting, or synthetic minority oversampling and evaluated once on the temporal test set. Predictions were interpreted with Shapley additive explanations, stratified by culture timing (≤ 7 vs. > 7 days).

Results : Unadjusted extreme gradient boosting performed best. HOBIS occurred in 694 (12.1%) development and 621 (11.5%) validation admissions. Temporal validation achieved an AUROC of 0.807 (95% CI 0.789-0.824), an AUPRC of 0.411 (95% CI 0.377-0.448) and a Brier score of 0.084, with good calibration. At a 0.08 threshold, sensitivity, specificity, positive predictive value, and negative predictive value were 82%, 62%, 21%, and 96%, respectively. The strongest contributors were central venous or arterial catheter presence, maximum body temperature, nursing intensity score (standardized patient classification), serum albumin, and blood urea nitrogen. Leading contributors were consistent across culture timing, although minimum body temperature and procalcitonin ranked higher within 7 days, and platelet count and sepsis history beyond. Decision curve analysis showed positive net benefit at thresholds of 2%-30%.

Conclusions : An explainable model using only pre-culture data was well calibrated and provided clinical net benefit in a temporal cohort. Using routinely available nursing documentation and physiological data, it may support risk stratification among general-ward patients and help nurses prioritize monitoring and care escalation.

Keywords : Bloodstream infection, Electronic health records, Machine learning, Nursing Informatics



When Fear Doesn't Match Pain: Machine Learning Identifies a Distinct Psychological Subgroup in Chronic Low Back Pain

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Purpose : To apply an unsupervised machine learning approach to patient reported questionnaires in order to identify patient subgroups that may inform nurse led risk stratification and individualized care planning in chronic low back pain.

Methods : This analysis included seven hundred sixty three patients with chronic low back pain who completed four self reported questionnaires measuring physical disability, fear of movement, sleep quality, and pain intensity. An unsupervised clustering method classified patients into three practice oriented tiers: low symptom burden, borderline requiring individualized assessment, and high symptom burden. Stability was evaluated using a second, independent clustering method.

Results : The stratification classified 63.6 percent of patients as low burden, 12.1 percent as borderline, and 24.4 percent as high burden, with scores increasing significantly and consistently across all four domains from low to high burden, with effect sizes of 1.2 to 2.2. Within the borderline group, physical symptom scores were statistically comparable to the high burden group, with all comparisons above 0.05, the correlation between fear of movement and both disability and pain intensity dropped from 0.31 to 0.05 and from 0.58 to 0.14 respectively, becoming non significant, while correlations among the physical symptom domains remained strong and significant. This distinct pattern was associated with treatment pathway: high burden patients had 2.84 times greater odds of undergoing surgery than borderline patients, with a 95 percent confidence interval of 1.66 to 4.87, despite comparable physical severity between the two groups.

Conclusions : Unsupervised machine learning applied to self reported questionnaires identifies a subgroup whose psychological and physical symptoms do not align in the expected way, a pattern unlikely to be detected through single domain assessment. These findings highlight the potential value of incorporating multidimensional questionnaire based screening into nursing assessment to guide individualized care planning independent of physical symptom severity alone.

Keywords : Chronic low back pain; fear of movement; nursing risk stratification; unsupervised machine learning



Frailty Prediction and longitudinal Trajectories in Community-Dwelling Older Adults : A Machine Learning and Latent Class Mixed Model Approach

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Purpose : Frailty research has advanced significantly in recent decades, but certain limitations remain. Current method of frailty screening is designed to identify frail individuals and cannot determine the at-risk population. Furthermore, frailty is a dynamic process and elucidating different frailty progression as well as the underlying risk factors could enable a more personalized interventional approach. Therefore, the aims of this study were to 1) elucidate the predictive features of frailty and 2) distinguish different frailty trajectories and their underlying risk factors.

Methods : This study utilized data from the Korean Frailty and Aging Cohort Study. A machine learning approach was used to identify the predictive features of frailty with the baseline (2016-2017) data. Twenty-nine candidate features were entered into four models: LASSO, Elastic Net, Random Forest, and XGBoost. To examine frailty trajectories, data from the baseline (2016-2017) to the third follow-up (2022-2023) were used. The Latent Class Mixed Model was used to determine the distinct trajectory groups, and a multinomial logistic regression was used to identify the risk factors.

Results : XGBoost was selected as the final prediction algorithm based on the mean cross-validation AUC among the four models (0.927 ± 0.018), and sixteen top features were selected with strong model performance (AUC: 0.897; Accuracy: 0.882; Sensitivity: 0.800; Specificity: 0.888). Three distinct trajectories appeared: Stable-low, Increase-recovered, and Progressive-worsening. Among the risk factors, BMI (OR: 1.091, 95% CI: 1.008-1.181), TUG (OR: 1.245, 95% CI: 1.112-1.395), EQ-5D (OR: 1.177, 95% CI: 1.049-1.322), and SARC-F (OR: 1.345, 95% CI: 1.098-1.650) were significantly associated with the Progressive-worsening trajectory compared to the Stable-low trajectory.

Conclusions : This study elucidated valid predictive features and distinct progression of frailty in community-dwelling older adults to provide insights for future research. Our findings signify the need to develop dynamic and risk-stratified screening strategies to enable earlier, targeted intervention.

Keywords : Frailty, Machine learning, Latent class analysis, Cohort study



Elder abuse and its associated factors in community settings in South Korea: Findings from the 2023 National Survey of Older Koreans

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Purpose : Elder abuse is an underdetected yet consequential public health issue in rapidly aging societies. This study estimated its population-level prevalence and examined associated factors among community-dwelling older adults in South Korea.

Methods : We conducted a cross-sectional analysis using data from the 2023 National Survey of Older Koreans (N = 10,078). Population-representative estimates were derived using complex-sample procedures incorporating stratification, clustering, and sampling weights. Elder abuse was defined as any self-reported physical, sexual, or emotional abuse in the past year. Complex-sample multivariable logistic regression was used to estimate adjusted odds ratios (aORs).

Results : The weighted prevalence of past-year elder abuse was 4.8%, with emotional abuse predominating. Dependence in basic activities of daily living was significantly associated with higher odds of abuse, while independence in instrumental activities of daily living was also associated with increased odds (aOR = 2.39), indicating heterogeneity in vulnerability pathways. Participation in volunteer group activities was significantly associated with lower odds (aOR = 0.43). Higher levels of informal social contact were significantly associated with increased odds of sexual abuse (aOR = 6.49).

Conclusions : Elder abuse reflects complex, multi-domain vulnerabilities shaped by functional status and social exposure. These findings underscore the need for targeted screening and strengthened community-based surveillance, and provide a foundation for advancing the role of community health nurses in identifying hidden at-risk populations and leading coordinated, community-based elder abuse prevention efforts.

Keywords : community health nursing, elder abuse, functional status, social participation



Two Dimensions of Primary Care and Medical Expenditure Trajectories in Older Korean Adults: Usual Doctor and Care Coordination

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Purpose : Quantitative evidence on how core dimensions of primary care—a usual-source-of-care doctor and care coordination—relate to medical expenditure is limited. This study examined how having a usual doctor and the quality of care coordination were associated with three-year trajectories of outpatient visit and medication expenditure, and whether these associations differed by health literacy, among older Korean adults.

Methods : We examined how annual out-of-pocket outpatient visit and medication expenditure changed over three years (2021–2023) according to two features of primary care among adults aged 65 or older from the Korea Health Panel Survey. We compared those with versus without a usual doctor across all three years ($n=2,071$). Care coordination, a five-point Likert item on whether the doctor guided patients to needed health services, was split at a three-year average of 3.0 into good versus poor ($n=1,252$). Using linear mixed-effects models with a person-level random intercept, we estimated how annual expenditure growth differed by each feature, adjusting for covariates, and further stratified by health literacy.

Results : Older adults with a usual doctor, compared with those without one, had slower annual growth in outpatient medication expenditure (7.0% lower per year; $p<0.001$). Meanwhile, those receiving good care coordination had slower annual growth in outpatient visit expenditure (11.7% lower per year; $p=0.009$) than those with poor coordination. The slower growth in outpatient medication expenditure for those with a usual doctor appeared in both literacy groups, while the slower growth in outpatient visit expenditure for good care coordination appeared only in the low-literacy group.

Conclusions : Different dimensions of primary care were linked to distinct cost components: having a usual doctor to medication expenditure, and good care coordination to visit expenditure. These findings suggest that not merely having a usual doctor, but care-team coordination may matter for managing outpatient costs, particularly for those with low health literacy.

Keywords : Care coordination, health literacy, medical expenditure, usual-source-of-care doctor



Latent Class Analysis of Digital Device Utilization Patterns Among Older Korean Adults: Predictors and Associations with Depressive Symptoms Using the 2023 Survey of Older Persons in Korea

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Purpose : This study aimed to identify latent classes of digital device utilization among older Korean adults, examine predictors of class membership, and compare depressive symptoms across classes to inform artificial intelligence-based nursing interventions.

Methods : Data were drawn from the 2023 Survey of Older Persons in Korea (N = 10,078, aged 65 and older). Six binary indicators of electronic device use, including messaging, video calls, information search, photo or video capture, listening to music, and watching videos, were entered into a latent class analysis. Model fit statistics and classification accuracy determined the optimal number of classes. Sociodemographic, economic, health-related, and digital environment factors were examined as predictors of class membership using a three-step multinomial logistic regression approach accounting for classification uncertainty, and depressive symptom scores were compared across classes using a comparable procedure. Sampling weights were applied.

Results : A four-class solution provided the best fit: non-use (38.4%), media consumption (13.1%), media consumption with information seeking (13.4%), and comprehensive use (35.1%). Younger age, higher education, better self-rated health, and absence of cognitive decline were associated with higher odds of membership in more digitally active classes relative to the non-use class (all $p < .001$); living alone was not significant. Depressive symptom scores differed significantly across classes ($p < .001$), with the lowest score in the non-use class and the highest in the comprehensive use class, contrary to the assumption that greater digital engagement protects against depression.

Conclusions : Older adults' digital device utilization reflects heterogeneous patterns shaped by age, education, health, and cognitive status. The finding that the most digitally engaged group reported the highest depressive symptoms challenges the assumption that digital engagement uniformly protects mental health, suggesting mechanisms such as social comparison warrant investigation. Future artificial intelligence-based nursing interventions should extend beyond promoting device use to incorporate mental health screening tailored to patterns of digital engagement.

Keywords : Aged, Depression, Digital Divide, Latent Class Analysis



Two-year longitudinal associations between cardiovascular health components (Life's Essential 8) and frailty among older adults: The Korean Frailty and Aging Cohort Study

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Purpose : With the population aging, the burden of chronic conditions has risen in parallel. Notably, cardiovascular disease and frailty are major concerns for older adults. To assess the cardiovascular health of an individual, Life's Essential 8 was introduced by the American Heart Association. In this study, we aimed to investigate the longitudinal associations between individual Life's Essential 8 components and incident frailty.

Methods : A secondary data analysis was performed using the baseline (2016–2017) and the follow-up (2018–2019) waves of the Korean Frailty and Aging Cohort Study. We included only participants aged 70–84 years who were robust at baseline (n=1,091). Incident frailty at follow-up was defined as pre-frail (1–2) or frail (3–5) based on Fried's frailty phenotype score. Each Life's Essential 8 component (diet, physical activity, nicotine exposure, sleep health, body mass index, blood lipids, blood glucose, and blood pressure) was categorized as high (80–100), moderate (50–79), or low (0–49), using cutoffs adapted from the overall cardiovascular health classification. The eight component categories were entered simultaneously into a multivariable binary logistic regression model adjusted for sociodemographic and health-related factors.

Results : During the two-year follow-up, 378 participants (34.6%) developed frailty. The odds of frailty were higher among those aged 80 years or older, residing in rural areas, and having cardiovascular disease or other comorbidities. Among the eight components, a low physical activity score, compared with a high score, was associated with higher odds of the outcome (odds ratio=1.42; 95% confidence interval=1.06–1.89; p=.018).

Conclusions : A lower baseline physical activity score was associated with a higher risk of incident frailty. This longitudinal finding highlights physical activity as a modifiable target for early frailty prevention in robust older adults. Among the eight cardiovascular health components, physical activity was the only factor independently associated with the outcome.

Keywords : Aged, Cardiovascular Health, Frailty, Longitudinal Studies



Digital Health Literacy, Digital Health Utilization, and Transformational Leadership among Korean Army Field Officers

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Purpose : This study aimed to examine the effects of digital health literacy and digital health utilization on transformational leadership among Korean army field officers.

Methods : A descriptive cross-sectional survey was conducted among 168 army field officers serving in both frontline and rear-area units. Data was collected from November 17, 2025, to January 9, 2026. A self-administered questionnaire consisting of 57 items was used, including 12 items on digital health literacy, 9 items on digital health utilization, 25 items on transformational leadership, and 11 items on general characteristics. Data was analyzed using descriptive statistics, t-test, one-way ANOVA, Pearson's correlation, and multiple regression analysis.

Results : The mean score for digital health literacy was 2.57 ± 0.57 out of 4 points. The mean scores for digital health utilization and transformational leadership were 3.53 ± 0.7 and 4.29 ± 0.41 out of 5 points. Multiple regression analysis revealed that job satisfaction and digital health utilization were significant predictors of transformational leadership. These variables explained 22.5% of the variance in transformational leadership.

Conclusions : Digital health literacy among military leaders extends beyond the individual ability to search for and utilize health information and may influence organizational leadership and effectiveness. Therefore, the military should establish a clear digital health strategy tailored to the Korean military environment and promote the development of digital systems and digitally competent personnel. Enhancing digital health utilization may contribute to strengthening transformational leadership and facilitating successful digital transformation within military organizations.

Keywords : Digital Health, Health literacy, Leadership, Military personnel



A Senior-Friendly Web Application Using a Machine Learning Model, Explainable AI, and an AI Agent to Apply the Nursing Process for Physical Frailty in Older Adults

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Purpose : Physical frailty is a major geriatric concern, but most assessment methods are too complex for routine use in community settings. This study developed BUVI, a senior-friendly web application that applies a machine learning frailty-prediction model and uses explainable AI and an AI agent to support assessment and counseling along the nursing process for older adults.

Methods : BUVI was built on senior-centered UI/UX principles. A prediction equation that estimates physical frailty risk from six clinical factors was implemented in the platform and computed in real time, and explainable AI quantified how much each factor contributed to an individual's risk. An animated character guided users one question per screen, speaking in Korean honorifics. The AI agent was structured around the nursing process; it assessed physical frailty using the model, used the leading risk factors as a basis for diagnosis, and produced a health-behavior change plan, with a question-and-answer service for follow-up.

Results : Through tap-only input, adjustable text size, high-contrast mode, and character narration with text-to-speech, older adults could complete the process on their own. The model returned real-time risk classifications, and explainable AI showed each factor's contribution as color-coded bar graphs separating physical and psychological domains, so users could see which factors raised their risk. Following the nursing process, the AI agent ranked the risk factors, set the highest-risk domain as the diagnostic focus, and generated a personalized health-management plan without users having to identify the health problem themselves. Users could then ask follow-up questions and receive tailored answers.

Conclusions : BUVI currently covers the assessment, diagnosis, and planning steps of the nursing process within a senior-centered AI agent; the implementation and evaluation steps are planned for future development. Because it identifies modifiable risk factors and gives guidance automatically, it may support community-based screening, and its usability and clinical value should be tested in future studies.

Keywords : aged, artificial intelligence, frailty, nursing process



From Intention to Actionable Planning: A Behaviorally Informed Mobile Application for BRCA1/2 Family Risk Communication

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Purpose : Family disclosure is essential for cascade genetic testing and preventive care among relatives of individuals with pathogenic BRCA1/2 variants. However, disclosure may be hindered by differences in capability, opportunity, and motivation, and digital support remains limited. This study designed and evaluated a standalone mobile adaptive UX system to support family disclosure intentions and communication.

Methods : Seven individuals with pathogenic BRCA1/2 variants who had undergone genetic testing within the past 2 years participated in a mixed-methods evaluation. Guided by the COM-B model, the system identified disclosure barriers and provided tailored motivational messages, pedigree-based risk information, and editable disclosure messages. Usability and acceptability were assessed quantitatively, while semi-structured interviews explored user experiences and improvement needs. Quantitative data were summarized descriptively, and interview data were thematically analyzed.

Results : Participants had a mean age of 50.0 years; six were women, and all had disclosed their results to at least one family member. The mean System Usability Scale score was 70.5, with higher learnability than usability scores (77.4 vs. 68.8). The mean Technology Acceptance and Preference Scale score was 3.55 out of 4, and all participants met the acceptability threshold of ≥ 3 . Decision-making support received the highest effectiveness rating (3.86), whereas psychological burden management received the lowest (3.29). Four themes emerged: translating disclosure intentions into communication plans, navigating relational complexities, using the pedigree despite usability challenges, and needing reliable, shareable BRCA1/2-related information. Participants valued support for identifying relatives, composing messages, and accessing testing and counseling resources. Suggested improvements included a simpler pedigree interface, clearer cancer-risk information, professional guidance, and flexible timing based on emotional readiness.

Conclusions : The COM-B-based adaptive UX system demonstrated acceptable usability and high acceptability and was perceived as useful for supporting family disclosure. Further development should simplify the pedigree interface, strengthen psychological support, provide reliable risk information, and integrate healthcare professional guidance with flexible timing.

Keywords : Behavior change, COM-B model, Family disclosure, User experience



“My Friend Soul” - An AI-Based Emotional Support Chatbot for Vulnerable Children in Community Settings: A Formative Study

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Purpose : Socioeconomically vulnerable children are often exposed to environments with limited psychological and emotional support and face substantial barriers to accessing mental health services. AI-based chatbots can provide accessible, stigma-free support and may help address unmet mental health needs among vulnerable children. However, evidence regarding their implementation in real-world community settings remains scarce. This study examined the real-world implementation and user experiences of the AI-based mental health chatbot My Friend Soul among socioeconomically vulnerable children and service providers in community child centers (CCCs).

Methods : This formative study was conducted in 21 CCCs in B Metropolitan City and included 184 children and 40 CCC service providers. The chatbot provided emotionally supportive conversations and two validated psychological assessments (K-CRTES-R and SDQ-A), generating individualized psychological assessment reports that were reviewed by service providers within a human-in-the-loop framework. User experience, satisfaction, perceived emotional support, and perceived helpfulness of the chatbot were assessed using structured questionnaires. Quantitative data were analyzed descriptively, and open-ended responses were by text-mining in R.

Results : Both children and service providers reported positive experience with My Friend Soul. Mean satisfaction scores (7-point scale) were 5.51 for children and 5.16 for service providers. Text mining of children's responses identified frequently occurring keywords including talk, feel, fun, friend, and understand. Service providers reported that the chatbot supported children's emotional expression and provided an additional channel of emotional support. Children's user experience and satisfaction were positively correlated with the SDQ-A Strengths subscale ($r = .198, p = .007$).

Conclusions : The AI-based emotional support chatbot My Friend Soul was well accepted by socioeconomically children and CCC service providers. These findings support the feasibility of implementing AI-based emotional support chatbot in community settings. Further research using controlled study designs is needed to evaluate long-term effectiveness and clinical outcomes.

Keywords : artificial intelligence, chatbot, emotional support, vulnerable children, community child centers, digital mental health



Hospital Staff Members' Perspectives on AI Applications in University-Affiliated Hospital in Korea: A Qualitative Descriptive Study

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Purpose : As artificial intelligence (AI) becomes increasingly integrated into healthcare, understanding how healthcare professionals perceive and accept AI is essential for sustainable implementation. This study aimed to explore healthcare professionals' and administrative personnel's perceptions of AI in Korean tertiary hospitals and to identify the conditions required for trustworthy AI implementation in clinical practice.

Methods : This qualitative descriptive study explored hospital staff members' experiences, expectations, concerns, and implementation requirements regarding AI applications in university-affiliated hospital in Korea. Three focus group interviews and one supplementary individual interview were conducted with 14 hospital staff members, including physicians, nurses, allied health professionals, and administrative personnel. Data were analyzed using inductive content analysis, and trustworthiness was enhanced using Lincoln and Guba's criteria.

Results : Participants reported varying levels of AI-related experience in clinical and organizational contexts. From 293 meaningful codes, 20 categories and five themes were derived: AI normalization and expansion into clinical work, perceived efficiency in clinical work, human-AI collaboration, organizational readiness for trustworthy AI use, and AI literacy and conditional acceptance. Participants expected AI to support documentation, information retrieval, patient communication, standardized assessment, routine task automation, and decision support. They also identified reliability, privacy, accountability, ethical judgment, workflow disruption, human verification, professional accountability, organizational governance, healthcare-specific infrastructure, workflow integration, and AI literacy as key conditions and concerns for trustworthy AI use.

Conclusions : Hospital staff members perceived AI as a supportive tool that can improve efficiency in clinical and organizational work, but its use was considered trustworthy only when accompanied by human verification, professional accountability, and organizational readiness. These findings suggest that healthcare AI implementation requires more than technological advancement. Future implementation strategies should include human-centered governance, workflow integration, validation and privacy safeguards, and workforce preparation through AI literacy education and experience-based trust formation.

Keywords : Artificial intelligence, Focus group interview, Hospital staffs, Trust



Depression as a Mediator Between Self-Esteem and Life Satisfaction in People With Disabilities: Insights From the National Disability and Life Dynamics Panel

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Purpose : Life satisfaction is a central component of psychological and social well-being, particularly among people with disabilities who may experience psychosocial challenges. While self-esteem, depression, and life satisfaction are linked in the general population, empirical research on these relationships among individuals with disabilities is scarce. This study examines factors affecting life satisfaction and whether depression mediates the connection between self-esteem and life satisfaction.

Methods : Utilizing data from the 2022 Panel Survey of People with Disabilities, this secondary analysis included 2,396 individuals with disabilities. Sex-stratified hierarchical regression analyses were conducted to identify factors associated with life satisfaction, and mediation analysis using bootstrapping (5,000 samples) was performed to examine the indirect effects of self-esteem on life satisfaction through depression.

Results : Life satisfaction was negatively correlated with depression ($r = -.47$) and positively correlated with self-esteem ($r = .37$). Sex-stratified regression analyses revealed that lower life satisfaction was associated with advanced age, living alone, unemployment, and multiple disabilities for both men and women. Self-esteem and depression emerged as significant predictors overall, whereas health behaviors—such as smoking and physical activity—were significant only among men. Mediation analysis revealed that self-esteem significantly and negatively predicted depression ($\beta = -.36$), which, in turn, predicted reduced life satisfaction ($\beta = -.39$). Both direct ($\beta = .23$) and indirect effect ($\beta = .14$) effects were statistically significant across sexes, demonstrating partial mediation; specifically, 37.8% of the total effect of self-esteem on life satisfaction was mediated by depression.

Conclusions : Life satisfaction among individuals with disabilities is shaped by sociodemographic factors, disability characteristics, health behaviors, and psychological resources. The study found notable sex-based differences, particularly in health behavior predictors. Sex-sensitive interventions that combine psychological, social, and behavioral strategies may improve well-being in this population.

Keywords : life satisfaction, persons with disabilities, depression, self-esteem, mediation analysis



Factors Influencing Life Satisfaction in Cancer Patients: Focusing on the Broaden-and-Build Theory

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Purpose : This study examines the pathways through which positive and negative affect influence life satisfaction in cancer patients, focusing on the mediating roles of psychological flexibility, resilience, and cancer coping. Grounded in Fredrickson's Broaden-and-Build Theory, the study develops and validates a hypothetical model explaining these relationships.

Methods : A cross-sectional path analysis was conducted using data from 330 cancer patients recruited from specialized hospitals in Seoul. Participants completed validated self-report measures assessing their affect, psychological flexibility, resilience, coping, and life satisfaction. Data were analyzed using path analyses, with bootstrapping applied to test mediating effects.

Results : Positive affect significantly enhanced psychological flexibility, resilience, and cancer coping, whereas negative affect reduced psychological flexibility and indirectly diminished resilience, cancer coping, and life satisfaction. The proposed model demonstrated good fit and explained 67% of the variance in life satisfaction. Positive affect exerted significant direct effects on psychological flexibility, resilience, and cancer coping, as well as indirect effects on life satisfaction through multiple sequential mediation pathways. In particular, psychological flexibility, resilience, and cancer coping sequentially mediated the relationship between positive affect and life satisfaction, underscoring the pivotal role of internal psychological resources in promoting life satisfaction among patients with cancer.

Conclusions : This study underscores the importance of positive affect and internal psychological resources in shaping life satisfaction among cancer patients. Psychological flexibility, resilience, and coping emerged as key mechanisms through which affective experiences exert their influence. These findings highlight the need for emotion-focused psychosocial interventions in cancer care that promote positive affect and adaptive psychological processes.

Keywords : Neoplasms, Life satisfaction, Emotions, Cognitive flexibility, Resilience, Coping



Breaking through adversity: A Rodgers' evolutionary concept analysis of psychological resilience in young adults with behaviorally acquired HIV

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Purpose : This study aimed to clarify the concept of psychological resilience in young adults with behaviorally acquired HIV (YABAHIV) by identifying its defining attributes, antecedents, and consequences to strengthen theoretical foundations for nursing science and intervention development.

Methods : Guided by Rodgers' evolutionary concept analysis, a systematic literature search was conducted across 34 peer-reviewed studies published between 2016 and 2025. Databases searched included PubMed, CINAHL, PsycINFO, and Web of Science. Studies were analyzed to identify recurring patterns related to the attributes, antecedents, and consequences of psychological resilience within this population, with findings synthesized to capture conceptual evolution over time.

Results : Psychological resilience in YABAHIV has evolved from a survival-oriented construct to a dynamic process of thriving. Studies spanned diverse geographical and cultural contexts, reflecting the global relevance of this issue. Core attributes include positive cognitive restructuring, self-compassion, adaptive coping, and reconstruction of self-identity. These attributes were interconnected, with self-compassion frequently functioning as a catalyst for cognitive reframing and identity rebuilding. Antecedents encompass diagnosis-related psychological shock, HIV-related stigma, developmental transitions, and activation of social or digital support resources. Consequences include improved antiretroviral adherence, viral suppression, psychological well-being, and increased patient activation in self-management, collectively reflecting a shift from mere survival toward sustained flourishing.

Conclusions : Psychological resilience in YABAHIV represents a context-dependent and evolving adaptive process rather than a static trait. This analysis supports a shift from risk-focused care toward resilience-promoting nursing interventions that foster cognitive empowerment, social capital, and long-term health trajectories. Clinically, findings suggest that mental health support for YABAHIV should integrate strengths-based approaches addressing stigma, identity, and social connectedness. Nursing practice and policy should prioritize resilience-building frameworks within HIV care to improve both psychological and clinical outcomes in this vulnerable population.

Keywords : Psychological resilience, Young adults, HIV, Concept analysis, Mental health



Loneliness and Depressive Symptoms as Serial Mediators Linking Trauma-Related Symptoms to Hypertension Among North Korean Defectors

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Purpose : Trauma exposure is a recognized cardiovascular risk factor. North Korean defectors (NKDs), subjected to prolonged and repeated trauma across escape and resettlement, show markedly high rates of posttraumatic stress disorder (PTSD) and complex PTSD, defined by PTSD symptoms together with disturbances in self-organization (DSO). Hypertension is their most prevalent cardiovascular diagnosis, and loneliness and depression their most prevalent psychological conditions. Yet whether trauma-related symptoms relate to hypertension in NKDs, and through which mechanisms, remains unexamined. This study is the first to test whether loneliness and depressive symptoms serially mediate this relationship.

Methods : In this cross-sectional study, 1,205 NKDs (80.7% women; mean age 52.5 years) completed a self-report survey. PTSD and DSO symptoms were assessed using the International Trauma Questionnaire, loneliness using the UCLA Loneliness Scale Version 3, and depressive symptoms using the International Depression Questionnaire. Hypertension was defined as a self-reported physician diagnosis. Serial mediation was tested using PROCESS Model 6, with loneliness as the first mediator and depressive symptoms as the second, applying logistic regression, 10,000 bootstrap resamples, and adjustment for age, sex, and residence length.

Results : Overall, 234 participants (19.4%) reported diagnosed hypertension. Neither symptom cluster showed a significant direct effect. Both, however, exerted significant indirect effects through depressive symptoms (DSO: $B=0.049$, 95% CI [0.019, 0.080]; PTSD: $B=0.029$ [0.014, 0.045]) and through the serial pathway from loneliness to depressive symptoms (DSO: $B=0.009$ [0.003, 0.015]; PTSD: $B=0.011$ [0.005, 0.018]). Loneliness alone did not mediate the association.

Conclusions : Among NKDs, trauma-related symptoms were indirectly associated with hypertension through depressive symptoms, while loneliness contributed through its association with depression. These findings identify depression as a potentially important psychosocial pathway linking trauma-related symptoms to cardiovascular risk and support integrating mental health screening into cardiovascular prevention for trauma-exposed populations.

Keywords : depression, hypertension, loneliness, trauma-related symptoms



Designing a RAG-based AI Agent for assessing nursing simulation courses

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Purpose : Driven by the proliferation of digital education and the growing importance of nursing simulation, this study aims to design and pilot-test an AI agent capable of automatically evaluating simulation content. By leveraging AI's capacity for content analysis, the study explores its potential to ensure scenario accuracy and pedagogical suitability.

Methods : A learner persona (3rd-year nursing students) and a "Patient with Arrhythmia" scenario were defined, and a domain-specific knowledge base was built from INACSL standards, syllabi, core nursing skill protocols, and arrhythmia guidelines (AHA/ACC, ACLS). A RAG pipeline was implemented through document loader, text splitting (tables kept as single chunks), embedding, and pgvector-based retrieval. The prompts assessed the eight INACSL simulation design criteria and additionally examined clinical accuracy of scenario, and were run on two AI models, ChatGPT 5.4 and Gemma4-32K.

Results : Both agents generated structured reports categorizing each component as 'met', 'partially met', or 'unmet'. Gemma4-32K rated all eight criteria as 'met' and scored the clinical accuracy at 67%. While its report highlighted a shortage of treatment and medication evidence, this reflected a lack of dialysis- and electrolyte-specific references in the knowledge base rather than a flaw in the scenario itself. Conversely, ChatGPT 5.4 rated Criteria 3 (objectives) and 7 (facilitation) as 'partially met' due to a lack of measurability and insufficient documented guidance. It also assigned a 50% rating for clinical accuracy, specifically pointing out deficient evidence for diagnosis, treatment, and safety.

Conclusions : These findings demonstrate the potential of RAG-based AI agents for evaluating nursing simulation courses. Although both agents identified a similar gap, their differing evaluation sensitivities show that knowledge-base coverage and model choice jointly shape the outcomes. Ultimately, these tools aim to alleviate instructor workload and ensure standardized course delivery. Further research is necessary to validate their reliability against expert ratings.

Keywords : Nursing, Simulation, RAG, AI agent



Design and Development of an Agentic AI System for Automated Generation of Home Health Care Simulation Scenarios

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Purpose : This study aimed to develop and describe a generative AI-based agentic workflow for creating home health care simulation scenarios for high-risk home health care patients. The study described the design of a role-specific agent system to provide a methodological foundation for developing AI-assisted educational content in nursing.

Methods : This methodological development study implemented the workflow on Dify low-code platform using GPT-4o(OpenAI) as the primary large language model. An electrical engineering expert provided technical consultation on workflow architecture, agent configuration, input and output pathways, and technical feasibility. A domain-specific knowledge base was constructed from simulation standards, nursing skill resources, scenario templates, and home health care related clinical guidelines. Core input parameters were the target clinical situation, priority nursing problem, learner level, and learning objectives. The workflow was organized around a main orchestrator, role-specific agents, and an internal review and revision loop.

Results : The final workflow comprised four phases: 1) technical infrastructure setup, 2) knowledge base construction and evidence preparation, 3) orchestrated multi-agent scenario generation, and 4) review synthesis with targeted revision. In the orchestrated multi-agent scenario generation phase, the main orchestrator coordinated nine role-specific agents responsible for learning objectives, patient and home context, clinical content, scenario flow, prebriefing, facilitation and cueing, debriefing, assessment and evaluation, and quality assurance. Each agent generated a defined scenario component using task-specific evidence. The review phase evaluated clinical accuracy, educational alignment, patient safety, feasibility in the home health care context, and consistency with learning objectives and simulation standards. The final output included patient profiles, scenario progression, expected learner actions, facilitator cues, evaluation criteria, and debriefing questions.

Conclusions : This agentic workflow offers a structured, evidence-informed approach to developing home health care simulation scenarios and may support the expansion of simulation-based education into community-based home health care settings.

Keywords : Generative artificial intelligence, Agentic AI, Retrieval-augmented generation, Home health care, simulation-based nursing education



Factors Associated with Clinical Reasoning Competence based on Nursing Informatics Competency, Communication Competency and Collaborative Self-Efficacy among Senior Nursing Students: A Cross-Sectional Study

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Purpose : Clinical reasoning is a core competency that enables nursing graduates to transition successfully to professional roles and make safe and effective decisions in complex clinical environments. This study aimed to examine nursing informatics competency, communication competence, collaborative self-efficacy, and clinical reasoning competence among senior nursing students, and to identify factors associated with clinical reasoning competence.

Methods : Using a cross-sectional, descriptive correlational design, data were collected from 161 senior nursing students via convenience sampling from four nursing colleges in South Korea, between July 25, 2025 to January 18, 2026, with a structured self-report questionnaire. Data were analyzed using descriptive statistics, independent t-test, Pearson's correlation coefficients, and hierarchical multiple regression analysis with SPSS Statistics 30.0. Variables were entered in four blocks – sociodemographic, academic, cognitive, and belief factors – based on social cognitive theory.

Results : The final hierarchical regression model was statistically significant ($F=20.69$, $p<.001$), explaining 46.3% of the total variance ($\text{Adj. } R^2=.463$). In the final step, collaborative self-efficacy ($\beta=.34$, $p<.001$) was the strongest predictor of clinical reasoning competence, followed by nursing informatics competency ($\beta=.26$, $p<.001$), gender ($\beta=-.16$, $p=.017$), major satisfaction ($\beta=.15$, $p=.027$), subjective academic achievement ($\beta=.15$, $p=.024$), and age ($\beta=-.14$, $p=.034$). Communication competence was significant in the preceding step ($\beta=.24$, $p<.001$) but lost statistical significance ($p=.148$) upon introducing collaborative self-efficacy.

Conclusions : Clinical reasoning competence was most strongly associated with collaborative self-efficacy, suggesting that psychological beliefs play a critical role alongside cognitive skills. To effectively enhance students' clinical reasoning, nursing curricula should move from traditional lectures toward active learning strategies. This transition requires us to proactively incorporate data-driven tasks to strengthen informatics skills, while expanding the emphasis on structured team based clinical case studies, and peer led simulation debriefings to cultivate collaborative self-efficacy for safe and effective clinical decisions.

Keywords : Clinical Reasoning, Communication, Nursing Informatics, Self Efficacy



Development and expert pilot testing of a reverse-teaching generative artificial intelligence chatbot for post-simulation reflection in nursing education

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Purpose : deal post-simulation reflection requires active knowledge construction, psychological safety, individualized depth, and accurate self-assessment, yet group debriefing and written journals rarely secure these for every student. Guided by the protege effect, this study aimed to develop a reverse-teaching generative artificial intelligence chatbot that positions students as teachers explaining their simulation performance, and to verify its feasibility and fidelity through expert pilot testing before classroom use.

Methods : A structured system prompt assigned the model the persona of a junior nursing student who asks naive questions, never provides answers, and guides learners through 4 reflection domains following the nursing process: clinical assessment, nursing diagnosis and interventions, interprofessional collaboration, and evaluation and improvement. Five encoded behavioral rules included adaptive follow-up questioning, inconsistency detection, and encouragement of honest self-assessment. Thirteen nursing education and research experts piloted the web application using anonymous codes, deliberately giving vague, incomplete, or incorrect explanations; structured checklist ratings, narrative feedback, and automatically captured conversation logs were analyzed.

Results : The chatbot sustained its non-evaluative learner persona throughout testing, and its specific questioning compelled specific explanations of clinical reasoning. It advanced only after adequate explanations at each stage, terminated autonomously once explanations were judged sufficient, and presented unambiguous checkpoints in every domain. Each domain was completed within 10 minutes, indicating 20 to 30 minutes overall versus the planned 40 and supporting curricular feasibility. Two boundary findings emerged: 1 session advanced past an omitted assessment topic without probing, and testers recommended higher exchange thresholds for complex scenarios. Both were encoded into prompt revisions, alongside persistent conversation storage.

Conclusions : Prompt-encoded role inversion can deliver individualized, psychologically safe, staged reflection at a scale unattainable with faculty resources alone. With content coverage and pacing explicitly calibrated, the verified chatbot is now positioned for classroom implementation and effectiveness evaluation.

Keywords : Artificial intelligence; nursing education; reflection; simulation training



The Association Between Self-Compassion and Resilience Among Nurses: The Parallel Mediating Roles of Positive and Negative Affect

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Purpose : Nurses often face stressful and emotionally demanding clinical situations, making resilience essential for psychological adaptation. This study aimed to examine the relationships among self-compassion, positive affect, negative affect, and resilience in nurses, and to determine whether positive and negative affect mediate the association between self-compassion and resilience.

Methods : A cross-sectional study was conducted with 221 nurses from a tertiary university hospital in Korea. Convenience sampling was used to collect data between May 26 and June 15, 2026. Participants completed a questionnaire assessing self-compassion, positive/negative affect, and resilience. Structural equation modeling using Mplus 9 was employed to examine the relationships among self-compassion, affect, and resilience. Path analysis was performed to determine whether affect mediated the association between self-compassion and resilience.

Results : Structural equation modeling showed that self-compassion was positively associated with positive affect ($\beta = 0.363$, $p < 0.001$) and resilience ($\beta = 0.367$, $p < 0.001$), and negatively associated with negative affect ($\beta = -0.438$, $p < 0.001$). Positive affect was positively associated with resilience ($\beta = 0.414$, $p < 0.001$), whereas negative affect was not significantly associated with resilience. Path analysis further revealed a significant indirect association between self-compassion and resilience through positive affect ($a \times b = 0.150$, $p < 0.001$).

Conclusions : Self-compassion may be an important psychological resource associated with greater resilience among nurses, and positive affect appears to play a meaningful mediating role in this relationship. These findings suggest that nursing managers should consider strategies that cultivate self-compassion and promote positive emotional experiences as part of efforts to support nurses' psychological adaptation and resilience. Future resilience-enhancement programs in nursing organizations should incorporate self-compassion-based approaches and create supportive work environments that foster positive affect among nurses.

Keywords : Affect, mediation, resilience, self-compassion



Priority Analysis of Burden Indicators for Formal Caregivers: An Analytic Hierarchy Process Approach

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Purpose : This study aimed to prioritize the indicators and determine their relative weights within the formal caregiver burden evaluation framework using the Analytic Hierarchy Process (AHP).

Methods : This study was based on a formal caregiver burden evaluation framework developed through a previous Delphi study. The framework consisted of five Level 1 domains and 19 Level 2 indicators. A total of 120 participants, including 79 formal caregivers, 14 family caregivers, and 27 experts, were recruited. Participants completed pairwise comparisons to evaluate the relative importance of each indicator. Priority weights and consistency ratios (CR) were calculated using the AHP method. In addition, a subgroup analysis was conducted among formal caregivers and compared with the overall results.

Results : Among all participants, physical burden received the highest priority weight (0.4176), followed by psychological (0.2314), economic (0.1405), relational (0.1392), and social (0.0712) burden. At Level 2, pain (0.1337), risk of musculoskeletal injury (0.0917), and personal medical expenses (0.0820) were identified as the highest-priority burden indicators. Similar findings were observed in the formal caregiver subgroup, with physical burden remaining the highest-priority domain (0.3607). At Level 2, pain (0.1153), stress (0.0901), and risk of musculoskeletal injury (0.0800) were the highest-priority burden indicators.

Conclusions : This study identified the priority of indicators within the formal caregiver burden evaluation framework using the Analytic Hierarchy Process and revealed differences in the perceived importance of burden indicators between the overall participants and formal caregivers. The findings provide a scientific basis for establishing intervention strategies to reduce formal caregiver burden and may contribute to occupational health management and the improvement of long-term care policies. This study was supported by the Korea Health Industry Development Institute (KHIDI) under the Consumer-Centered Care Robot and Service Demonstration R&D Project funded by the Ministry of Health and Welfare, Republic of Korea (Project No. RS-2023-KH141157).

Keywords : Formal caregiver, Caregiver burden, Analytic Hierarchy Process, Priority weighting



Sleep Hygiene and Fatigue Levels Among Nurses in a Malaysian Tertiary Government Hospital

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Purpose : Demanding nursing environments, characterized by rotating shifts and heavy workloads severely disrupt sleep patterns and increase fatigue. While proper sleep hygiene can mitigate these effects, empirical research directly linking sleep hygiene to nurse fatigue in Malaysia remains limited. This study investigated the association between sleep hygiene practices and fatigue levels among nurses in a Malaysian Tertiary Hospital.

Methods : A cross-sectional study using proportional stratified random sampling was conducted to select the participants. Data were collected via online and hardcopy surveys using the Sleep Hygiene Index (SHI) and the Occupational Fatigue Exhaustion Recovery (OFER) scale. Analysis was performed using SPSS (v30.0) via descriptive statistics and Spearman's Rank Correlation

Results : A total of 157 nurses participated in this study. The mean SHI score was 38.745 ± 6.981 . Regarding fatigue levels, mean scores were, 73.164 ± 19.047 for Acute Fatigue, 68.259 ± 20.439 for Chronic Fatigue, and 66.943 ± 21.038 for Intershift Recovery. Inferential analysis revealed significant, weak to moderate positive positive correlations between poor sleep hygiene practices and chronic fatigue ($r = .435, p < .001$), acute fatigue ($r = .309, p < .001$), and Intershift Recovery deficits ($r = .374, p < .001$).

Conclusions : Poor sleep hygiene is significantly associated with higher shift-specific exhaustion, chronic burnout, and severe recovery deficits between shifts among nurses. Healthcare management should implement targeted sleep hygiene education and institutional scheduling interventions to reduce nursing fatigue and improve workforce well-being.

Keywords : Sleep hygiene, fatigue, nurses, sleep quality.



Effect of Nursing Unit Managers' Ethical Leadership on Nurses' Turnover Intention through the Serial Mediating Roles of Perceived Organizational Support and Organizational Commitment: A Nationwide Survey using Proportional Quota Sampling

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Aim : This study aimed to investigate the two-mediator serial mediation effects of perceived organizational support and organizational commitment on the relationship between nursing unit managers' ethical leadership and nurses' turnover intention.

Methods : This study was a descriptive correlational design. A total of 220 clinical nurses working at general hospitals in South Korea, recruited using proportional quota sampling, participated in this study. Data were collected via an online, self-administered questionnaire from May 20 to July 5, 2026. Data analysis was conducted using SPSS 29.0 and the PROCESS macro version 4.2 Model 6. General characteristics that showed significant differences in the study variables were controlled for as covariates.

Results : Perceived organizational support and organizational commitment acted as serial double mediators in the relationship between nursing unit managers' ethical leadership and nurses' turnover intention ($B=-0.04$, Boot 95% CI $[-0.06, -0.02]$). Ethical leadership was found to be positively associated with perceived organizational support ($B=0.29$, $p<.001$), which, in turn, enhanced organizational commitment ($B=0.32$, $p<.001$); increased organizational commitment significantly diminished turnover intention ($B=-0.15$, $p<.001$). The indirect effect of ethical leadership on turnover intention through perceived organizational support was not significant. In contrast, the indirect effect through organizational commitment was significant ($B=-0.05$, Boot 95% CI $[-0.07, -0.02]$).

Conclusions : This study provides preliminary evidence that nursing unit managers' ethical leadership was directly associated with lower turnover intention among nurses and was also indirectly associated with lower turnover intention through the serial mediation of perceived organizational support and organizational commitment. In particular, perceived organizational support appeared to reduce turnover intention not through a direct effect, but by enhancing organizational commitment. Therefore, efforts to reduce nurses' turnover intention should focus on strengthening nursing unit managers' ethical leadership, alongside organizational strategies that help nurses perceive organizational support in ways that translate into organizational commitment.

Keywords : Leadership, Nurses, Personnel Turnover



Effects of Nursing Work Environment on Turnover Intention through the Serial Mediating Roles of Presenteeism and Missed Nursing Care among Clinical Nurses: A Nationwide Survey using Proportional Quota Sampling

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Aim : This study aimed to investigate the two-mediator serial mediation effects of presenteeism and missed nursing care on the relationship between the nursing work environment and turnover intention among clinical nurses.

Methods : This study was a descriptive correlational design. A nationwide online survey was conducted using proportional quota sampling. Participants were 220 clinical nurses working at tertiary and general hospitals in South Korea. Data were collected through an online survey from June 24 to July 13, 2026. Data analysis was conducted using SPSS 31.0 and the PROCESS macro version 5.0 Model 6. General characteristics that showed significant differences in the study variables were controlled for as covariates.

Result : Nursing work environment had significant direct effects on presenteeism, missed nursing care, and turnover intention. Presenteeism also had significant direct effects on missed nursing care and turnover intention. The indirect effect of nursing work environment on turnover intention through presenteeism was significant ($B=-0.15$, 95% CI $[-0.24, -0.06]$). In contrast, the indirect effect through missed nursing care was not significant ($B=-0.02$, 95% CI $[-0.15, 0.11]$). The serial indirect effect through presenteeism and missed nursing care was also not significant ($B=0.00$, 95% CI $[-0.02, 0.03]$). In the subgroup analysis by hospital type, the serial indirect effect through presenteeism and missed nursing care was significant among participants from general hospitals ($n = 128$, $B=-0.07$, 95% CI $[-0.166, -0.004]$), unlike those from tertiary hospitals.

Conclusion : This study identified various mediating variables through which nursing work environment reduces turnover intention among hospital nurses. In particular, the serial mediating effect differed according to hospital type. Therefore, tailored strategies that reflect the characteristics of healthcare institutions are needed to reduce turnover intention among hospital nurses. Further research is required to more clearly investigate the serial mediating effect of presenteeism and missed nursing care in the relationship between nursing work environment and turnover intention.

Keywords : Nurses, Work environment, Presenteeism, Personnel Turnover



'Becoming a Nurse': A Lifelong Journey Beyond the Transition to Professional Practice

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Purpose : To reconceptualise becoming a nurse as a lifelong developmental process and develop a Lifespan Transition Framework to inform stage-responsive policies for recruitment, retention, expertise development, and career sustainability.

Methods : This analytical discursive paper critically integrated Schlossberg's Transition Model, Kennedy's Integrated Transition Model, Benner's Novice-to-Expert framework, and Duchscher's Stages of Transition Model with empirical literature on nursing career trajectories, professional identity, and expertise development published from 1974 to 2025, emphasising evidence from 2015 to 2025. Concepts were examined across the career lifespan to identify overlooked transition domains and their implications for nursing management and workforce policy. The extensively theorised undergraduate-to-new-graduate transition was retained as a conceptual anchor but was not re-analysed.

Results : Four interrelated and comparatively underdeveloped transition domains were identified: (1) pre-entry career formation, when nursing aspirations develop during childhood and adolescence; (2) non-traditional entry, when second-career entrants reconstruct professional identity while becoming novices; (3) middle-career transition, involving recurrent development from competence towards expertise, leadership, and clinical wisdom; and (4) late-career transition, when professional identity and contribution may continue through role adaptation, retirement, and post-retirement engagement. These domains form a Lifespan Transition Framework that conceptualises transition as recursive rather than episodic. Adaptive capacities developed in one domain become resources for navigating subsequent transitions, while each domain presents distinct educational, organisational, and policy requirements.

Conclusions : A lifespan perspective shifts workforce policy beyond isolated entry initiatives and short-term graduate retention towards coordinated, stage-responsive workforce systems. The framework provides nursing leaders and policymakers with a basis for strengthening pathways into nursing, sustaining career development, retaining expertise, and preserving professional wisdom across and beyond nurses' working lives.

Keywords : Nursing, Workforce sustainability, Professional identity, Career transition



Factors Associated with Antimicrobial Stewardship Involvement of Clinical Practice Nurses in Tertiary Hospitals

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Purpose : This study aimed to identify factors associated with antimicrobial stewardship involvement among clinical practice nurses working in tertiary hospitals in the Republic of Korea, focusing on knowledge of antibiotic use and antibiotic resistance, work environment, and confidence in antimicrobial stewardship involvement.

Methods : Participants were 147 clinical practice nurses with at least 1 year of clinical experience working in tertiary hospitals in the Republic of Korea. Data were collected from April 6 to April 14, 2026, using a structured online questionnaire and analyzed with descriptive statistics, independent t-test, one-way analysis of variance, Scheffé's test, Pearson's correlation coefficient, and multiple linear regression using the Enter method.

Results : Of the 147 participants, the mean and standard deviation were 14.78 ± 3.50 out of 19 for knowledge of antibiotic use and resistance, 77.35 ± 13.66 out of 116 for work environment, 19.94 ± 5.66 out of 35 for confidence, and 44.06 ± 9.99 out of 65 for antimicrobial stewardship involvement. Involvement differed significantly by working department and performance of antibiotic prescription support tasks, and correlated positively with knowledge, work environment, and confidence. Factors associated with involvement were performing prescription support tasks ($\beta = .16$, $p = .014$), knowledge ($\beta = .28$, $p < .001$), and confidence ($\beta = .56$, $p < .001$), together explaining 46.7% of the variance.

Conclusions : This study is among the first to identify factors associated with antimicrobial stewardship involvement among clinical practice nurses in tertiary hospitals in Korea. Performing antibiotic prescription support tasks, knowledge of antibiotic use and resistance, and confidence were significant factors associated with antimicrobial stewardship involvement, with confidence showing the strongest association. These findings suggest that improving knowledge and confidence, along with establishing organizational and institutional support for clinical practice nurses within a multidisciplinary collaborative system, is needed to enhance antimicrobial stewardship involvement.

Keywords : antimicrobial stewardship, clinical practice nurse, confidence in involvement in antimicrobial stewardship, knowledge of antibiotic use and antibiotic resistance



Understanding Nurses' Workarounds in Pressure Injury Electronic Nursing Records: A Qualitative Study Using the SEWA Framework

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Purpose : Electronic nursing records (ENRs) are essential for documenting pressure injury care and supporting patient safety. However, our previous study identified that nurses frequently adopted workarounds when using pressure injury electronic nursing records (PIs-ENRs), deviating from standardized documentation procedures and potentially compromising documentation quality and workflow efficiency. This study aimed to explore the underlying rationales and contextual factors associated with these workarounds to inform improvements in clinical practice and the design of electronic nursing record systems.

Methods : Three focus group interviews were conducted using an empathy map instrument to explore nurses' rationales for adopting workarounds in PIs-ENRs at a regional hospital in northern Taiwan in 2024. A total of 18 clinical nurses participated. Qualitative content analysis was performed, and the findings were mapped to the revised Sociotechnical Electronic Health Record Workaround Analysis (SEWA) framework. Pain points and workflow challenges associated with the workarounds were further analyzed.

Results : A total of 106 coded rationales for PIs-ENR workarounds were identified. Based on the revised SEWA framework, efficiency was the most frequently reported rationale (n = 57, 53.8%), followed by social norms (n = 24, 22.6%), task-related constraints (n = 17, 16.0%), commitment to patient interaction (n = 7, 6.6%), and system usability (n = 1, 0.9%). Major pain points included excessive treatment-related activities, inadequate staffing, unclear task allocation, frequent revisions to standard operating procedures, and complex or non-user-friendly electronic systems.

Conclusions : Nurses adopt workarounds in PIs-ENRs to cope with heavy workloads, prioritize direct patient care, and overcome limitations of electronic documentation systems. These findings underscore the importance of optimizing ENR design, aligning documentation workflows with clinical practice, and addressing organizational and staffing challenges to improve documentation quality and enhance patient safety.

Keywords : Pressure Injury, electronic nursing records, workarounds, SEWA Framework



The Effect of Internal Marketing on Customer Orientation through the Serial Mediating Roles of Job Satisfaction and Organizational Commitment among Nurses: A Cross-Sectional Survey

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Aim : This study aimed to examine the serial mediating roles of job satisfaction and organizational commitment in the relationship between internal marketing and customer orientation among nurses.

Methods : A cross-sectional survey was used with a descriptive, correlational design. A total of 211 nurses with at least one year of clinical experience, working at a single tertiary hospital in South Korea participated in this study. Data were collected via an online, self-administered questionnaire from March 23 to April 20, 2026. Data were analyzed using SPSS 27.0 and the PROCESS macro version 4.2 (Model 6). General characteristics that showed significant differences or correlations with the study variables were controlled for as covariates.

Result : Result: Internal marketing had significant direct effects on job satisfaction, organizational commitment, and customer orientation. Job satisfaction significantly predicted organizational commitment, which in turn predicted customer orientation; however, the direct effect of job satisfaction on customer orientation was not significant. The indirect effect of internal marketing on customer orientation through job satisfaction alone was not significant ($B = -0.12$, 95% CI $[-0.33, 0.10]$), whereas that through organizational commitment alone was significant ($B = 0.20$, 95% CI $[0.09, 0.33]$). The serial mediating effect through job satisfaction and organizational commitment was also significant ($B = 0.14$, 95% CI $[0.06, 0.24]$).

Conclusion : This study provides evidence that internal marketing perceived by nurses enhances customer orientation through multiple pathways. It has a direct effect on customer orientation, as well as indirect effects through organizational commitment alone and through the serial mediating roles of job satisfaction and organizational commitment. In particular, job satisfaction appeared to improve customer orientation not through a direct effect, but indirectly by enhancing organizational commitment. Therefore, it is necessary to strengthen internal marketing, as well as organizational-level measures that enable job satisfaction to foster organizational commitment. Further multi-hospital studies are needed to generalize the findings.

Keywords : Nurses, Internal marketing, Organizational commitment, Customer orientation



Predictive Performance and Clinical Utility: A Multi-Angle Validation of an Ensemble Model for Intensive Care Nursing Patient Classification

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Purpose : This study developed a model predicting patient classification for nursing care in the intensive care unit using electronic medical records and evaluated robustness and clinical utility through a multi-angle validation framework.

Methods : The study comprised two phases. First, an ensemble of multilayer perceptron, XGBoost, and LightGBM was trained on a random patient-level split to predict the subsequent day's nursing workload classification (four classes, with the two lowest classes merged) using features including vital signs, nursing assessments, and laboratory data parsed at six-hour checkpoints. Interpretation included Shapley values, permutation importance, and ablation studies. Second, it was validated against a persistence baseline, a chronological-split test with rolling-window retraining, and patient-level bootstrap uncertainty.

Results : Data from a single tertiary hospital in 2022-2026 included 12,756 patients, 1,969,299 hourly records, and 195 features, with class prevalences of 12–14% (classes 1 and 2), 65% (class 3), and 22% (class 4). The ensemble model achieved a macro F1 score of 0.629. Ventilator-related and nursing care-intensity features ranked highest in Shapley importance and showed a significantly larger performance drop when removed than an equal number of random features. Among patients with a prior-day classification (85.8%), the persistence baseline outperformed the ensemble model (macro F1: 0.878 vs 0.629). Incorporating the previous day's classification as a feature raised the ensemble model's macro F1 to 0.822 but dropped classification change-detection accuracy from 48.2% to 3.3% ($p < 0.0001$). Under a chronological split, macro F1 fell from 0.629 to 0.445, recovering to 0.566 with rolling-window retraining. Patient-level bootstrapping showed eightfold greater uncertainty than seed variation.

Conclusions : Performance scores did not guarantee clinical effectiveness. The macro F1 gains came at the cost of detecting classification changes important in nursing staffing. Random-split training did not generalize over time, and bootstrapping revealed higher uncertainty than seed variation. These trade-offs should be weighed before clinical implementation.

Keywords : Intensive care units, Machine learning, Nursing patient classification



An mHealth-based Lifestyle Intervention for Metabolic Syndrome Management Using the Seoul Metabolic Challenge App: Study Protocol of a Randomized Controlled Trial

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Purpose : This study aims to evaluate the effectiveness of 'Metabolic Challenge 9988,' — a metabolic syndrome-targeted in-app integrated into 'Wrist Doctor 9988,' a population-based mobile health platform operated by the Seoul Metropolitan Government— on metabolic syndrome risk and heart-healthy lifestyle outcomes among community-dwelling middle-aged adults. We hypothesized that the intervention group would achieve greater reductions in metabolic syndrome prevalence and greater improvements in motivation and heart-healthy lifestyle behaviors than the control group after 12 weeks.

Methods : The present study is a two-arm, parallel-group randomized controlled trial (Trial no. ISRCTN10351636). We will recruit 132 adults aged 50–64 years with metabolic syndrome from S community health center in Seoul, South Korea, allocated 1:1 by gender- and medication use-stratified block randomization. The intervention group will receive the standard metabolic syndrome management program plus the 'Metabolic Challenge 9988,' delivering daily personalized health missions targeting physical activity, dietary behaviors, and self-monitoring with gamified engagement tracking. The control group will receive the standard program only. The primary outcome is metabolic syndrome prevalence; secondary outcomes include motivation and heart-healthy lifestyle behaviors, assessed at baseline and 12 weeks. This study was approved by the Institutional Review Board of Korea University (No. KUIRB-2026-0292-01).

Results : The intervention group is expected to demonstrate greater reductions in metabolic syndrome prevalence and greater improvements in motivation and heart-healthy lifestyle behavior than the control group at 12 weeks.

Conclusions : This study is expected to generate evidence for integrating mHealth platforms into community-based metabolic syndrome management. Findings will directly inform scalable, policy-embedded intervention strategies for adults at cardiometabolic risk.

Keywords : community health nursing, metabolic syndrome, mobile health applications, randomized controlled trial



Impact of Incentive Frequency on Engagement with a Couple-Based Smoking Cessation Web App

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Purpose : While increasing evidence demonstrates that eHealth interventions are effective to deliver smoking cessation interventions, one of the challenges is to keep the users engaged and motivated throughout the quitting process. This study was to determine the optimal incentive frequency required to maximize participant engagement in a web-based, couple-based smoking cessation intervention.

Methods : In a 2-arm quasi-experimental study (N=42), Arm 1 (n=25) received gift cards twice (at baseline and program completion), while Arm 2 (n=17) received gift cards ten times (after completing each session). Engagement was assessed by the number of sessions completed (out of 10), time spent per session, and study retention rates. Smoking behaviors were evaluated via self-reported 7-day point prevalence abstinence at the end of the intervention. Data were analyzed using chi-square and t-tests.

Results : Smoking partners had a mean age of 37.7 years (± 10.3); 42.9% were White, 42.9% Black, 52.4% held a college degree, and 59.5% were employed full-time. Overall, couples completed a mean of 6.9 sessions (± 2.9). Arm 2 showed a higher descriptive completion rate, though the difference was not statistically significant (Arm 1: 6.6 ± 3.1 , Arm 2: 7.4 ± 2.7 , $p = .331$). Retention trajectories suggested distinct attrition patterns between groups. Arm 1 spent significantly more time per session than Arm 2 during the pre-quit phase of the intervention ($p = .008 - .025$). End-of-program quit rates did not statistically differ between groups (Arm 1: 36%, Arm 2: 56%, $p = .653$).

Conclusions : While incentive frequency did not significantly alter overall session completion or quit rates, it did alter the time spent per session (engagement intensity). These findings can inform design strategies to optimize participant engagement in eHealth smoking cessation interventions.

Keywords : eHealth, Smoking cessation, Couple-based, Engagement, Incentive



From Fidelity to Equity: Implementing Nurse-Led Telecare for Post-Acute Stroke Follow-Up

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Purpose : Nurse-led telecare may improve the accessibility and continuity of post-acute stroke follow-up, but evidence regarding its implementation under routine clinical conditions remains limited. This study examined the implementation, clinical effects, and implications for equitable scale-up of a nurse-led telecare model for recently discharged stroke survivors.

Methods : A type 2 hybrid effectiveness–implementation randomized controlled trial was conducted in Hong Kong. Recently discharged stroke survivors were randomized 1:1 to receive three months of nurse-led follow-up through telecare or standard onsite consultations. Implementation outcomes included reach, fidelity, and patterns of service delivery. The primary clinical outcome was post-stroke disability, measured using the simplified modified Rankin Scale at six months. Secondary outcomes included blood pressure, medication adherence, healthcare utilization, and stroke recurrence.

Results : Between January 2023 and February 2025, 200 participants were randomized to telecare (n=99) or onsite follow-up (n=101). The telecare intervention was delivered with high fidelity, exceeding 90% of the planned protocol components. However, the characteristics of enrolled participants suggested inequitable reach, with greater participation among younger and more highly educated stroke survivors. Non-inferiority was not established for post-stroke disability because the 95% confidence interval crossed the prespecified margin. Nevertheless, compared with onsite care, telecare produced greater reductions in systolic blood pressure ($p=0.001$) and diastolic blood pressure ($p=0.002$) at three months and better overall medication adherence ($p=0.008$). Participants receiving telecare also experienced a smaller increase in inpatient length of stay ($p=0.028$). Stroke recurrence did not differ between groups.

Conclusions : Nurse-led post-stroke telecare can be implemented with high protocol fidelity and may strengthen cardiovascular risk-factor management and medication adherence. However, the intervention did not demonstrate non-inferiority for functional disability, and its reach appeared to favour participants with greater sociodemographic and digital resources. Future implementation should incorporate digitally inclusive recruitment, tailored technological support, and blended telecare–onsite pathways to improve equity, sustain clinical benefits, and support wider adoption

Keywords : telecare, stroke, nurse consultation, implementation science



Effect of Integrated Internet-Based Acceptance and Commitment Therapy and Behavioral Activation Among Ethnic Minority Young Adults With Alcohol Use Disorder in Hong Kong: Pilot Randomized Controlled Trial

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Purpose : This study aimed to evaluate the feasibility measures. The secondary objective aimed to examine its effectiveness on cumulative abstinence duration, drinking days, drinks per drinking day, heavy drinking days, alcohol abstinence self-efficacy, readiness to change, psychological flexibility, and everyday discrimination score.

Methods : A pilot parallel randomized controlled trial was conducted. Forty young ethnic minorities who can speak English and have Alcohol use disorder (AUD) based on DSM-5 criteria were recruited and randomly assigned to either Acceptance and Commitment Therapy with Behavioral Activation (ACT-BA) or Treatment-as-Usual (TAU) using a computer-generated random number. Outcomes were collected at baseline and postintervention. The analysis included descriptive statistics, independent samples t test, chi-square test, generalized estimating equations with multiple imputations. To further supplement findings, a qualitative interview was conducted.

Results : A total of 148 ethnic minority young adults were screened, with an eligibility rate of 38.5%. Of these, 85.9% (49/57) consented, and among them, 81.6% (40/49) were randomized to either the ACT-BA or TAU. The retention rate was 82.5% (33/40), of which 75% (30/40) completed the postintervention assessment. The adherence rate was 81.7% (4.9/6 sessions), and participants reported no adverse effects. Finally, 40 participants (20 for each group) were analyzed. The intervention group showed a promising improvement in drinking days ($B=-4.12$, 95% CI -8.10 to -0.13; $P=.04$, $d=-0.57$), drinks per drinking day ($B=-1.56$, 95% CI -3.06 to -0.07; $P=.04$, $d=-1.89$), alcohol abstinence self-efficacy ($B=11.95$, 95% CI 0.10-23.81; $P=.048$, $d=0.81$), and Acceptance and Action Questionnaire-version II ($B=-6.41$, 95% CI -12.77 to -0.06; $P=.04$, $d=-0.65$).

Conclusions : This study, unlike existing evidence, presents an innovative integration of ACT and BA delivered via an internet-based self-help format. The findings contribute to the field by providing preliminary evidence that this integrated intervention is feasible and promising for AUD. A fully randomized controlled trial to further examine its effectiveness in real world is necessary.

Keywords : acceptance and commitment therapy, alcohol addiction, alcohol use disorder, behavioral activation, ethnic minority young adults



Limited Opportunities for Shared Decision Making About Self-Care: Experiences of Patients with Multiple Chronic Conditions in Primary Care

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Purpose : Shared decision making (SDM) is essential in multimorbidity care because patients with multiple chronic conditions (MCC) must manage complex self-care activities, which can create a substantial burden. However, although patient participation is critical for meaningful SDM, little is known about patients' experiences of SDM participation when discussing self-care planning in primary care. This study aimed to describe how patients with MCC experienced SDM participation in self-care planning during primary care encounters.

Methods : The descriptive qualitative study conducted in primary care settings with 13 adults diagnosed with at least two chronic conditions. They were included if they had made changes to self-care practices or treatment regimens following discussion with clinicians within the preceding three months. Data were analyzed using Braun and Clarke's thematic analysis.

Results : Four themes emerged. First, participants reported that consultations focused on numerical indicators and prescriptions, with self-care difficulties rarely discussed. They attributed self-care non-adherence to a lack of personal willpower rather than viewing them as issues that could be discussed and negotiated with clinicians. Second, although participants had accumulated experiential knowledge through years of illness management, they rarely shared it because they regarded it as less legitimate than clinical knowledge. Third, participants reported that power dynamic with clinicians and time pressure prevented them from participating self-care planning. Fourth, participants understood SDM primarily as accepting clinician-led recommendations or as a process needed only when their condition worsened.

Conclusions : Patients' participation in SDM for self-care planning was limited because patients undervalue their experiential knowledge and perceived self-care challenges as personal problems rather than legitimate topic for discussion. Psychological safety in patient-provider relationships and consultation structure were also hindered patients' participation. Interventions should prepare patients to discuss and negotiate self-care with clinicians and support clinicians in creating an environment that supports collaborative self-care planning.

Keywords : Shared decision making, Multimorbidity, Self-care, Primary care



How Does Shared Decision Making Relate to Self-Care in Multimorbidity? The Role of Self-Efficacy

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Purpose : Patients with multimorbidity have to simultaneously adhere to multiple, often complex, self-care activities. Shared decision making (SDM) is suggested as a strategy for addressing their self-care challenges. However, research on how SDM can improve self-care in this population remains limited. Self-efficacy may help explain this relationship because SDM can allow patients and clinicians to develop feasible self-care plans that reflect patients' preferences and circumstances, potentially strengthening self-efficacy in managing their conditions. Therefore, this study aimed to examine the mediating role of self-efficacy in the relationship between SDM and self-care among patients with multimorbidity.

Methods : This cross-sectional study included 149 patients in primary care who were aged 40 years or older and had at least two chronic conditions. SDM, self-efficacy, and self-care were measured using the CollaboRATE, Self-Efficacy for Managing Chronic Disease Scale, and Partners in Health Scale, respectively. Pearson's correlation coefficients were used to examine relationships among the three variables. The mediating effect was tested using the PROCESS macro (Model 4) after adjusting for covariates (age, education, economic status, disease burden, depressive symptoms, and cognitive function).

Results : Higher levels of SDM were significantly associated with greater self-efficacy ($r=0.19$) and better self-care ($r=0.20$). Greater self-efficacy was associated with better self-care ($r=0.51$). After adjusting for covariates, the indirect effect of SDM on self-care via self-efficacy was significant (indirect effect = 1.39, 95% Bootstrap confidence interval [CI]=0.30, 2.62), while the direct effect was not significant (direct effect=1.78, 95% CI=-0.25, 3.81).

Conclusions : We found that self-efficacy mediated the relationship between SDM and self-care in patients with multimorbidity. This finding suggests that collaborative approach may contribute to better self-care by supporting patients' self-efficacy in managing chronic conditions.

Keywords : shared decision making, self-efficacy, self-care, multimorbidity, mediator



The Effects of Empowerment, Health Literacy, and Social Support on Self-Care Behaviors in Adults with Type 2 Diabetes Using Continuous Glucose Monitoring

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Aim(s) : Continuous glucose monitoring (CGM) is increasingly used to support diabetes self-management. However, evidence regarding factors associated with self-care behaviors among adults with type 2 diabetes using CGM remains limited. Therefore, the purpose of this study was to describe self-care behaviors among adults with type 2 diabetes using CGM and to identify the associations between empowerment, health literacy, social support, and these behaviors.

Methods : A descriptive correlational study was conducted with 207 adults with type 2 diabetes who had used CGM for at least one month. Data were collected through an online survey from October to November 2025. Descriptive statistics summarized participants' demographic and disease characteristics. Pearson correlation coefficients assessed relationships between variables. Hierarchical multiple regression analysis identified correlates of self-care behaviors.

Results : The mean self-care behaviors score was 4.90 ± 1.39 . Self-care behaviors showed positive correlations with empowerment, health literacy, and social support. Hierarchical regression analysis revealed that age, marital status, household type, education, reason for first using CGM, type of treatment, empowerment, and health literacy were significantly associated with self-care behaviors. The final model explained 69.9% of the variance in self-care behaviors. Among the correlates, empowerment ($\beta = .371, p < .001$) and health literacy ($\beta = .300, p < .001$) had the strongest associations with self-care behaviors.

Conclusions : This study highlights that self-care behaviors among adults with type 2 diabetes using CGM are closely associated with empowerment and health literacy. Thus, CGM-based diabetes management should focus not only on device use but also on strengthening patients' self-care capacity and their ability to understand and use health information. Education and nursing interventions that enhance empowerment and health literacy may support effective self-care behaviors in this population.

Keywords : Continuous glucose monitoring, Health literacy, Self-care behaviors, Type 2 diabetes



When Care Feels Like a Violation: Measuring Patients' Sexual Dignity Discomfort in Healthcare Settings

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Purpose : Sexual dignity discomfort is an under-recognized patient experience arising from healthcare encounters that often threaten the sexual dimension of patient dignity. Despite its importance in patient-centered care, no validated instrument is available to assess this construct. The purpose of this study was to develop and validate the Sexual Dignity Discomfort Scale for assessing patients' experiences of sexual dignity discomfort in healthcare encounters.

Methods : Items were derived from a prior concept analysis and refined through content and face validity assessments involving seven experts and 16 members of the general population. A community-based online survey was conducted among 500 adults aged 19–64 years who had used healthcare services within the previous year. Structural validity, construct validity, internal consistency, and measurement invariance across gender were evaluated.

Results : The final scale comprised 22 items across four factors: shame and exposure discomfort, loss of bodily agency, disrespectful and insensitive care, and uncertain sexual boundaries and privacy. The four-factor model showed acceptable fit and excellent internal consistency ($\alpha = .972$, $\omega = .973$). Scores were significantly and negatively correlated with overall satisfaction and intention to reuse healthcare services, perceived quality of physician and nursing services, and perceived kindness of healthcare staff. Full measurement equivalence across gender was established.

Conclusions : Although the importance of preserving patient dignity has long been emphasized in nursing practice, discussions specifically addressing the sexual dimension of patient dignity remain relatively scarce. This is perhaps because shame has often been regarded as an unavoidable feeling that patients must endure to be treated. This scale, however, offers a reliable and valid way to measure sexual dignity discomfort across healthcare settings, supporting systematic assessment of patients' experiences and the development of dignity-preserving care.

Keywords : Dignity, Embarrassment, Patient-centered care, Shame



The Effect of School Smoking Prevention Programs on Delaying Smoking Initiation among Adolescents According to the School Tobacco-Social Environment: A Longitudinal Study for Tailored Policy Design

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Purpose : Schools are key settings for delaying smoking initiation. In Korea, selected schools have received additional funding as enhanced-program schools for specialized activities. However, effects of school smoking prevention program remain inconsistent, suggesting program depends on the social environment in which they are implemented. This study aimed to compare effects of enhanced programs with other school-level policies and examine whether these effects differed according to the school social environment.

Methods : This longitudinal study used waves 1–5 of the Korean Youth Health Behavior Panel Survey, including 5,046 students. The outcome was smoking initiation, and the independent variables were the type of school smoking prevention program, the presence of smoking-related school rules for students and staff, and the presence of non-smoking area notices. Analyses were stratified by school secondhand smoke exposure. Adjusted survival curves were estimated for each policy, and restricted mean survival time difference (RMSTD) was calculated. Stratified RMSTDs compared policy effects within secondhand smoke exposure subgroups.

Results : Enhanced-type schools were associated with longer smoking-free duration only in lower-exposure schools (RMSTD = 8.1 days). In higher-exposure schools, staff smoking rules were associated with longer duration, whereas student smoking rules were associated with shorter duration (RMSTD = 14.2 and -11.3 days, respectively). Signboards for outdoor non-smoking areas were associated with shorter duration in both higher- and lower-exposure schools (RMSTD = -12.9 and -8.7 days, respectively).

Conclusions : The observed effect of enhanced programs among students exposed to secondhand smoke suggests that comprehensive and intensive interventions may be needed in schools where a smoke-free environment has not been sufficiently established. In contrast, among unexposed students, clearly defined staff smoking norms may be important for sustaining such an environment. These findings indicate that community health nurses should consider the existing tobacco-related social environment when designing policies and allocating resources, rather than uniformly expanding a single type of program.

Keywords : Smoking initiation, adolescents, school smoking prevention program, secondhand smoke, school tobacco-social environment, restricted mean survival time, policy evaluation



Is Classroom-based Teaching Better Than Self-learning Approach on a Gather.town Game-based Online Platform? A Nurse-led Mental Health Literacy Study

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Purpose : Mental health problems remain stigmatized with limited help-seeking resources utilized by adolescents. Nurses are accountable to enhance adolescents' mental health literacy through various clinical or community settings. This study evaluated high-school participants' perceptions and outcomes of a nurse-led program on the Gather.town platform for mental health promotion.

Methods : A quasi-experimental study was conducted in a junior high school in northern Taiwan. The intervention group participated in a two-week classroom-based mental health literacy program delivered via Gather.town, while the control group received self-learning material to practice the Gather.town contents. Data on mental health literacy, platform usability, and learning experiences were collected at baseline, post-intervention, and 3-month follow-up. Descriptive statistics and generalized estimating equations (GEE) were used for data analysis.

Results : Among 77 junior high school students, participants generally revealed positive feedback of Gather.town. The control group reported slightly higher ratings for accessibility and ease of use, whereas the intervention group showed greater interest and enjoyment in the learning experience. Although mental health literacy was similarly enhanced across T0-T3 in both groups, we found significant group-by-time interaction effects for knowledge of mental health problems ($p = .028$), help-seeking intentions ($p = .022$), and overall mental health literacy ($p = .047$) in GEE results, indicating different trajectories of change between the two learning approaches, with earlier improvements observed in the intervention group.

Conclusions : The Gather.town online-learning program of the study was generally acceptable and accessible by high-school students. Both classroom-based and self-directed learning approaches were associated with improvements in mental health literacy. However, significant differences in change trajectories indicated earlier gains observed in the classroom-based learning. These findings suggested that Gather.town was a useful platform for delivering mental health literacy in the school setting.

Keywords : Digital mental health, game-based online learning, mental health literacy, nurse-led



Developmental Reorganization of Adolescent Health Lifestyle Profiles Across School Transitions

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Purpose : This study examined how adolescent health lifestyle profiles are developmentally reorganized across school transitions and whether transition trajectories are shaped by gender and socioeconomic structural factors.

Methods : Data were drawn from three waves of the Korea Children and Youth Panel Survey 2018 spanning elementary, middle, and high school stages (N = 2,420). Latent profile analysis identified health lifestyle profiles based on sleep duration, breakfast frequency, physical activity, and smartphone overuse. Latent transition analysis examined profile transitions across school stages, stratified by gender. Parental education, perceived household income, and family structure were included as socioeconomic structural factors.

Results : Three health lifestyle profiles were identified: Healthy-Consistent-Lifestyle, Mixed-Lifestyle, and Risk-Dominant-Lifestyle. Across school stages, Healthy-Consistent-Lifestyle declined markedly from 63.3% to 15.5%, whereas Risk-Dominant-Lifestyle increased from 11.2% to 61.0%. The dominant risk behavior within Risk-Dominant-Lifestyle was developmentally reorganized, shifting from breakfast skipping in elementary school to smartphone overuse in middle school, and subsequently to physical inactivity in high school. The greatest profile mobility occurred during the elementary-to-middle school transition. During the middle-to-high school transition, Risk-Dominant-Lifestyle persistence was substantially greater among girls than boys (71.7% vs. 37.9%). Lower parental education and household income were significantly associated with higher odds of the Risk-Dominant-Lifestyle profile during elementary school.

Conclusions : Adolescent health lifestyles are developmentally reorganized across school transitions, with unhealthy lifestyle patterns becoming progressively entrenched by high school. These findings underscore the need for gender-responsive interventions during adolescence and early, socioeconomically targeted prevention strategies to avert the emergence and consolidation of Risk-Dominant lifestyles.

Keywords : Adolescent behavior, Healthy lifestyle, School transitions, Latent transition analysis, Gender differences, Socioeconomic factors



Feasibility of the Mindful Digital Buddies Programme: A School-Based Mindfulness and Art Therapy Intervention with mHealth Parent Support for Enhancing Digital Resilience in Hong Kong School-Aged Children

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Purpose : This pilot study aimed to evaluate the feasibility, acceptability, and preliminary effectiveness of the Mindful Digital Buddies Programme, a school-based intervention integrating mindfulness and expressive art therapy with an mHealth parent support group, to enhance digital resilience and psychosocial wellbeing among Hong Kong school-aged children (aged 10–12).

Methods : A quasi-experimental pre-post design was conducted in two primary schools. Sixty-four children (intervention n=34; control n=30) and their parents participated. The intervention group received eight weekly 1.5-hour mindful-art workshops and a WhatsApp parent support group. The control group received a one-hour health talk and pamphlet. Primary outcome was digital resilience measured by the Chinese version of the Digital Resilience Scale for Adolescents (DRS-A). Secondary outcomes included emotion regulation (ERQ-CA), parent-child relationship quality (CPCSQS), parental internet monitoring (PMIUQ), and online risk knowledge. Data were analysed using ANCOVA adjusting for baseline scores. Feasibility was assessed using Bowen et al's framework, incorporating recruitment, retention, fidelity, and participant satisfaction.

Results : The programme achieved 100% completion rate and high satisfaction (children 13.9/20; parents 18.7/20). The intervention group showed significantly greater improvement in digital resilience compared to control with medium effect ($F(1,60) = 6.39, p = 0.014, \text{partial } \eta^2 = 0.096$). However, parent-child relationship scores decreased significantly in the intervention group ($p = 0.007$). No significant between-group differences were found in parental internet monitoring or emotion regulation subscales. Children participants requested more interactive activities in the school-based workshops.

Conclusions : The Mindful Digital Buddies Programme is feasible and acceptable in primary school settings and demonstrates promising medium effects on children's digital resilience. The integration of school-based mindful-art activities with mHealth parent support offers a scalable, theory-driven model. Future iterations should address potential temporary impacts on parent-child relationship quality. These findings will inform protocol refinement for a larger definitive trial.

Keywords : art therapy, digital resilience, mindfulness, school-based intervention, mHealth parent support



Lived experiences of post-traumatic growth in adolescents and young adults after heart transplantation: A phenomenological study

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Purpose : To explore the lived experiences of post-traumatic growth among adolescents and young adults (AYAs) after heart transplantation and to understand their adaptation and return to everyday life.

Methods : A descriptive phenomenological study grounded in Merleau-Ponty's philosophy of embodied perception was conducted. Semi-structured interviews were held with 11 AYAs who were at least 6 months post-heart transplantation between January and August 2025. Data were analysed using a descriptive phenomenological approach. This study followed the COREQ checklist.

Results : Post-traumatic growth after heart transplantation emerged as a dynamic process of returning to life, captured by the core theme of living anew with a transplanted heart. Four themes were identified: (1) adaptation and meaning after rebirth; (2) body-centred life reconstruction; (3) mind-body awareness in the context of illness uncertainty; and (4) interpersonal connections and life reconstruction shaped by support and resources.

Conclusions : Heart transplantation was experienced as a transformative event marked by gratitude after surviving a life-threatening illness. Participants continued to adapt to physical limitations and psychosocial challenges related to relationships, social life, education, and employment. Through adjustment to their embodied selves and support from families and external resources, they gradually reconstructed everyday life and developed future aspirations.

Keywords : Adolescents and young adults, heart transplantation, post-traumatic growth, phenomenology



Parental Awareness and Attitudes Towards Adolescent Mental Health in Arab Countries: A Scoping Review

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Purpose : To map the existing evidence on parental awareness and attitudes toward adolescent mental health in Arab League member states, and to identify recurring themes across studies.

Methods : A scoping review was conducted following the Arksey and O'Malley framework, refined by Levac and the Joanna Briggs Institute (JBI) guidance, and reported according to the PRISMA Extension for Scoping Reviews (PRISMA-ScR). PubMed, CINAHL, and Embase were searched in April 2026 for English-language studies involving parents or caregivers of adolescents aged 10–19 years conducted in Arab League member states. Of 7,170 records identified, 5,732 remained after duplicate removal, 139 full-text articles were assessed for eligibility, and 18 studies met the inclusion criteria.

Results : The 18 included studies represented eight Arab League member states and comprised 10 qualitative studies, 7 quantitative studies, and 1 mixed-methods study. Four key themes were identified: (1) parental awareness and mental health literacy; (2) parental attitudes, stigma, and help-seeking; (3) caregiver burden and parental experiences; and (4) family support and communication. Parental awareness and attitudes toward adolescent mental health reflected varying levels of mental health literacy, stigma, and cultural beliefs, associated with recognition of mental health problems and professional help-seeking. Parents and caregivers frequently reported emotional burden, psychological distress, and uncertainty while supporting adolescents with mental health concerns. Family support and open communication were consistently identified as facilitators of adolescent well-being and engagement with care, whereas limited mental health services and socioeconomic challenges restricted access to appropriate support.

Conclusions : Across the included studies, parental awareness and attitudes were described as shaping adolescents' recognition of mental health problems, help-seeking, and access to care across Arab countries. Strengthening parental mental health literacy, reducing stigma, and promoting supportive family communication are priorities for intervention development. Further research is needed to address evidence gaps across Arab League states and inform culturally appropriate family-centred mental health strategies.

Keywords : Arab, Health knowledge, attitudes, practice, Help-seeking behavior, Mental health, Parents



Effects of Web-based Virtual Reality Simulation Education for Nursing Students: A Multicenter Randomized Controlled Trial

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Purpose : This study examined the effects of web-based virtual reality simulation among nursing students based on Bloom's taxonomy.

Methods : A multicenter randomized controlled trial was conducted across five universities in South Korea. The final analysis included 35 participants in the experimental group and 37 in the control group. The web-based virtual reality simulation was developed using 360° camera footage based on Kolb's experiential learning theory and designed to help learners identify potential errors and reflect on appropriate responses through videos. The educational content consisted of two patient safety scenarios: patient identification and verbal order. The experimental group received web-based virtual reality simulation education, whereas the control group received web-based lecture education, both accessible for five days. Outcomes included patient safety knowledge, learning transfer motivation, learning self-efficacy, and patient safety nursing performance measured at three time points, and cognitive load measured once. Patient safety knowledge was measured using true-false items developed for this study. Learning transfer motivation and learning self-efficacy were measured using 7-point Likert scales developed by Ayres (2005). Patient safety nursing performance was evaluated using written responses to clinical scenario-based questions. Cognitive load was measured using the NASA Task Load Index. Linear mixed models and an independent t-test were used.

Results : Both groups showed significant improvements over time in all four repeatedly measured variables (all time effects, $p < .01$). Group-by-time interactions were observed only in the verbal order domain of patient safety nursing performance ($F = 3.67$, $p = .028$), indicating greater improvement in the experimental group. Cognitive load did not differ significantly between the two groups ($t = 0.29$, $p = .800$).

Conclusions : Web-based virtual reality simulation demonstrated advantages specifically in performance-based learning outcomes without increasing cognitive load. These findings suggest that web-based virtual reality simulation can be selectively incorporated into nursing education for topics that require contextual clinical performance.

Keywords : Nursing education, Patient safety, Virtual reality simulation, Web-based learning



Development and Evaluation of a Burn Care Education Program Using Multiple Instructional Modalities for Nursing Students

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Purpose : Burn care requires integrated clinical judgment and the ability to address patients' physiological, psychological, and social needs throughout the recovery process. However, burn care education in undergraduate nursing programs is often fragmented and theory-driven, limiting opportunities for students to integrate knowledge with clinical performance across the burn care continuum. This study developed and evaluated a burn care education program that integrated storytelling, lectures, virtual reality-based skills practice, and scenario-based simulation through a continuous patient narrative spanning the burn care continuum.

Methods : A sequential explanatory mixed-methods design was employed. The program was developed using Gagné's instructional framework. Educational content was derived from a literature review and refined through expert validation. In the quantitative phase, a non-equivalent control group pretest-posttest design was conducted with 55 nursing students (experimental: $n = 28$; control: $n = 27$). The experimental group received the burn care education program, whereas the control group received conventional lecture-based education. Outcomes included knowledge, attitudes, self-efficacy, and clinical performance. In the qualitative phase, focus group interviews were conducted with participants in the experimental group and analyzed using thematic analysis.

Results : Analysis of covariance controlling for baseline scores revealed significantly higher post-intervention knowledge, self-efficacy, and clinical performance scores in the experimental group, with large effect sizes (all $p < .001$). Attitude scores did not differ significantly between groups ($p = .141$). Thematic analysis identified three themes: expanding perspectives from disease-focused to person-centered care, building confidence and reducing fear through hands-on experiences, and developing a comprehensive understanding of the burn care continuum.

Conclusions : The burn care education program enhanced nursing students' knowledge, self-efficacy, and clinical performance while promoting person-centered care. The findings suggest that a continuous patient narrative can effectively connect multiple instructional methods in burn care education.

Keywords : burn care; mixed methods; nursing education; nursing students



Comparing the Educational Effectiveness of 2D Video and 3D Virtual Reality in Learning Personal Protective Skills for Isolated Patient Care

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Purpose : This study aims to compare the effectiveness of virtual reality (VR) and two-dimensional (2D) instruction on nurses' Personal Protective Equipment (PPE) performance, crisis management in isolation rooms, and overall learning experiences.

Methods : This true experimental study randomly assigned participating nurses to either a virtual reality (VR) or a two-dimensional (2D) video learning group. Self-developed instructional cases, demonstrating high content validity (CVI > 0.99), were implemented to address PPE procedures and crisis management within isolation wards. To comprehensively compare learning effectiveness, we assessed participants' cognition and stress levels (via pre- and post-tests), clinical skills (using checklists), fluorescent contamination rates, and user experiences. Data were analyzed using SPSS software.

Results : A total of 238 nursing staff participated between May and September 2025. Both the VR and 2D groups exhibited significant post-instruction improvements in cognition, skills, and stress (all $p < .001$). Compared to the 2D group, the VR group demonstrated superior cognitive gains ($p < .001$) and lower hand contamination ($p = .035$), particularly during glove removal. While PPE skills approached ceiling effects in both cohorts, overall stress reduction did not differ significantly between groups. However, VR training yielded a significantly greater reduction in infection-control-related anxiety (MD = -2.2, SD = 3.6 vs. MD = -1.1, SD = 3.0 for 2D; $p = .017$). Both modalities received high satisfaction and learning confidence ratings, with slightly higher scores observed in the VR group.

Conclusions : This study demonstrates that both VR and 2D multimedia instruction effectively enhance nurses' knowledge, procedural skills, and stress management in high-risk infectious disease care, while delivering positive learning experiences. Notably, VR provides superior benefits for procedural skill refinement, significantly reducing hand contamination risks and alleviating infection-control-related anxiety.

Keywords : virtual reality, two-dimensional (2D) video, Isolated Patient Care, Personal Protective Equipment



Using immersive virtual reality simulation to enhance nursing students' critical thinking in clinical nursing skills education

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Purpose : Immersive virtual reality simulation has emerged as an alternative method for clinical nursing skills education. However, limited research has investigated its methodological influence on nursing students' critical thinking. A reflective practice should be carried out to enhance the understanding building on the experience that the researchers can draw on. This study aims to present an extended discussion on the findings of authors' recent research on how the immersive virtual reality simulation could affect students' critical thinking in clinical nursing skills education.

Methods : A post-project reflection methodology was performed by using Jasper's ERA Reflective Model in which the authors navigated the experience and findings of their earlier quasi-experimental mixed-methods study on 595 first-year undergraduate nursing students in a 13-week Autumn Term 2024 for a clinical nursing skills course at a local university in Hong Kong, China. Six fundamental stages of reflective process were carried out. Through re-focus on the topic, we discussed how to turn the thoughtful framework into action.

Results : Three themes were generated after employing Jasper's ERA reflective model. They included: 1) feasibility of using immersive virtual reality simulation in learning clinical nursing skills; 2) developing critical cases to promote learning; and 3) promoting students' learning instinct by technology.

Conclusions : This post-project reflection illustrates critical thinking may not be directly developed through the model of immersive virtual reality simulation technology. However, with stronger features of case studies and problem-solving opportunities, it places students in dynamic and interactive situations which enhances students making judgement and decision which benefit the critical thinking capability.

Keywords : critical thinking, reflective practice, immersive virtual reality simulation, clinical nursing skills education



The mediating effect of autonomy in the relationship between nurse practitioners' scope of practice policy and job satisfaction

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Purpose : Nurse practitioners (NPs) play a pivotal role in addressing primary care shortage in the United States. Although scope-of-practice (SOP) policy has been linked to NP autonomy and autonomy to job satisfaction, the mediating role of autonomy between SOP policy and job satisfaction has not been empirically examined. Therefore, this study examined the direct effect of SOP policy on job satisfaction and the mediating effect of NP autonomy on the relationship between primary care NPs.

Methods : This cross-sectional study used data from the 2022 National Sample Survey of Registered Nurses (NSSRN; N = 6,063). SOP policy was categorized as full, reduced, or restricted. Job satisfaction was measured using a four-point Likert scale, and autonomy was operationalized using five indicators of independent clinical practice. Mediation analysis was conducted using PROCESS Macro Model 4 with 5,000 bootstrap resamples.

Results : SOP policy had no significant direct effect on job satisfaction. However, autonomy scores differed significantly across SOP policy groups, with the highest scores observed in full practice states ($F = 258.48, p < .001$). NP autonomy was positively associated with job satisfaction ($B = 0.02, p = .041$). Bootstrapping confirmed significant indirect effects of both reduced and restricted SOP on job satisfaction through NP autonomy.

Conclusions : SOP policy indirectly influences NP job satisfaction through autonomy. Expanding SOP policies to full practice authority may enhance NP autonomy and improve workforce outcomes. Institutional reforms are required to ensure that regulatory changes translate into meaningful improvements in practice autonomy.

Keywords : autonomy, job satisfaction, nurse practitioners, scope of practice policy



Structural Change of Policy Networks and Legislative Breakthrough: A 20-Year Discourse Network Analysis of Nursing Legislation in South Korea

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Purpose : The global significance of the nursing workforce is widely recognized; however, in physician-dominated healthcare systems, interprofessional boundary conflicts can constrain nursing autonomy and impede expansion of the scope of practice. In South Korea, a dedicated nursing law was first proposed in 2005 but repeatedly stalled before its eventual enactment in 2024. This study examined how discourse network structures surrounding nursing legislation evolved over two decades, focusing on policy-actor interactions, brokerage roles, and issue diversification during periods of legislative deadlock, transition, and eventual breakthrough.

Methods : We conducted a longitudinal discourse network analysis of 2,876 parliamentary speeches from the South Korean National Assembly across three periods: deadlock (2005–2006), transition (2019–2023), and breakthrough (2024). Speakers were classified into five actor types according to institutional role. Latent Dirichlet allocation identified eight discourse themes. Two complementary networks were constructed: actor networks based on co-participation in meetings and issue networks based on topic similarity. Network-level density and centralization, together with degree and betweenness centrality, were calculated and compared across periods to identify structural patterns associated with policy change.

Results : Actor network density increased from .545 during deadlock to .663 during breakthrough, while centralization decreased from .050 to .012, indicating a shift from concentrated control toward distributed connectivity. Brokerage, measured by betweenness centrality, moved from concentration among committee experts (.545) toward balanced distribution between progressive and conservative legislators (.024 each). Progressive participation more than doubled, rising from 20% to 50%, as deliberations first broadened and then consolidated among key stakeholders. Issue network density remained stable at approximately .50 across all periods, indicating consistent discourse content despite substantial changes in interaction patterns.

Conclusions : Policy breakthrough coincided with structural reorganization of the actor network: higher density, lower centralization, and distributed brokerage spanning ideological divides, even as core discourse themes persisted. These findings advance methodology in nursing policy research and offer theoretical insight

Keywords : Health policy, Health workforce, Nursing legislation, Policy making



From Task Shifting to Advanced Practice Nursing in Primary Care: A Contextualized Framework for Low- and Middle-Income Countries Informed by Evidence From the Philippines

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Purpose : This study aimed to develop a contextualized advanced practice nursing framework for primary care in low- and middle-income countries, using the Philippines as an evidence base to address workforce shortages and rising burdens of non-communicable diseases.

Methods : A qualitative case study was conducted in a rural setting in the Philippines. Using purposeful sampling, 41 participants, including nurses, physicians, academics, policymakers, and recipients of care, participated in interviews and focus group discussions. Qualitative data were thematically analyzed, and quantitative data were descriptively analyzed. Findings were integrated into an advanced practice nursing framework tailored to primary care in low- and middle-income countries.

Results : Despite the absence of a formal advanced practice nursing policy in the Philippines, nurses informally fulfill many advanced practice roles consistent with established models, particularly in direct patient care, leadership, collaboration, and evidence-based practice. Key enabling competencies identified include health promotion, systems thinking, and policy implementation. Environmental barriers, including the lack of regulatory frameworks, educational pathways, and financing mechanisms, limit the institutionalization of advanced practice nursing roles.

Conclusions : A contextualized advanced practice nursing model relevant to low- and middle-income countries is proposed. Formalizing expanded nursing roles through targeted investments in education, certification, regulation, and financing can enhance access to quality primary care and advance universal health coverage in underserved settings.

Keywords : advanced practice nursing; low- and middle-income countries; primary care; task shifting



Neither Nurse nor Physician: Professional Identity Work and Institutional Contradictions Among Physician Assistant Nurses

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Purpose : Healthcare systems worldwide face a projected shortfall of health workers, prompting several countries to introduce mid-level roles. South Korea deploys registered nurses as physician assistant nurses, particularly during resident physician walkouts, yet they operate without a clearly defined scope of practice or formal recognition. Although the 2024 Nursing Act created a legal foundation, an implementation gap remains. This study investigated how physician assistant nurses in South Korea perceive and establish their professional identity through workplace experiences within an evolving socio-legal context.

Methods : This qualitative study analyzed open-ended survey responses from 91 physician assistant nurses (of 250 eligible) at two major healthcare institutions, a 727-bed university hospital in Seoul and a 700-bed general hospital in Gyeonggi Province. Data were collected from February to March 2025, following enactment of the Nursing Act. Participants were purposively sampled for diversity across clinical specialties and career stages. Responses were examined using Braun and Clarke's six-phase thematic analysis, with investigator triangulation, member checking, an audit trail, and reflexive practice ensuring trustworthiness.

Results : Six interrelated themes characterized professional identity: identity ambiguity and belonging confusion; occupational dilemmas involving role conflict and workload; institutional instability and absent guidelines; relational tensions with physicians and nursing colleagues; self-reflection and professional development; and conditional future career intentions. Participants described being neither nurse nor physician. Two-thirds (67%) reported changed professional relationships, and 57.1% noted positive evolution in patient care. Enhanced compensation (62.6%), educational support (54.9%), and policy improvement (51.6%) were the leading support needs. Despite structural challenges, 76.9% intended to continue if institutional support improved.

Conclusions : Physician assistant nurses undertake intricate identity work as boundary-spanning professionals amid Korea's evolving healthcare landscape. Sustainable integration requires alignment among professional expectations, organizational structures, and regulatory frameworks, including explicit scope-of-practice regulation, standardized education, formal career pathways, and interprofessional collaboration. Their resilience offers insights for healthcare systems adopting similar workforce innovations.

Keywords : physician assistant nurse, professional identity, qualitative research, role ambiguity



The effectiveness of training programs on nurse's shared decision making: A systematic review

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Purpose : Shared decision-making (SDM) is a key component of patient-centered care, with nurses playing an important role in supporting patient involvement in healthcare decisions. However, evidence on the effectiveness of SDM training programs for nurses remains limited and heterogeneous. This review seeks to assess the impact of training programs on nurses' SDM and aims to identify the typical learning formats used in SDM training programs for nurses.

Methods : This systematic review followed the guidelines of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA). A search was conducted across three databases - PubMed, Scopus, and Cochrane Central Register of Controlled Trials (CENTRAL) – covering the period from January 2012 to September 2024, using a strategy that incorporated both Medical Subject Headings (MeSH) terms and relevant keywords. Eligible studies included randomized, quasi-experimental, and mixed-methods designs evaluating SDM training for nurses. The Integrated Quality Criteria for Review of Multiple Study designs (ICROMS) tool was employed to evaluate the risk of bias, and the Kirkpatrick Model was utilized to assess the effectiveness of the training programs.

Results : Of the 593 records, five studies were synthesized using a qualitative description focusing on two main areas: training program effectiveness and format. All studies assessed the effectiveness of educational programs at level 2 of the Kirkpatrick Model, with one study also assessed at level 1. Training programs were associated with improvements in nurses' SDM-related competencies, attitudes, engagement, moral sensitivity, and acceptability. Four training formats were identified: workshop-only, workshop with homework, blended learning, and web-based programs, with workshop-based approaches being the most frequently used.

Conclusions : SDM training programs appear to benefit nurses by enhancing key competencies, engagement level, attitudes, acceptability and moral sensitivity toward patient- and family-centered care. However, the evidence is limited by the small number of studies, heterogeneity in interventions and outcome measures, and the absence of evaluations

Keywords : effectiveness, nurse, shared decision-making, training program



Beyond Structured Instruction: Student Nurses' Lived Realities of Incidental Learning During Clinical Placements

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Purpose : This study explored the lived experiences of student nurses regarding incidental learning during clinical placements in Benguet, Philippines.

Methods : A qualitative interpretive phenomenological design grounded in Heideggerian hermeneutics and a constructivist-interpretivist paradigm was employed. Sixteen (16) Level III and IV student nurses from seven (7) nursing schools in Benguet were recruited through purposive referral sampling. Following Research Ethics Committee approval, data were gathered through face-to-face semi-structured interviews and reflective journals from February to March 2026. Interviews were audio-recorded, transcribed verbatim, and analyzed using a hermeneutic approach. Data collection continued until saturation. Trustworthiness was established through member checking, coding-recoding, audit trails, and reflexive journaling.

Results : Four major themes emerged: (1) Navigating the Emotional Landscape of Unplanned Learning, which reflected students' emotional responses, coping strategies, and motivation for professional growth; (2) Bridging the Divide Between Classroom Learning and Clinical Reality, which described encounters with theory-practice gaps and clinical challenges that fostered learning; (3) Traversing a Multilayered Support Ecosystem, which highlighted the role of supervisors, peers, digital resources, and personal coping mechanisms; and (4) Transforming Experience into Clinical Competence, which emphasized reflection, preparation, and the development of professional knowledge, skills, and attitudes. Participants described incidental learning as a valuable process that enhanced confidence, adaptability, critical thinking, and clinical competence.

Conclusions : Incidental learning is a transformative aspect of nursing education that arises from unplanned clinical experiences. Through reflection and engagement with supportive learning environments, student nurses integrate theoretical knowledge with practice and develop professional competence. Strengthening supervision, reflective practices, and preparatory strategies may further enhance the learning outcomes derived from incidental clinical encounters.

Keywords : Clinical Placement, Incidental Learning, Nursing Education, Nursing Students



Strengthening Frontline Nursing Leadership Through a Structured Nursing in Charge Shift Coaching Program: A Multi-Hospital Pre–Post Evaluation

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Purpose : To evaluate the effectiveness of a structured Nursing in Charge Shift Coaching Program in improving nurse shift leaders' knowledge, role understanding, and perceived competency across Mayapada Hospital through pre–post knowledge assessments and participant feedback.

Methods : A quasi-experimental pre–post educational evaluation was conducted among nurse shift leaders from seven hospitals within Mayapada Healthcare Group. The two-day coaching program covered clinical decision-making, leadership and staff development, quality and patient safety management, and infection prevention and control. Interactive lectures, group discussions, role-play, and case-based learning were employed to strengthen participants' competencies. Knowledge was assessed using identical pre- and post-tests, while participants' perceptions of role comprehension were collected through structured feedback questionnaires. Descriptive analysis was performed to compare pre- and post-training outcomes.

Results : Knowledge scores improved consistently across all participating hospitals. Mean pre-test scores ranged from 55 to 80, whereas post-test scores increased to 85–99. While all hospitals demonstrated positive changes following the intervention. Participant feedback further indicated improved understanding of nursing shift leader responsibilities, stronger confidence in clinical leadership, better decision-making, enhanced communication and team coordination, and greater awareness of patient safety responsibilities. Participants also reported that the coaching content was practical and readily applicable to daily nursing practice.

Conclusions : The structured Nursing in Charge Shift Coaching Program effectively improved nurse shift leaders' knowledge and strengthened their understanding of operational leadership roles across multiple hospitals. Combining competency-based education with practical coaching may support standardized nursing leadership, improve patient safety practices, and enhance the quality of nursing services throughout healthcare organizations.

Keywords : Nursing in Charge Shift; Nursing Leadership; Clinical Leadership; Coaching; Nurse Education; Patient Safety; Competency Development; Pre–Post Study.



Negative Events, Resilience, and Meaning in life Among Nursing Students: Potential Profiles and Mediation Analysis

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Purpose : Meaning in life is critical for nursing' well-being and retention, yet limited research has explored how resilience mediates the relationship between negative event profiles and meaning in life. This study aimed to identify latent profiles of negative events among nursing interns and examine whether resilience mediates the association between profile and meaning in life.

Methods : This cross-sectional study was conducted between December 2025 and April 2026 across multiple hospitals in Weifang, Shandong Province, China and were evaluated using online questionnaires on meaning in life, negative events, resilience. Latent profile analysis identified negative events , and mediation analysis tested the indirect effects of negative events on meaning in life through resilience.

Results : Among 435 nursing students, four distinct negative event profiles were identified: Low-stress (29.3%), Moderate-low stress (32.3%), Moderate-high stress (19.8%), and High-stress (18.6%). Resilience significantly mediated the relationship between stress profiles and meaning in life (indirect effects: -4.648 to -6.037 , all 95% CIs excluding zero), with the proportion mediated ranging from 39.46% to 73.43%. Together, stress profiles and resilience explained 53.7% of the variance in meaning in life ($R^2 = 0.537$).

Conclusions : Negative event profiles and resilience are important determinants of meaning in life among nursing students. The mediating role of resilience varies across profiles, being strongest for moderate-stress groups and weakest for high-stress groups. Tailored interventions that strengthen resilience, particularly for students in high-stress profiles, may effectively support their psychological adaptation and professional development during clinical practice.

Keywords : Negative Events, Meaning in life, Resilience, Latent profile mediation analysis



Caregivers' Sepsis Recognition as a Predictive Factor for Clinical Deterioration among Older Adults with Sepsis in the Emergency Department

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Purpose : To examine clinical deterioration characteristics and evaluate whether age, care need level, pre-hospital waiting time, and caregivers' sepsis recognition predict clinical deterioration among older ED patients with sepsis.

Methods : This prospective study recruited a purposive sample of 124 older adults with sepsis in the ED of a tertiary care hospital in Bangkok, Thailand between March and June 2026. Instruments included a demographic and clinical data record form, the Caregivers' Sepsis Recognition Scale, and the National Early Warning Score (NEWS). Clinical deterioration was defined as any increase in NEWS from baseline, measured serially between hours 4 and 72 after ED admission. Multiple logistic regression was used for data analysis.

Results : Clinical deterioration occurred in 51 patients (41.1%), of whom 64.7% had an initial NEWS $\geq$ 5. The most common deterioration types involved the respiratory (78.8%) and cardiovascular (50.0%) systems, with the highest incidence after 12 hours of ED admission (39.2%). Significant predictors were age >80 years (Adjusted OR=2.66; 95%CI=1.15–6.17, $p=.022$), total care need level (Adjusted OR=2.73; 95%CI=1.22–6.10, $p=.015$), and low level of caregivers' sepsis recognition (Adjusted OR=2.78; 95%CI=1.21–6.42, $p=.016$). Pre-hospital waiting time was not significant ($p=.240$).

Conclusions : Clinical deterioration is highly prevalent among older septic patients, especially after 12 hours of ED stay. Advanced age, total care need level, and low level of caregivers' sepsis recognition significantly increase the risk. Strengthening caregivers' symptom recognition competency and optimizing ED surveillance beyond 12 hours are crucial to mitigate clinical deterioration in older patients with sepsis.

Keywords : Clinical deterioration, Emergency department, Older adults with sepsis, Sepsis recognition



Effects of Emergency Advanced Practice Nurse-Led Patient Flow Management on ICU Admission Rate and Unplanned Ward-to-ICU Transfer in Critically Ill Emergency Patients: A Before-After Comparative Study

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Purpose : This study examined changes in patient safety indicators following implementation of an emergency advanced practice nurse-led patient flow management intervention in the emergency department.

Methods : A single-center retrospective before-and-after study was conducted at a tertiary emergency department in Seoul, Korea. Fifteen emergency advanced practice nurses provided 24-hour coverage through a dual-track model: continuous management of Korean Triage and Acuity Scale level 1–2 patients from arrival to disposition (Track 1), and admission-pathway review of all patients with admission decisions using structured intensive care criteria (Track 2). Both tracks were performed sequentially by the same nurse. Primary outcomes were direct intensive care unit admission and unplanned ward-to-intensive-care-unit transfer within 24 hours; the secondary outcome was emergency department length of stay. Outcomes from April to September 2025 were compared with those from the same period in 2024 using chi-square tests, odds ratios, and Mann–Whitney U tests.

Results : During the post-intervention period, emergency advanced practice nurses managed 5,026 patients and performed 53,805 interventions. Baseline severity was comparable between periods (triage level 1–2 proportion: 18.9% versus 19.5%, $p=.112$). Among patients with admission decisions (4,961 in 2024; 5,204 in 2025), the direct intensive care unit admission rate increased from 12.32% to 15.08% ($p<.001$). The unplanned ward-to-intensive-care-unit transfer rate decreased from 1.15% to 0.32%, a 72.2% relative reduction (odds ratio=0.274, 95% confidence interval=0.150–0.500; $p<.001$). Median emergency department length of stay decreased by 16.7% among patients directly admitted to the intensive care unit ($p=.018$) and by 11.0% among all patients ($p<.001$).

Conclusions : Emergency advanced practice nurse-led patient flow management was associated with increased direct intensive care unit admission, fewer unplanned early ward-to-intensive-care-unit transfers, and shorter emergency department stays. Continuous assessment and coordinated admission-pathway management by emergency advanced practice nurses may support more appropriate initial disposition and improve continuity of care for high-risk emergency patients.

Keywords : emergency nursing, advanced practice nursing, patient flow, patient safety



Methods for Assessing Healthcare Providers' Knowledge of Post-Intensive Care Syndrome (PICS): A Scoping Review

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Purpose : The growing population of ICU survivors has increased the need for long-term, multidisciplinary management of post-intensive care syndrome (PICS) across the continuum of care. Healthcare providers therefore require appropriate knowledge of PICS, including its risk factors, manifestations, and management. Appropriate assessment methods are needed to accurately evaluate this knowledge. This scoping review aimed to identify and characterize methods used to assess healthcare providers' knowledge of PICS.

Methods : A scoping review was conducted according to the JBI methodology and reported in accordance with PRISMA-ScR. PubMed, Embase, CINAHL, and Web of Science were searched for studies published from 2012 through April 3, 2026. Two reviewers independently screened titles, abstracts, and full texts and extracted data using a standardized form. Study characteristics, knowledge assessment approaches, and assessed knowledge domains were synthesized descriptively.

Results : Eight studies published between 2020 and 2026 were included. Participants included nurses only (n=1), physicians only (n=3), nurses and physicians (n=2), or multidisciplinary groups including physicians, nurses, and allied health professionals (n=2). Clinical settings included ICUs (n=3), general wards (n=2), primary care (n=2), and one study that did not report the setting. In most studies, PICS knowledge was assessed through measures of awareness, familiarity, or symptom recognition. Only three studies included questions addressing multiple specific areas of PICS-related knowledge. Of these, two used objectively scored knowledge questions, whereas one used a Likert-scale measure of self-rated knowledge. Across these three studies, general information, risk factors and causes, and signs and symptoms were addressed in all three, whereas prevention and treatment interventions were addressed in two.

Conclusions : Current methods for assessing healthcare providers' knowledge of PICS were heterogeneous and often focused on awareness or familiarity rather than knowledge across specific areas. These findings highlight the need for more standardized and comprehensive approaches to assessing PICS knowledge across healthcare professions and care settings.

Keywords : Health personnel, Knowledge assessment, Postintensive care syndrome



Effects of Person-Centered Care-Based Telephone Intervention for Families of Patients in a Neurosurgical Intensive Care Unit: A non-equivalent control group non-synchronized pretest–posttest study

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Purpose : This study aimed to develop a person-centered care (PCC)-based telephone intervention and examine its effects on trust in nurses and family satisfaction among family members of patients admitted to a neurosurgical intensive care unit (ICU).

Methods : A quasi-experimental nonequivalent control group pretest–posttest design was used. Participants were 60 family members of patients admitted to the neurosurgical ICU of a university hospital in G Metropolitan City, with 30 participants in the experimental group and 30 in the control group. Data were collected from December 21, 2025, to March 2, 2026, using structured questionnaires and electronic medical record reviews. The intervention consisted of three PCC-based telephone sessions conducted within 24 hours of ICU admission, within 48 hours of admission, and before ICU discharge or transfer (± 2 days). Data were analyzed using chi-square tests, independent t-tests, paired t-tests, and linear mixed models with SPSS version 21.0.

Results : Compared with the control group, the experimental group demonstrated significantly greater improvement in trust in nurses ($p < .001$). Family satisfaction with ICU care and decision-making was also significantly higher in the experimental group than in the control group ($p < .001$).

Conclusions : The PCC-based telephone intervention improved trust in nurses and family satisfaction among family members of patients admitted to a neurosurgical ICU. This intervention may serve as a practical communication strategy for supporting families when in-person visitation is restricted and may facilitate the implementation of person-centered care in critical care settings.

Keywords : Person-Centered Care, Telephone, Intensive Care Units, Neurosurgery, Nurses, Patient Satisfaction



Transitional Self-Management in Adolescents with Congenital Heart Disease Repair: A Situation-Specific Theory

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Purpose : Adolescents with congenital heart disease (CHD) increasingly survive into adulthood and assume responsibility for lifelong self-management during their transition from child to adult-centered healthcare. Inadequate self-management and lapses in self-care during this transitional period are associated with adverse outcomes. However, existing theories address self-management and healthcare transition separately, and no nursing theory explains how adolescents with CHD develop self-management skills within this transitional context. This study aimed to develop a situation-specific theory (SST) explaining transitional self-management among adolescents with CHD.

Methods : Walker and Avant's theory derivation and synthesis strategies were used for this study. First, we derived the concept of self-management by transposing self-care of chronic illness by Riegel. Second, we synthesized this derived concept with Meleis's transition theory. Furthermore, a review of 45 empirical studies addressing CHD transition, self-management, and transition readiness was integrated, retrieved from PubMed and CINAHL (2016-2026) with study selection following the PRISMA-ScR 2020 flow diagram.

Results : The resulting theory comprises four core concepts, which sequentially connected: transition conditions (personal, community, and societal domains), transition readiness (disease understanding, clinical engagement, healthcare communication, responsibility acceptance, and independent decision-making), self-management (maintenance, regulation, and monitoring), and healthy young adult transition outcomes (disease stability, adaptation to adult healthcare, and quality of life). Four propositions are suggested. Supportive transition conditions enhance readiness, readiness enables self-management performance, accumulated self-management reciprocally reinforces readiness, and self-management performed with sufficient autonomy and integration produces positive outcomes. Korean sociocultural and institutional factors, including exam-oriented education, family-centered decision-making, and fragmented child-to-adult care systems, were incorporated as situational conditions.

Conclusions : This theory clarifies the pathway linking contextual conditions to self-management performance and transition outcomes in adolescents with CHD. It offers a foundation for developing assessment tools, nurse-led transition interventions, and future empirical testing within Korean and international healthcare backgrounds.

Keywords : Adolescent; Congenital Heart Disease; Self-Management; Transition to Adult Care



Family and Neighborhood Environments Predict Transitions in Adolescent Obesity-Related Behavior: A Latent Transition Analysis

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Purpose : This study examined longitudinal patterns of obesity-related behaviors and the role of family and GIS-based neighborhood environments to inform intervention strategies. This study aimed to (1) identify distinct transition pathways, (2) investigate whether family and neighborhood environments predicted behavioral changes, and (3) examine the association between transition.

Methods : This 2-year longitudinal study analyzed school health and geographic data from 258 Korean adolescents aged 14 years. Latent transition analysis (LTA) was conducted using dietary and physical activity (PA) indicators (breakfast, lunch, and dinner, physical fitness and sedentary behavior). Conditional LTA was conducted to examine whether family factors (family meal frequency and co-physical activity with family) and neighborhood factors (food and physical activity accessibility) predicted transitions. Finally, associations between transition patterns and obesity were examined using log-binomial regression models for relative risks.

Results : Three profiles emerged at both time points: P1, Breakfast skipper with low activity; P2, Healthy eaters with low activity; and P3, Unhealthy eaters with high activity. Lower family meal frequency predicted persistence of P1 (Diff = -0.62 , $p < .001$). A higher density of unhealthy food outlets predicted transitions from P2 to P1 (Diff = 1.00 , $p < .001$), whereas a lower density of unhealthy food outlets predicted remaining in P2 (Diff = -1.00 , $p < .001$). Compared with the Stable-poor or worsening diet group, the Stable-low or worsening PA group had a lower risk of incident obesity (aRR = 0.17 , $p = .029$).

Conclusions : The predominant transition was from healthy eaters to the breakfast skipper, suggesting that adolescents who currently maintain healthy eating remain vulnerable to deterioration in dietary behaviors. Family meal and neighborhood food environments predicted transitions in meal-related patterns, and poor dietary trajectories were associated with adolescent obesity. These findings underscore the importance of preventing deterioration in dietary behaviors and support family-centered and environment-focused interventions for healthier trajectories.

Keywords : Adolescent obesity, obesity-related behaviors, latent transition analysis, geographic information system, neighborhood environment, family environment, dietary behavior, physical activity, school health



School-based Nutrition And Children's Kinesthetics (SNACK) Program among School- age Children in the Philippines

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Purpose : The school-age dietary habits and physical activities provide window for healthy growth and holistic development toward adulthood. The study aimed to investigate the effectiveness of School-based Nutrition And Children's Kinesthetics (SNACK) program on nutrition and physical activity of schoolers ages 9 to 12. Specifically, it sought to establish the nutritional status and physical activities, determine the significant difference on knowledge and health lifestyle practices, and evaluate the significant difference in health lifestyle before and after the SNACK program.

Methods : This quasi-experimental pre-test and post-test design included 62 participants with intervention group (31), who underwent the SNACK Program and control group (31) that continued with routine program implemented by school. Both groups participated in pre-test and post -test evaluations using the same instruments. The program composed of health education using training module, morning exercises and nutrition counseling. Descriptive and inferential statistics are tools to examine participant's characteristics and differences in knowledge, nutritional status & physical activities.

Results : The BMI measurement showed the highest proportion of overweight children in both groups (intervention 51.61%; control 64.52%), followed by underweight and obesity. The SNACK Program significantly improved the intervention group's nutritional knowledge ($t = -8.90, p < .001$) and physical activity knowledge ($t = -10.78, p < .001$). However, changes in nutritional status ($t = 1.179, p = 0.248$) and physical activity ($t = -1.387, p = 0.176$) were not statistically significant. Also, the control group showed no significant differences in these measures.

Conclusions : The SNACK program effectively improved participants' knowledge on nutrition and physical activity. Modest improvements in the nutritional status and physical activity suggest a positive behavioral changes. The BMI measurement did not reach statistical significance which attributed to short intervention duration and limited sample size. Recommendations are provided on sustainable school health initiatives and policies on longer-term and systematic interventions engaging the family.

Keywords : School-age children, SNACK program



Effectiveness of the Gestational Diabetes Mellitus Self-Care Education Module (GDM-ScEM) in Improving Fasting Self-Monitored Blood Glucose Outcomes among Women with GDM

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Purpose : To evaluate the effectiveness of the Gestational Diabetes Mellitus Self-Care Education Module (F.4084) (GDM-ScEM) in improving fasting self-monitored blood glucose outcomes among women with GDM.

Methods : A quasi-experimental study was conducted at the Antenatal and Obstetric Clinic, University Kebangsaan Malaysia Medical Centre (UKMMC) between August 2021 and March 2022. Sixty-five (65) eligible women with GDM were enrolled into the intervention (n = 32) and control (n = 33) groups. The intervention group received a 35–40-minute self-care education session, the GDM-ScEM (F.4084) module, a flipbook, a self-monitoring diary, WhatsApp support, and a reinforcement session via video call at week 2, while the control group received standard antenatal care. GDM mothers were followed up at week-2 and week-4 for both groups. Fasting and postprandial blood glucose values were extracted from participants' SMBG records at baseline, week 2, and week 4. Data were analyzed using mixed-design ANOVA.

Results : Mixed-design ANOVA revealed that the intervention group demonstrated a significantly greater reduction in fasting blood glucose over the 4-week intervention compared with the control group (p = 0.001). However, no significant differences between groups over time were observed for 2-hour postprandial blood glucose levels after breakfast, lunch, or dinner (all p > 0.05).

Conclusions : The GDM-ScEM (F.4084) effectively improved fasting self-monitored blood glucose outcomes among women with GDM. Integrating this structured nurse-led educational module into routine antenatal diabetes care may strengthen diabetes self-management and improve glycemic control during pregnancy.

Keywords : Gestational diabetes mellitus (GDM), Self-care education, Self-monitoring of blood glucose, Glycemic control, Quasi-experimental study



A concept analysis of parent-infant bonding in the context of early postpartum return to work among Taiwanese women

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Purpose : Under Taiwan's eight-week statutory maternity leave and low-fertility context, many women return to work early postpartum. Amidst demanding workplaces and cultural expectations of "perfect motherhood," mothers frequently experience separation anxiety. Consequently, the meaning of parent–infant bonding requires re-examination, as it remains insufficiently explored and often conflated with attachment. This study aimed to clarify the attributes and contemporary cultural implications of parent–infant bonding among Taiwanese women experiencing early postpartum return to work.

Methods : Using Rodgers' evolutionary concept analysis, a literature search was conducted in CINAHL, PubMed, and Airtiti Library. Following PRISMA guidelines, 28 interdisciplinary peer-reviewed articles published between 2010 and 2025 met the inclusion criteria. The analysis involved identifying the concept's surrogate terms, temporal and cultural contexts, core attributes, antecedents, and consequences. This approach allowed for a comprehensive understanding of how the bonding concept has evolved across nursing, psychology, and sociology disciplines.

Results : The findings identified three key attributes of parent–infant bonding in this context: (1) emotional connectedness, defined as a sustained internal sense of connection despite physical separation; (2) responsive engagement, characterized by intensified interactions within limited shared time; and (3) relational continuity despite work-related separation, reflecting ongoing efforts to maintain the parent–infant relationship under competing role demands. These attributes suggest a transformation of bonding from continuous physical proximity to adaptive relational maintenance. Antecedents included maternal psychological state, social support, and workplace policies, while consequences involved secure infant attachment and reduced parental burnout.

Conclusions : Parent–infant bonding is fundamentally a relational practice shaped by institutional conditions. Healthcare professionals must address the hidden emotional burden behind functional caregiving and actively advocate for family-friendly workplace policies to facilitate mothers' adaptation and sustain bonding.

Keywords : concept analysis, parent-infant bonding, early return to work, postpartum, Taiwanese women



Comparison of Lifestyle Habits, Metabolic Indicators and Healthy Aging Status according to Sarcopenia in Older Women

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Purpose : This study aimed to examine differences in lifestyle habits, metabolic indicators, and healthy aging status according to sarcopenia status among older Korean women, thereby providing foundational data to promote healthy aging.

Methods : This secondary analysis of the 2022 Korea National Health and Nutrition Examination Survey compared sociodemographic characteristics, health behaviors, metabolic indicators, and healthy aging indices among 435 women aged from 65 to 79 years using a complex sampling design.

Results : Of the 435 participants, 32 (7.4 %) were classified as having sarcopenia. The mean age of the sarcopenia group was 74.22 ± 0.81 years, significantly higher than the non-sarcopenia group at 71.14 ± 0.27 ($p < 0.001$). Body mass index was 22.52 ± 0.47 kg/m² in the sarcopenia group, significantly lower than the non-sarcopenia group with 24.89 ± 0.22 kg/m² ($p < 0.001$), whose mean value was within the normal-to-overweight range. In the comparison of lifestyle factors, total weekly physical activity (PA) in the sarcopenia group was 274.85 ± 72.85 MET-min/week, significantly lower than 571.30 ± 47.01 MET-min/week in the non-sarcopenia group ($p = 0.001$). The proportion of physical inactivity was significantly higher in the sarcopenia group at 84.3 % compared with 65.1 % in the non-sarcopenia group ($p = 0.030$). Among the nutrients assessed, the sarcopenia group had significantly lower intakes of protein at 45.12 ± 3.35 g ($p = 0.003$), calcium at 386.63 ± 33.73 mg ($p = 0.002$), and magnesium at 237.35 ± 18.09 mg ($p = 0.002$) than the non-sarcopenia group, which were all below the recommended nutrient intakes. The prevalence of abdominal obesity was significantly lower in the sarcopenia group at 33.9 % compared with 58.0 % in the non-sarcopenia group ($p = 0.024$). When healthy aging indices were compared, the total score in the sarcopenia group was 5.27 ± 0.27 , which was significantly higher than 4.42 ± 0.12 in the non-sarcopenia group ($p = 0.005$), indicating poorer healthy aging status.

Conclusions : Interventions for older women with sarcopenia should focus on maintaining and strengthening muscle mass through adequate nutrient intake and PA to promote healthy aging.

Keywords : Healthy aging, Lifestyle habits, Older women, Sarcopenia



Comparison of Obesity, Metabolic Syndrome, and Osteoporosis Risk according to Childbirth at Advanced Maternal Age among Middle-Aged Women

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Purpose : This study compared obesity, metabolic syndrome, and osteoporosis according to a history of childbirth at advanced maternal age, defined as the last childbirth at age 35 years or older.

Methods : This secondary analysis used data from the eighth Korea National Health and Nutrition Examination Survey (2019–2021). Participants were 3,737 women aged 40–64 years with childbirth experience, classified as aged childbirth (ACB; n=610) or younger childbirth (YCB; n=3,127). Complex-sample analyses incorporated stratification, clustering, and sampling weights. Group differences were examined using the Rao–Scott chi-square F test and complex-sample independent t-test. Sensitivity analysis included 1:1 propensity score matching by age and multivariable logistic regression.

Results : ACB was younger than YCB (48.84 ± 0.33 vs. 52.67 ± 0.15 years; $t = -10.97$, $p < .001$). Mean ages at first and last childbirth were higher in ACB (31.38 ± 0.27 vs. 25.78 ± 0.07 years, $t = 20.575$, $p < .001$; 37.32 ± 0.10 vs. 28.71 ± 0.07 years, $t = 71.705$, $p < .001$, respectively). Non-menopausal women were more common in ACB (66.3% vs. 42.8%; $F = 93.338$, $p < .001$). Cumulative breastfeeding duration was longer (20.62 ± 0.97 vs. 17.01 ± 0.31 months; $t = 12.025$, $p < .001$), whereas calcium intake was lower in ACB (450.23 ± 12.23 vs. 476.84 ± 6.08 mg/day; $t = -1.982$, $p = .048$). Hypertension (10.4% vs. 18.9%; $F = 18.022$, $p < .001$), dyslipidemia (12.8% vs. 22.8%; $F = 23.391$, $p < .001$), elevated blood pressure, and elevated fasting glucose were less prevalent in ACB. Obesity, metabolic syndrome, and osteoporosis did not differ significantly. After matching and adjustment, osteoporosis odds were higher in ACB (OR=2.064, 95% CI=1.043–4.088, $p = .038$), whereas obesity and metabolic syndrome remained nonsignificant.

Conclusions : The primary analysis showed no differences in obesity, metabolic syndrome, or osteoporosis. However, adjusted sensitivity analysis indicated higher osteoporosis odds in ACB. These findings suggest a potential association between advanced childbirth and midlife bone health and support longitudinal studies using objective bone-density measures and comprehensive reproductive and lifestyle factors. Because this association emerged only after adjustment, it should be interpreted cautiously rather than as evidence that advanced childbirth directly causes osteoporosis in later life.

Keywords : Advanced maternal age, menopause transition, middle-aged women, obesity, metabolic syndrome, osteoporosis, Korea National Health and Nutrition Examination Survey



Active aging profiles mediate the effect of social support on subjective well-being among community-dwelling older adults: a latent profile mediation analysis

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Aim(s) : To identify active aging profiles among community-dwelling older adults and examine their mediating role between social support and subjective well-being, informing community-based strategies for healthy aging.

Methods : A cross-sectional survey was conducted among 435 community-dwelling older adults (aged ≥ 60) recruited from four communities in China between January and May 2025. Participants completed the Social Support Rating Scale, Active Aging Scale, and Memorial University of Newfoundland Scale of Happiness. Latent profile analysis (LPA) was used to identify active aging profiles, and bootstrap mediation analysis (5,000 resamples) tested the indirect effects of social support on subjective well-being through active aging profiles, controlling for monthly income and previous work experience.

Results : Mean subjective well-being was low (18.69 ± 16.44). LPA identified three active aging profiles: high (46.7%), moderate (29.9%), and low (23.4%). Social support was positively associated with active aging and subjective well-being. Subjective well-being differed significantly across profiles, being highest in the high active aging group. Social support showed a significant total effect on subjective well-being; the high active aging profile significantly mediated this relationship, accounting for 47.6% of the total effect, whereas the moderate profile did not show a significant mediating effect.

Conclusions : Active aging profiles, particularly high active aging, play a critical mediating role in translating social support into subjective well-being among older adults. Community-based interventions that strengthen social support networks and promote sustained, high-level active engagement (e.g., community activity programs, peer support groups) may most effectively enhance well-being among community-dwelling older adults.

Keywords : Active aging, Older adults, Social support, Subjective well-being



Pathways Linking Social Support to Quality of Life in Pre-Frail Older Adults: The Mediating Roles of Loneliness, Psychological Distress, and Frailty

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Purpose : Pre-frailty is a reversible transitional stage between robustness and frailty that provides a critical window for intervention. As social resources and connectedness are increasingly recognized as central to healthy ageing and frailty prevention, understanding how social support influences frailty and quality of life (QoL) through interconnected psychosocial pathways is essential for developing community-based, nurse-led strategies. This study examined the indirect pathways linking perceived social support to QoL through loneliness, psychological distress, and frailty among community-dwelling pre-frail older adults in South Korea.

Methods : This cross-sectional secondary analysis used pooled baseline data from two randomized controlled trials (Trial nos. ISRCTN10642711 and ISRCTN13288109). Participants included 110 community-dwelling older adults with pre-frailty recruited from a community health center in S District, Seoul, South Korea. Perceived social support, loneliness, psychological distress, frailty, and QoL were assessed using validated instruments. Structural equation modelling was performed.

Results : The hypothesized model demonstrated an excellent fit to the data (CMIN/DF=0.963, CFI=1.00, TLI=1.00, RMSEA=0.00). Greater perceived social support was associated with lower loneliness ($\beta=-0.588$, $p<.001$) and lower psychological distress ($\beta=-0.220$, $p=.018$). Higher loneliness ($\beta=0.159$, $p=.045$) and psychological distress ($\beta=0.529$, $p<.001$) were associated with greater frailty. Psychological distress ($\beta=-0.447$, $p<.001$) and frailty ($\beta=-0.201$, $p=.029$) were directly associated with poorer QoL. Social support exerted no direct effect on QoL but demonstrated significant positive indirect effects through reduced loneliness, psychological distress, and frailty. The model explained 38.3% of the variance.

Conclusions : Perceived social support influenced QoL indirectly through the mediating roles of loneliness, psychological distress, and frailty. These findings suggest that community-based nurse-led prevention programs should prioritize strengthening social support through active family engagement, standardized psychosocial nursing care, and proactive linkage to community health and welfare resources while concurrently addressing loneliness and psychological distress to delay frailty progression and optimize QoL among pre-frail community-dwelling older adults.

Keywords : Frailty, Loneliness, Social Support, Quality of Life.



Resilience and Social Support in the Link Between Cognitive Concern and Physical Quality of Life Among Older Adults

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Purpose : This study examined whether resilience and social networks mediate the association between cognitive concern and the physical component of quality of life, and whether social support moderates these pathways among community-dwelling older adults.

Methods : A nationwide cross-sectional survey was conducted with 510 community-dwelling older adults recruited from urban and rural regions in Korea. Data were collected through face-to-face interviews using standardized questionnaires assessing cognitive concern, resilience, social support, social networks, and the physical component of quality of life. Data were analyzed using t-tests, ANOVA, correlation analyses, and moderated mediation analysis with PROCESS macro Model 14. Age, sex, education, and economic status were controlled for in the model.

Results : The mean age of participants was 71.6 years. Cognitive concern was negatively associated with resilience, social support, and the physical component of quality of life, but was not significantly associated with social networks. In the mediation model, resilience significantly mediated the relationship between cognitive concern and the physical component of quality of life, whereas social networks did not. The overall model explained 47% of the variance in the physical component of quality of life. Social support moderated the indirect pathways. Resilience was associated with better physical quality of life only among older adults with low social support, whereas social networks were associated with better physical quality of life only among those with high social support.

Conclusions : Resilience may be an important psychosocial mechanism linking cognitive concern to physical quality of life in older adults, particularly when social support is limited. The findings also suggest that the quality of supportive relationships may be more influential than social network size alone in promoting physical well-being. Interventions designed to strengthen resilience and enhance supportive relationships may contribute to healthy aging among community-dwelling older adults.

Keywords : Aged, Quality of life, Resilience, Social support



Filial Piety expectations, intergenerational support, and active aging among community-dwelling older adults: a latent profile and mediation analysis

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Purpose : In Weifang—one of the birthplaces of Confucian culture—the tension between traditional filial piety expectations and changing family support dynamics has given rise to heterogeneous subgroups of older adults, influencing their levels of active aging. This study aimed to identify latent subtypes of intergenerational support among community-dwelling older adults within a Confucian cultural context, examine the mediating role of balanced intergenerational support in the relationship between filial piety expectations and active aging, and ultimately propose culturally tailored and precision stratified policy recommendations.

Methods : This cross sectional survey was conducted from June 2025 to March 2026. Using cluster convenience sampling, we recruited older adults aged ≥ 60 years who had resided continuously for ≥ 6 months in five typical communities in Weifang. Data were collected using a general information questionnaire, the Chinese version of the Filial Piety Expectation Scale, the simplified Chinese version of the Bidirectional Social Support Scale, and the Chinese version of the Active Aging Scale. Latent profile analysis and mediation analysis were performed using R 4.3.1, and univariate and multivariate analyses were conducted using SPSS 27.0.

Results : A total of 492 valid responses were analyzed. The mean active aging score was 65.36 ± 9.72 . Latent profile analysis identified four distinct classes: bidirectional high support (31.30%), passive demand oriented (25.61%), traditional dedication oriented (23.37%), and bidirectional low support (19.72%). Filial piety expectations were positively correlated with both intergenerational support balance and active aging. Mediation analyses further revealed that the bidirectional high support and passive demand oriented classes significantly mediated the association between filial piety expectations and active aging.

Conclusions : Filial piety expectations and intergenerational support patterns are key determinants of active aging among older adults. Enhancing filial piety expectations and fostering a balanced exchange of intergenerational support may effectively improve active aging levels in community dwelling older populations.

Keywords : Keywords:active aging,filial piety expectations, intergenerational support,older adults



Effects of a Repositioning Care Robot on Pressure Injury Incidence and Physical Care Burden among Caregivers in Long-Term Care Settings

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Purpose : Two-hourly repositioning is a core intervention for preventing pressure injuries in bedridden older adults. However, consistent manual repositioning is difficult in long-term care settings because caregivers simultaneously perform rehabilitation support, feeding, toileting, transfer assistance, and other care tasks. Manual repositioning may also increase caregivers' repetitive physical strain and cause discomfort or sleep disturbance in care recipients. This study examined the clinical effectiveness and feasibility of a repositioning care robot in preventing pressure injuries and reducing caregivers' physical workload.

Methods : This randomized controlled study was conducted from April to August 2025 in nursing homes in Gyeonggi-do, Korea. Participants included 60 care workers and 30 care recipients. The robot-aided care group used a repositioning care robot (JINB-850, Jungin E&S, Korea) during a 4-week intervention period, with repositioning intervals individually adjusted according to each recipient's physical condition. During nighttime care, automatic repositioning was applied without direct caregiver intervention. The manual care group received conventional 2-hourly repositioning by caregivers. Pressure injury outcomes were assessed over a 5-month follow-up period. Caregivers' physical workload was evaluated using wireless surface electromyography before and after the intervention.

Results : No new pressure injuries occurred in the robot-aided care group (0/15, 0.0%), whereas two new stage 1 sacrococcygeal pressure injuries occurred in the manual care group (2/15, 13.3%). Among recipients with pre-existing stage 1–2 pressure injuries, no deterioration was observed in the robot-aided care group, while two cases worsened in the manual care group. Muscle activity in all eight measured muscles was significantly lower in the robot-aided care group. The Job Strain Index was 1.47 in the robot-aided care group and 7.93 in the manual care group.

Conclusions : Robot-aided repositioning may help prevent new or worsening pressure injuries while substantially reducing caregivers' physical workload. These findings support its feasibility as a practical intervention in long-term care settings.

Keywords : Care burden; Care robot; Pressure injury; Repositioning



Interactive Digital Health Interventions for the Psychosocial Well-Being of People Living with Dementia: A Scoping Review

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Purpose : To synthesize interactive digital health interventions for people living with dementia from a human–computer interaction perspective.

Methods : This review followed the Joanna Briggs Institute methodology and PRISMA-ScR guidelines. Five databases (PubMed, CINAHL, Embase, PsycINFO, and Cochrane Library) were searched for studies published since 2015. Interaction was conceptualized as explicit, driven by deliberate user actions, or implicit, based on system assessment and inference of user states. This review included studies involving older adults with diagnosed dementia and reporting quantitative psychosocial well-being outcomes, regardless of care setting.

Results : This review included 34 studies and categorized interventions as activity-based ($n = 17$), social interaction ($n = 16$), and routine care support ($n = 1$). Overall, 44% of studies used only explicit interaction, whereas 56% incorporated both explicit and implicit interactions. Interaction patterns differed across intervention categories. In activity-based interventions, 76.5% involved only explicit interaction, whereas 93.8% of social interaction interventions and the routine care support intervention incorporated both explicit and implicit interactions. Among 19 studies incorporating implicit interaction, interactions were classified as non-adaptive ($n = 3$) or adaptive ($n = 16$). Adaptive interactions were further categorized as history-based personalization ($n = 15$) and context-aware inference ($n = 1$). History-based personalization involved personalized expressions in social interaction interventions and task adaptations in activity-based interventions. One study in 2025 used a large language model for context-aware inference. Psychosocial well-being outcomes were frequently assessed across multiple domains, although comprehensive assessment remained uncommon. Emotional well-being and behavioral symptoms were assessed most frequently, whereas social health was the least assessed.

Conclusions : Interactive digital health interventions for people living with dementia have largely relied on explicit interaction, whereas implicit interaction remains underutilized. Incorporating adaptive implicit interaction may support more autonomous and personalized engagement, with potential benefits for psychosocial well-being. Future research should explore adaptive implicit interaction approaches and comprehensively evaluate psychosocial well-being.

Keywords : Dementia, Digital health, Psychosocial Well-Being, Human–computer interaction, Scoping review



Effects of a Communication Care Robot in Older Adult Care: A Randomised Crossover Trial

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Purpose : This study aimed to evaluate the effects of a communication care robot intervention on depression and loneliness among community-dwelling older adults and caregiver burden.

Methods : This study used a randomised crossover design in which participants experienced both interventions. From June to September 2025, 50 care recipients and 30 caregivers were recruited. Care recipients were randomly assigned to either sequence A, in which they used the communication care robot followed by the doll, or sequence B, in which they used the doll followed by the communication care robot. Each intervention was delivered for 4 weeks, with a 2-week washout period between interventions. Outcomes were assessed at four time points: baseline, after the first intervention, before the second intervention, and after the second intervention. Data from 43 care recipients and 30 caregivers were included in the final analysis. Differences between interventions were examined using ANCOVA, chi-square tests, and Mann–Whitney U tests.

Results : After the experimental intervention, care recipients had significantly lower depression scores ($F=29.54$, $p<.001$) and a lower proportion of high risk for loneliness ($\chi^2=18.21$, $p<.001$) than after the control intervention. Quality of life was significantly higher after the experimental intervention ($F=4.82$, $p=.031$). The frequency of interactions with people did not significantly differ between the interventions. The total frequency of interactions was higher after the communication care robot intervention than after the doll intervention ($z=-6.88$, $p<.001$). Caregivers reported significantly lower caregiver burden ($F=5.04$, $p=.029$) and psychological distress ($F=7.11$, $p=.010$) after the communication care robot intervention.

Conclusions : Communication care robots may serve as a supportive care strategy by providing emotional support and opportunities for conversation to community-dwelling older adults, without reducing human interaction. They may also help reduce caregiver burden and psychological distress among caregivers.

Funding: This study was supported by the Ministry of Health and Welfare, Republic of Korea (Grant No. RS-2023-KH141157).

Keywords : Caregiver burden; Communication care robot; Depression; Loneliness



Robot-Mediated Interactive Intervention for Loneliness in Older Adults Living at Home: A Mixed-Methods Preliminary Efficacy Study

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Purpose : To evaluate the effects of a robot-mediated interactive intervention (RMII) on loneliness among older adults living alone or with an older spouse.

Methods : A prospective, single-blind, two-arm, parallel RCT was conducted, followed by semi-structured interviews. Participants in the intervention group (IG) received the 8-week RMII. The control group (CG) received usual care.

Results : Sixty participants were randomized (mean age 67.27 years, SD 4.97; 78% female; 47% married). At week 8, overall loneliness decreased from 4.8 (SD 1.2) to 4.0 (SD 1.4) in the IG and from 4.3 (SD 1.3) to 4.2 (SD 1.2) in the CG, with an unadjusted between-group difference in change of -0.8 (95% CI -1.5 to -0.2). Social loneliness improved, with a between-group difference in change of -0.6 (95% CI -1.1 to -0.2). Compared with the CG, the RMII was associated with greater short-term reductions in overall loneliness ($P = .014$; Cohen's $d = -0.658$) and social loneliness ($P = .006$; Cohen's $d = -0.743$). LMMs confirmed significant week-8 effects for overall loneliness ($\beta = -0.825$, $P = .015$) and social loneliness ($\beta = -0.638$, $P = .006$), but these effects were not sustained at 3 months. The IG also showed greater improvement in TMT-A performance at week 8 ($P = .048$; Cohen's $d = -0.530$), with a significant adjusted time-by-group interaction ($\beta = -6.373$, $SE = 3.075$, $P = .038$). No significant effects were observed for TMT-B, psychological distress, or quality of life. Exploratory engagement-based clustering suggested greater improvement in TMT-A performance and social loneliness among high-engagement participants. Qualitative findings indicated that the RMII was acceptable and feasible for home use, supported daily health routines and emotional well-being, and could be improved through greater responsiveness, human-likeness, and tailored support.

Conclusions : The RMII was feasible and acceptable and showed preliminary short-term effects on loneliness, with possible benefits for visuomotor function.

Keywords : Home-based robotic care; ageing-in-place; loneliness; artificial intelligence; living alone; aged care



Factors Predicting Health-Related Quality of Life among Older Breast Cancer Survivors

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Purpose : To investigate the combined predictive effects of frailty, depression, and family support on health-related quality of life among older breast cancer survivors.

Methods : A predictive correlational study was conducted among 105 older breast cancer survivors aged 60 years and older who were purposively recruited from the outpatient department of Ubon Ratchathani Cancer Hospital. Data were collected using a demographic questionnaire, the Edmonton Frail Scale (EFS), the 15-item Thai Geriatric Depression Scale (TGDS-15), the Family APGAR Questionnaire, and the Functional Assessment of Cancer Therapy–Breast (FACT-B). Data will be analyzed using descriptive statistics and standard multiple linear regression (the enter method) to examine the combined predictive effects of frailty, depression, and family support on health-related quality of life.

Results : Data collection is currently in progress and is expected to be completed before the conference. Final analyses will describe the prevalence of frailty and depression, levels of family support and health-related quality of life, as well as identify the combined predictive effects of frailty, depression, and family support on health-related quality of life among older breast cancer survivors. The final results will be presented at the conference.

Conclusions : This study is expected to provide evidence regarding the influence of frailty, depression, and family support on health-related quality of life among older breast cancer survivors. The findings are anticipated to inform the development of nurse-led interventions aimed at improving health-related quality of life through early identification and management of frailty and depression, together with strengthening family support.

Keywords : Older breast cancer survivors, Health-Related Quality of Life, Frailty, Depression, Family support



Reliability and Validity of the Korean Version of the Self-Care of Chronic Illness Inventory v4.c

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Purpose : The prevalence of complex chronic diseases is increasing worldwide, highlighting the need for credible instruments to assess self-care. The Self-Care of Chronic Illness Inventory (SC-CII) was revised to version 4.c to improve its content and clinical applicability. This methodological study aimed to translate the SC-CII v4.c into Korean and evaluate the reliability and validity of the Korean version.

Methods : The Korean version was developed following a translation process including forward translation, backward translation, expert review, and developer review. Community-dwelling adults aged ≥ 65 years with two or more chronic conditions were recruited from three community welfare centers. The target sample size was 220 participants; interim analyses were conducted using data from 127 participants. Participants completed the Korean SC-CII v4.c and the Self-Care Confidence Scale (SCCS), based on higher self-care being associated with higher self-care confidence, to assess convergent validity. Internal consistency was evaluated using Cronbach's α , and construct validity was examined using exploratory and confirmatory factor analyses. Statistical analyses were performed using IBM SPSS Statistics.

Results : Interim analyses were conducted with 127 participants. Exploratory factor analysis supported a unidimensional structure for all SC-CII v4.c domains. Sampling adequacy was confirmed by KMO values ranging from .719 to .827 for SC-CII and .815 for SCCS, with significant Bartlett's tests (all $p < .001$). Confirmatory factor analysis showed acceptable to excellent fit for SC-CII v4.c (scaled CFI=.969-.999, TLI=.948-.998, SRMR=.022-.048, RMSEA=.039-.098). Internal consistency was acceptable to good (Cronbach's α =.712-.838 for SC-CII; α =.863 for SCCS). Significant positive correlations were found between SC-CII v4.c and SCCS (r =.246-.439, $p < .01$), supporting convergent validity.

Conclusions : The Korean version of the SC-CII v4.c demonstrated satisfactory reliability and validity in this interim analysis. The instrument may be useful for assessing self-care among Korean older adults with multimorbidity. Psychometric evaluation will be confirmed using the final sample of 220 participants.

Keywords : Self-care, Chronic disease, Older adults, Aged, Psychometrics



Mutuality as a mediator linking self-care to non-motor symptom burden in Parkinson's disease: a conditional process analysis

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Purpose : Non-motor symptoms are a major source of disease burden in Parkinson's disease. Although self-care is associated with symptom burden in chronic illness, its role in Parkinson's disease remains unclear. This study aimed to examine (1) the mediating role of mutuality in the association between self-care domains and non-motor symptom burden, and (2) whether these direct associations differ by comorbidity status.

Methods : This cross-sectional study used a secondary dataset collected as part of the Parkinson's Disease-Dyad Multidisciplinary Illness Management Program (PD-DMMP) (National Research Foundation of Korea; Grant Number: 2022R1A2C1011038). Overall, 115 patients (mean age 70 years, 63% male, 67% with comorbidity) completed patient-reported measures of self-care (Self-Care of Chronic Illness Inventory, assessing maintenance, monitoring, and management), mutuality (Mutuality Scale), and non-motor symptom burden (summed score of eleven self-rated symptoms, rated 0-10). Conditional process models (PROCESS Model 5) were tested for each self-care domain, with the direct association moderated by comorbidity status, adjusting for age, gender, and disease stage. Indirect effects were bootstrapped (5,000 samples).

Results : Mutuality mediated the association between self-care and non-motor symptom burden. Significant indirect effects were found for all domains: maintenance (effect = $-.1189$), monitoring (effect = $-.1133$), and management (effect = $-.1023$), with all bootstrap confidence intervals excluding zero. Self-care was positively associated with mutuality, which in turn was negatively associated with symptom burden. Comorbidity status moderated the direct association only for self-care maintenance (interaction $p = .046$): higher maintenance was directly associated with lower symptom burden among patients without comorbidity (effect = $-.5747$, $p = .01$) but not among those with comorbidity. Direct associations were not significant for monitoring or management.

Conclusions : Mutuality served as a mediator of the association between self-care and non-motor symptom burden. Nursing interventions may benefit from strengthening mutuality while tailoring self-care maintenance to patients' comorbidity profiles.

Keywords : Mutuality, Non-motor symptoms, Parkinson's disease, Self-care



Effectiveness of a Nurse-Led Self-Management Support Program in Older Adults with Hypertension on Stroke Prevention Behaviors and Blood Pressure Levels

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Purpose : Hypertension is a major risk factor for stroke in older adults. This study aimed to evaluate the effectiveness of a nurse-led self-management support program for older adults with hypertension.

Methods : A quasi-experimental, two-group pretest–posttest design was employed. The sample consisted of 50 older adults with hypertension, selected using purposive sampling and matched into either the control or experimental group ($n = 25$ per group). The control group received routine nursing care, whereas the experimental group participated in a 4-week nurse-led self-management support program. This program was developed based on Ryan and Sawin's Individual and Family Self-Management Theory combined with the concept of nurse-led care. Program activities included stroke risk assessment, video-based education, self-management support, and follow-up via a LINE Official Account (LINE OA), with active family participation. Data were collected using questionnaires and blood pressure measurements, and analyzed using descriptive statistics, Chi-square test, Fisher's exact test, Mann-Whitney U test, and t-test.

Results : At week 4, the experimental group demonstrated a significantly higher mean score for stroke prevention behaviors compared to both their pre-program scores and those of the control group ($p < 0.001$). Furthermore, their mean systolic and diastolic blood pressure levels were statistically significantly lower than both their pre-program levels and the control group's levels ($p < 0.001$).

Conclusions : The findings demonstrate that this nurse-led self-management support program—emphasizing medication adherence, appropriate self-management, and digital follow-up via LINE OA—can effectively promote stroke prevention behaviors and improve blood pressure control in older adults with hypertension.

Keywords : Hypertension, Older adults, Self-management, Stroke prevention behaviors



Empowering Community Mental Health in the AI Era: Findings from a 3-Arm Randomized Controlled Trial (RC) on Forest Bathing Among Middle-aged Adults and VR-XR Nursing Intelligence

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Background : Urban stress significantly impacts the mental health of hypertensive middle-aged adults in Hong Kong. While Forest Bathing (FB) is an effective intervention for anxiety, traditional outdoor implementation faces significant barriers, including adverse weather, transportation logistics, and mobility limitations for vulnerable populations. Objectives: This study evaluated the impact of FB on anxiety and mood states and to discuss how VR-XR "Nursing Intelligence" (Forest CAVE) can strategically overcome the barriers of physical nature-based interventions.

Methods : In this 3-armed randomized controlled trial (n=323), hypertensive participants were randomized to: (1) Forest Bathing (FB; n=106), featuring four weekly 2-hour guided outdoor sessions; (2) Diaphragmatic Deep Breathing (DDBE; n=109), featuring weekly sessions and twice-daily home practice; and (3) Usual Care (UC; n=108), receiving health education. Mental health was assessed using the STAI and POMS scales at baseline, 4 weeks, and 8 weeks post-intervention. Qualitative feedback was also gathered on the indoor "Forest CAVE" VR-XR system designed to replicate forest environments.

Results : FB demonstrated superior mental health outcomes compared to deep breathing and usual care, with significant reduction in state anxiety (-11.3 scores, $p<0.01$) and trait anxiety (-6.0 scores, $p<0.001$). Significant improvements were also noted across POMS subscales, including reduced tension (-2.7, $p<0.001$) and increased vigor (+1.3, $p<0.001$). While physical barriers hindered outdoor sessions among vulnerable groups, the "Forest CAVE" was well-received by community service managers as a feasible solution, provided that healthcare professionals are trained as specialized coaches to ensure clinical consistency.

Conclusion : Leveraging VR/XR technology represents a strategic empowerment of nursing practice. By integrating "digital nature" into community care, nursing leadership can overcome the environmental and physical barriers of traditional therapy, providing inclusive and evidence-based mental health support in an AI-driven healthcare landscape.

Keywords : Key words: Forest bathing, VR/XR technology, Hypertension, Anxiety



Associations Between Brain Network Connectivity and Cognitive Measures in ASD: A Post Hoc Analysis of Parent Study- Evaluating the Safety and Efficacy of Transcranial Pulse Stimulation on Autism Spectrum Disorder

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Purpose : This study presents a post hoc analysis of our parent study “Evaluating the Safety and Efficacy of Transcranial Pulse Stimulation on Autism Spectrum Disorder” which was a double-blind, sham-controlled, randomized controlled trial.

Methods : In this study, we examined associations between changes in brain network connectivity and cognitive performance in young adolescents (12-17 years) with autism spectrum disorder (ASD) following the administration of transcranial pulse stimulation (TPS) which is considered non-invasive, evidenced-based brain stimulation for neurodegenerative disorders and neuropsychiatric disorders.

Results : Our findings indicate that increased connectivity in specific brain networks is associated with improvements in cognitive measures, suggesting that connectivity changes may underpin cognitive changes observed after six TPS intervention.

Conclusions : These results highlight potential neural mechanisms underlying cognitive improvements in ASD, although causality cannot be inferred from these associations.

Trial Registration: ClinicalTrials.gov identifier: NCT05408793.

Keywords : autism spectrum disorder, functional connectivity, neuromodulation, transcranial pulse stimulation



Effects of transcranial pulse stimulation on autism spectrum disorder: a double-blind, randomized, sham-controlled trial

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Purpose : Transcranial pulse stimulation (TPS) has demonstrated benefits for cognition, memory, and depressive symptoms in Alzheimer's disease, but evidence for other neurological and neuropsychiatric conditions remains limited. This study investigated the effects of TPS targeting the right temporoparietal junction (rTPJ), a core region involved in social cognition, in adolescents with autism spectrum disorder (ASD), and examined its associations with social and executive functioning.

Methods : In this double-blind, randomized, sham-controlled trial, 32 participants with ASD (27 males), aged 12-17 years, were randomized in a 1 to 1 ratio to receive either verum TPS or sham stimulation based on Childhood Autism Rating Scale (CARS) screening scores. The verum group received six TPS sessions over two weeks on alternate days, while the sham group received identical sham procedures. The primary outcome was change in parent-rated CARS scores from baseline to three-month follow-up. Secondary outcomes included parent-reported questionnaires, participant cognitive assessments, and clinician-rated Clinical Global Impression (CGI) measures.

Results : Significant group-by-time interactions were observed for CARS and several secondary outcomes. Significant group and time effects were also found across most secondary measures. Compared with the sham group, participants receiving TPS showed significantly greater improvements in CARS scores and CGI Improvement and Total scores immediately after treatment (all $p < 0.05$), with benefits maintained at one- and three-month follow-ups. Effect sizes for CARS ($d = 0.83-0.95$) and CGI Improvement ($d = 2.31-4.37$) ranged from moderate to very large, although treatment effects diminished by three months.

Conclusions : TPS over the rTPJ reduced core ASD symptoms, producing a 24% reduction in CARS scores and a 53.7% reduction in CGI Total scores at three months. Some neuropsychological outcomes improved clinically, though not all reached significance statistically overall. These findings support TPS as a promising adjunctive intervention for ASD and warrant larger multicenter international trials.

Keywords : adolescents, autism spectrum disorder, randomized controlled trial, transcranial pulse stimulation



Developing a Music-Integrated Rehabilitative Nursing Model for People with Chronic Schizophrenia

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Purpose : Only around 20%–25% of people with chronic schizophrenia achieve functional recovery, and current music-related rehabilitative activities are often entertainment-oriented rather than recovery-oriented. This qualitative multi-stage study, informed by phenomenological analysis, explored current music-related rehabilitative activities and aimed to develop a music-integrated rehabilitative nursing model.

Methods : Stage 1 involved 16 days of participant observation in a psychiatric day-care unit and a chronic ward in Taiwan. Stage 2 used purposive sampling to interview 8 people with chronic schizophrenia (3 men, 5 women; aged 36–65 years, mean 52). Data were analyzed using Lincoln and Guba's rigor criteria and Colaizzi's phenomenological method. In Stage 3, two 60-minute music-integrated rehabilitative sessions were designed and implemented to develop the model.

Results : Existing activities showed rigid content, limited interaction, and poor structure. Patients' experiences were summarized into five themes: memory recall, warm atmosphere, bodily activation and achievement, emotional expression and improved mood, and reduced symptom disturbance, with interaction perceived as a mutual blessing. These experiences reflected core elements related to recovery, including empowerment, self-determination, peer support and hope. The model was developed through assessment, planning, implementation, and evaluation by considering patients' conditions and previous music experiences, designing proactive structured activities grounded in recovery elements, and refining activities through ongoing evaluation.

Conclusions : This model addresses key limitations of current music rehabilitative activities and offers a practical recovery-oriented framework for music intervention in chronic schizophrenia. Future quantitative or mixed-methods studies are recommended to evaluate its effectiveness.

Keywords : Music-integrated rehabilitative nursing model, Chronic schizophrenia, Recovery-oriented care.



Knowledge, Attitudes, and Practices Regarding Enteral Nutrition Interruption Management in Intensive Care Units: A Multicenter Cross-Sectional Study Predominantly Among Nurses

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Purpose : Grounded in Knowledge Translation Theory and the Theory of Planned Behavior, this study used path analysis to examine the links among knowledge, attitudes, and ENI management practices in ICU healthcare professionals, focusing on attitudinal mediation and the influence of training, team participation, and organizational context.

Methods : A multicenter cross-sectional study was conducted from December 2025 to February 2026 among 478 ICU healthcare professionals from 14 hospitals in Shandong and Henan Provinces, China . A validated KAP questionnaire was used to assess ENI-related knowledge, attitudes, and practices. Statistical analyses included Spearman correlation, multiple regression, and structural equation modeling (SEM) to test hypothesized pathways.

Results : Participants demonstrated relatively limited knowledge, generally positive attitudes, and moderate practice performance regarding ENI management. Knowledge, attitudes, and practices were positively correlated, with the strongest association observed between knowledge and practice ($\rho = 0.738$, $p < 0.001$). Structural equation modeling showed that knowledge was positively associated with attitudes ($\beta = 0.69$, $p < 0.01$) and practices ($\beta = 0.30$, $p < 0.01$), while attitudes were also positively associated with practices ($\beta = 0.50$, $p < 0.01$). Attitudes partially mediated the association between knowledge and practice (indirect effect: $\beta = 0.334$, 95% CI: 0.249–0.419, $p < 0.001$), suggesting an indirect pathway through which knowledge may be translated into clinical practice. Training was the most consistent factor associated with all three KAP domains ($\beta = 0.189$ – 0.311 , all $p < 0.001$), while EN team membership was associated with higher knowledge and better practice performance.

Conclusions : Attitudes mediated the association between knowledge and ENI management practice among ICU healthcare professionals, while training and team participation were associated with better knowledge and practice performance. These findings support targeted training, multidisciplinary collaboration, and standardized ENI procedures, although longitudinal and interventional studies are needed to confirm the observed relationships.

Keywords : Enteral nutrition; ICU; Theory of planned behavior; Clinical behavior; Training intervention



Risk Factors for Pressure Injury in Mechanically Ventilated Patients in Emergency Intensive Care Units

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Purpose : Pressure injuries remain a major patient safety concern among mechanically ventilated patients in emergency intensive care units. This study aimed to identify risk factors associated with pressure injury development in mechanically ventilated patients and to provide evidence for preventive nursing strategies in critical care settings.

Methods : This prospective observational study included 120 mechanically ventilated patients admitted to an emergency intensive care unit between December 2023 and February 2024. Patients were followed from admission to discharge from the unit. Data regarding demographic characteristics, clinical variables, laboratory findings, and pressure-related factors were collected from electronic medical records and direct measurements. Pressure injury occurrence and progression were assessed throughout hospitalization. Descriptive statistics, chi-square tests, independent t-tests, and logistic regression analyses were performed to identify significant predictors of pressure injury development.

Results : Among the participants, 55 patients presented with pressure injuries at admission, and 18 patients developed new pressure injuries during hospitalization. Longer duration of mechanical ventilation, higher sacral interface pressure, and higher occipital interface pressure were significantly associated with increased risk of pressure injury development. In contrast, higher body mass index and higher serum albumin levels were associated with lower risk. These findings indicate that both physiological status and localized pressure exposure contribute to pressure injury occurrence in critically ill patients.

Conclusions : Mechanically ventilated patients in emergency intensive care units are highly vulnerable to pressure injuries. Early identification of high-risk patients and continuous monitoring of pressure-related factors are essential for effective prevention. These findings may contribute to the development of data-driven preventive nursing strategies and future intelligent risk prediction approaches in critical care nursing.

Keywords : Critical care nursing; Mechanical ventilation; Patient safety; Pressure injury



Design and Clinical Evaluation of an ICU-Oriented Eye-Tracking Communication System for Mechanically Ventilated Patients: A Prospective Quasi-Experimental Controlled Study

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Purpose : To design an ICU-oriented communication system based on an eye-tracking device and to evaluate its feasibility, safety, and preliminary effectiveness in supporting communication among mechanically ventilated ICU patients.

Methods : Seventy patients admitted between May and October 2025 were enrolled. Patients in the control group used conventional communication methods, while those in the intervention group received support from the eye-tracking communication system. Outcomes included communication success rate, duration per communication attempt, the Dry Eye Symptom Questionnaire, delirium assessment, and a communication barrier questionnaire.

Results : Compared with the control group, the intervention group achieved a significantly higher communication success rate (79.0% vs. 40.6%, OR 5.53, 95% CI 3.00–10.17, $P < 0.001$) and significantly lower communication difficulty scores (10.06 ± 4.49 vs. 29.71 ± 2.53 , $P < 0.001$). Median single-communication duration was longer in the intervention group (306 [201–376] s vs. 229 [120–312] s, $P < 0.001$). In the intervention group, the calibration success rate was 85.7%, mean calibration time was 96.63 ± 37.6 s, mean the Symptom Assessment in Dry Eye (SANDE) questionnaire score was 10.19 ± 4.28 , and only 2.9% of communication sessions exceeded predefined vital-sign safety thresholds.

Conclusions : Eye-tracking communication showed good tolerability and practical utility in mechanically ventilated ICU patients. However, communication efficiency is constrained by current interaction mechanisms, indicating a need for further optimization of hardware and algorithms.

Keywords : Eye tracking; Intensive care unit; mechanically ventilated patients; communication aid; augmentative and alternative communication



Caregiver Responsiveness to Distress Moderates the Association Between Toddlers' Potent Disengagement Cues and Developmental Outcomes: Evidence From a Nurse Home-Visiting Study in Korea

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Purpose : In toddlerhood, children increasingly assert autonomy, and their potent disengagement cues during caregiver-child interaction, such as turning away or fussing, are often construed as noncompliance. Although such cues signal escalating distress and have been linked to poorer development, they may also reflect emerging self-assertiveness, and how caregivers respond may matter more than the cues themselves. Using an observational approach, this study examined whether such cues are associated with multi-domain developmental outcomes and whether caregiver responsiveness to distress moderates these associations.

Methods : Participants were 722 caregiver-toddler dyads (53% boys; mean child age = 23.66 months) from a Korean community sample recruited through a nurse home-visiting program. Certified coders rated video-recorded, semi-structured home play sessions, including children's potent disengagement cues and caregivers' responsiveness to distress, using a standardized 73-item parent-child interaction teaching scale from the University of Washington School of Nursing. Developmental outcomes were assessed with the Bayley Scales of Infant and Toddler Development, Third Edition. Multilevel moderation models accounted for twin clustering within families and sociodemographic covariates.

Results : Children's potent disengagement cues were negatively associated with cognitive ($b = -1.10$), language ($b = -1.27$), and motor ($b = -1.03$) functioning (all $p < .05$). Caregiver responsiveness to distress significantly moderated the associations of these cues with language and motor composite scores ($b = 1.08$, $p = .025$; $b = 1.59$, $p < .001$, respectively), such that the negative associations attenuated as responsiveness increased. Johnson-Neyman analyses indicated that these associations became nonsignificant once responsiveness to distress reached the sample mean of 9.90.

Conclusions : Developmental risk was conferred not by children's disengagement behavior per se but by the quality and contingency of caregivers' responses to it. Supporting caregivers' capacity to respond promptly and sensitively to potent disengagement cues through diverse co-regulatory strategies that enhance caregiver-child synchrony represents a modifiable target for home-visiting nursing interventions.

Keywords : caregiver-child interaction, caregiver responsiveness, child distress, nurse-led home visiting



Family normalization in families of school-age children with autism spectrum disorder: An evolutionary concept analysis using Rodgers' approach

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Purpose : This study aimed to clarify the defining attributes, antecedents, consequences, and conceptual boundaries of family normalization in families of school-age children with autism spectrum disorder.

Methods : Rodgers' evolutionary concept analysis approach was applied. A systematic literature search was conducted across relevant health and social science databases. Studies addressing normalization, family adaptation, everyday life, and caregiving in families of school-age children with autism spectrum disorder were reviewed. Twelve studies met the inclusion criteria and were included in the final analysis. Data were extracted and synthesized to identify recurring attributes, antecedents, consequences, related concepts, and contextual variations.

Results : Five defining attributes were identified: (1) positioning ASD as a central life context, (2) reconstructing daily routines through behavioral and sensory regulation, (3) maintaining socially recognized normalcy under stigma pressure, (4) negotiating across educational, medical, and social welfare systems, and (5) adopting a developmental rather than recovery-oriented perspective. Antecedents included ASD-related daily disruptions, parental emotional adjustment, family caregiving capacity, and access to external resources. Consequences included stabilized family routines, enhanced parental psychological adaptation, improved family functioning, and increased social participation.

Conclusions : Family normalization in school-age ASD is a dynamic process embedded in everyday life reconstruction and ongoing adaptation, providing a foundation for future theoretical development and nursing practice.

Keywords : Autism spectrum disorder; concept analysis; family normalization; school-age children



Family Dynamics, Self-differentiation, and Resilience Among Adolescents and Young Adults with Chronic Skin Diseases

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Purpose : This study aimed to test a resilience model in AYAs with chronic skin diseases, examining the relationships among family dynamics, self-differentiation, and resilience.

Methods : This study employed structural equation modeling with a cross-sectional design. A resilience model was tested using data from 186 AYAs recruited from a dermatology outpatient clinic at a general hospital in Seoul, South Korea. Eligible patients were aged 13–24 years; diagnosed with chronic skin diseases such as atopic dermatitis, alopecia areata, psoriasis, vitiligo, or chronic urticaria at least 6 months prior to enrollment; and were currently receiving therapy. Data were collected using self-reported questionnaires between June 17, 2024, and July 31, 2025. Structural equation modeling with maximum likelihood estimation was conducted to test the hypothesized model.

Results : The effect of family dynamics on self-differentiation ($\beta = -.369$, $p < .001$) was significant. Additionally, the effects of self-differentiation ($\beta = .350$, $p < .001$) and family dynamics ($\beta = -.393$, $p < .001$) on resilience were significant. The model fit was acceptable ($\chi^2 = 37.727$, $df = 17$, $TLI = .962$, $CFI = .977$, $RMSEA = .081$), indicating that the model was adequate. The estimated path coefficients indicated that family dynamics and self-differentiation were significantly associated with higher resilience among AYAs with chronic skin disease.

Conclusions : Family dynamics and self-differentiation were significantly associated with better resilience among AYAs with chronic skin disease. Notably, family dynamics emerged as a key factor influencing self-differentiation and resilience. These results suggested that healthcare providers should implement family-centered interventions that enhance positive family dynamics to improve resilience among AYAs with chronic skin disease. In addition, it is vital that healthcare providers support patients and parents in enhancing self-differentiation, which plays a critical role in linking family dynamics to resilience.

Keywords : Skin disease, Adolescent, Resilience, Family dynamics



Behavioral Symptom Clusters and Patient Safety in Children With Developmental Disabilities: A Network Analysis

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Purpose : Problem behaviors among children with developmental disabilities may indicate patient-safety risks in healthcare settings but are often assessed as isolated behaviors. This study identified behavioral symptom clusters, central behavioral symptoms, and their implications for anticipatory pediatric nursing safety assessment.

Methods : This secondary network analysis included 242 mothers of children with developmental disabilities. Ordinal Behavior Problems Inventory-01 scores were transformed into a behavior-by-behavior network using Spearman's rho. Louvain community detection identified behavioral symptom clusters, and weighted degree centrality identified central behaviors. Safety interpretations were guided by patient-safety reporting-and-learning concepts focused on risk visibility, potential harm patterns, and risk reduction.

Results : Six behavioral symptom clusters were identified. Four clusters represented clinically interpretable potential harm patterns: body-focused and ingestive or orificial self-injurious behaviors, sensory-manipulative stereotypies with contact-related harm, motor-sensory stereotypies with impact-related self-injury, and externalized interpersonal and environmental harm. Two single-item clusters were interpreted as isolated safety cues. Safety interpretations linked the body-focused and orificial cluster to tissue injury, infection, aspiration, choking, and ingestion-related complications; the sensory-manipulative cluster to device or property disruption, procedure interruption, and contact injury; the motor-sensory and impact cluster to falls, collision, and head or body injury; and the externalized harm cluster to injury to others, infection exposure, and care interference. The most central behaviors were not limited to overt aggression but were concentrated in body-focused, insertion-related, ingestion-related, and sensory-motor behaviors. Representative central behaviors included kicking, spitting, verbal aggression, object spinning, head turning, repetitive walking, continuous finger movements, finger insertion, and regurgitation.

Conclusions : Behavioral symptom clusters may help translate complex problem behaviors into visible patient-safety risk patterns. Pediatric nursing safety assessment should address not only overt aggression, but also body-focused, insertion-related, ingestion-related, sensory-motor, and care-interfering behaviors. These findings may support early risk identification, prioritization of behavioral safety cues, family-informed communication, and risk-reduction strategies for children with developmental disabilities.

Keywords : Dvelopmental disabilities, Patient safety, Social network analyses, Symptom clusters,



Baseline metabolites associated with response to acupuncture in breast cancer survivors

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Purpose : Up to 84% of breast cancer survivors receiving endocrine therapy experience persistent, co-occurring psychoneurological symptoms (i.e., pain, fatigue, and sleep disturbance) that impair function and contribute to therapy non-adherence. While acupuncture shows efficacy for symptom relief in survivors, response heterogeneity is common, and biological mechanisms underlying this variability remain underexplored. This study aimed to identify baseline metabolomic features predictive of acupuncture treatment response across the three symptom domains.

Methods : A secondary analysis of a single-arm Phase II trial included 42 breast cancer survivors who completed a 5-week, 10-session acupuncture protocol. Symptoms were assessed using PROMIS-29 at baseline and post-treatment; participants were categorized as responders or non-responders based on trajectory analysis for each symptom. Untargeted metabolomics profiling was performed on baseline serum samples. Candidate metabolites were screened using differential abundance analysis ($|\log_2$ fold change| >1.0) and partial least squares discriminant analysis (variable importance in projection score >1.0) to identify metabolites with high discriminatory power, followed by logistic regression adjusted for age, race, and treatment expectancy.

Results : Predictive models, adjusted for age, race, and expectancy, demonstrated good to excellent discriminative performance across all symptom domains (area under the curve: pain=0.906, fatigue=0.856, sleep disturbance=0.912). Being a pain responder was associated with higher baseline levels of sphingomyelins (d18:1/22:1) ($p<0.001$). Fatigue response was associated with higher baseline N-acetylarginine ($p = 0.024$). Finally, those who responded for sleep disturbance had lower baseline levels of both N-acetylisooleucine ($p=0.040$) and Palmitoyl dihydrosphingomyelin (d18:0/16:0) ($p=0.042$).

Conclusions : Baseline metabolic profiles were differentially associated with acupuncture response depending on the targeted symptom. These metabolites reflect distinct underlying biological mechanisms: myelin integrity and neuroplastic adaptation (sphingomyelins), arginine-related energy metabolism (N-acetylarginine), and central nervous system neurotransmitter balance alongside sphingolipid homeostasis (N-acetylisooleucine and dihydrosphingomyelin). Taken together, pre-treatment metabolic states may predict symptom-specific outcomes, supporting the development of metabolomic-informed precision care in breast cancer survivorship.

Keywords : Acupuncture, breast cancer survivors, psychoneurological symptoms, untargeted metabolomics



Self-Reported Measures of Quality of Life in Adolescents and Young Adults with Intellectual Disabilities: A Scoping Review

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Purpose : Self-reported quality of life (QoL) measures for adolescents and young adults (AYA) with intellectual disability (ID) have not been comprehensively mapped, with proxy reports remaining common. This scoping review aimed to map self-reported QoL measures used among AYA with ID; describe their characteristics, administration and adaptation approaches, and contexts of use; and appraise the methodological quality of included studies.

Methods : PubMed, Cumulative Index to Nursing and Allied Health Literature, Embase, and Web of Science databases were searched for studies using self-reported QoL measures among AYA with ID. Methodological quality was appraised using the Mixed Methods Appraisal Tool (MMAT) and the Consensus-based Standards for the selection of health Measurement INstruments (COSMIN) Risk of Bias checklist.

Results : Eleven studies from seven countries (seven conducted in educational settings) were included. Self-report was assisted by researchers, teachers, or parents in seven studies. They reported thirteen instrument applications: six standard, four adapted, and three of one newly developed instrument. Pediatric Quality of Life Inventory and Well-being in Special Education Questionnaire were used three times each, with cognitive and visual adaptations in adapted or newly developed instruments in seven applications. Validity was examined in two studies; one met all MMAT criteria for its design. Common limitations were unclear sample representativeness and incomplete reporting of nonresponse, attrition, or missing data, each reported in eight studies.

Conclusions : Self-reported QoL among AYA with ID remains an emerging area, with limited evidence to guide measure selection and implementation. Accessible and validated self-report measures are needed for person-centered care and recognizing health disparities.

Keywords : Adolescent, Intellectual disability, Quality of life, Scoping review, Self-report, Young adult



Relationship Between Caregiving Competence and Family Function in Brain Tumor Caregivers

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Purpose : In disaster and complex care contexts, caregiver capability and family system functioning are critical determinants of adaptive response; however, empirical evidence examining their interrelationship in brain tumor caregiving remains limited. This study aimed to examine the association between caregiving competence and family functioning among primary caregivers of patients with brain tumors.

Methods : A cross-sectional study design was conducted in the neurosurgery ward of a medical center in northern Taiwan. A convenience sample of 111 primary family caregivers of patients diagnosed with primary malignant brain tumors or brain metastases was recruited. Inclusion criteria were age ≥ 20 years, being a family member of the patient, and having provided caregiving for at least one month. Caregivers of patients with newly diagnosed benign brain tumors, those receiving hospice or end-of-life care, paid caregivers, and individuals with cognitive or communication impairments were excluded. Data were collected using a structured demographic questionnaire, the Chinese version of the Caregiving Competence Scale (CCS-C), and the Family Assessment Device–General Functioning (FAD-GF), with reverse scoring applied. Pearson's correlation analysis was performed to examine the relationship between caregiving competence and family functioning.

Results : A significant negative correlation was identified between caregiving competence and family dysfunction ($r = -0.339$, $p < 0.01$), indicating that higher caregiving competence was associated with better family functioning. Greater caregiving competence was further associated with improved family communication, emotional support, and collaborative coping patterns.

Conclusions : Caregiving competence is significantly associated with family functioning among primary caregivers of individuals with brain tumors. These findings highlight the importance of strengthening caregiver competence as a key component of family-centered and resilience-oriented care in complex neurological conditions. Integrating structured caregiver education, psychosocial support, and family engagement strategies may enhance adaptive family functioning in high-burden caregiving contexts relevant to disaster nursing and complex care systems.

Keywords : Caregiving competence; Family function; Brain tumor caregivers; Family-centered care



Volunteer Leadership Models in Physical Health Interventions for Community-Dwelling Older Adults: A Scoping Review

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Background : As the global population ages, physical inactivity and frailty among community-dwelling older adults have become critical public health issues. Volunteer-led models, including peer-, lay-, and student-led approaches, offer a sustainable and practical alternative to professionally led community health interventions.

Objectives: This scoping review aims to map the types of volunteer leadership models used in physical health interventions for community-dwelling older adults and explore their impact on health outcomes and adherence.

Methods : This scoping review followed the PRISMA-ScR checklist and was guided by the PCC framework. Nine databases—PubMed, CINAHL, Embase, PsycINFO, Scopus, Cochrane Library, SocINDEX, ProQuest, and Web of Science—were searched from inception to 16 June 2026. Eligible studies were randomized controlled trials involving community-dwelling adults aged 60 years or above in non-institutional settings, with volunteers supporting exercise, mobility, or nutrition interventions. Studies involving professional-only delivery, non-physical health outcomes, or informal care were excluded. Data were charted to summarize leadership models, volunteer training, support mechanisms, and physical health outcomes. Searches were limited to English and Chinese publications.

Results : From 1,728 records, 10 RCTs involving 699 participants and approximately 355 volunteers were included. Three leadership models were identified: peer-led volunteers, student-led volunteers, and lay-volunteer buddies, which supported delivery. Volunteer-led models were generally associated with improved physical activity, functional fitness, strength, balance, nutritional status, and frailty outcomes. Adherence(70%–91.1%) and retention(52%–100%) were acceptable and feasible across peer-, student-, and lay-volunteer models, with most models exceeding 80% completion, suggesting that structured training and supervision supported implementation.

Conclusions : Volunteer leadership is a common approach for delivering structured, supervised, community-based physical health interventions for older adults. The evidence suggests that volunteer-supported programmes can improve functional outcomes and achieve adherence. However, current studies reported heterogeneous outcomes, limiting direct comparison across interventions. Future studies should standardize outcomes and measurement tools to support more comparable assessments of effectiveness, scalability, and sustainability.

Keywords : Volunteer-led Models, Older Adults, Volunteer Training, Physical Activity, Community Care



Characteristics of Volunteers in a Time Banking System Supporting Older Adults: A Qualitative Study

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Purpose : This study aimed to explore the characteristics of volunteers participating in the Time Bank system for supporting older adults

Methods : A qualitative research design was employed to explore the characteristics of potential Time Bank volunteers within the Thai sociocultural context. Data were collected from 35 volunteers through focus group discussions and in-depth interviews with key informants who had experience in volunteer activities, community engagement, and community-based elderly care. Data collection was conducted between December 2025 and February 2026. The data were analyzed using thematic content analysis to identify the essential characteristics that contribute to effective volunteer performance and sustainable participation in the Time Bank system

Results : The findings identified ten essential characteristics of Time Bank volunteers. These included: (1) knowledge and practical skills, including digital literacy; (2) prioritizing public benefit over personal interests; (3) responsibility and commitment to volunteer work; (4) honesty, integrity, transparency, and fairness; (5) morality, compassion, and respect for the dignity and diversity of others; (6) the ability to apply information and evidence to strengthen community development; (7) creativity and innovation in designing community activities; (8) leadership, strategic vision, and the ability to develop future community leaders; (9) competence in building and sustaining community networks; and (10) the ability to collaborate effectively with multidisciplinary teams and stakeholders across sectors.

Conclusions : The identified characteristics provide a conceptual framework for recruiting, training, and developing Time Bank volunteers in Thailand. Strengthening these competencies may enhance the effectiveness and sustainability of community-based care for older adults while supporting healthy ageing, social participation, and resilient community care systems in an ageing society

Keywords : Older Adults; Characteristics of Volunteers; Time Bank; Qualitative study



Translation, Cultural Adaptation, and Psychometric Validation of the Artificial Intelligence Literacy Scale for Korean Clinical Nurses

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Purpose : Clinical nurses are key healthcare professionals who use Artificial Intelligence based technologies in clinical practice and require AI literacy for the safe and effective use of AI. However, a standardized Korean-language instrument for assessing AI literacy among Korean clinical nurses is lacking. This study aimed to translate and culturally adapt the Artificial Intelligence Literacy Scale developed by Wang et al. (2023) into Korean and evaluate its psychometric properties among Korean clinical nurses.

Methods : This methodological study followed the World Health Organization guidelines for translation and cultural adaptation, including forward and backward translation, expert review, content validity assessment, and cognitive interviews. Data were collected from 530 clinical nurses at a tertiary hospital in Seoul, South Korea. The sample was randomly divided for exploratory factor analysis and confirmatory factor analysis. Construct validity, convergent and discriminant validity, and reliability were evaluated.

Results : The final Korean version of the Artificial Intelligence Literacy Scale consisted of 11 items across two factors: Competency and Ethics. Content validity was excellent (I-CVI=.857–1.000; S-CVI/Ave=.976). EFA identified a two-factor structure explaining 42.60% of the total variance. CFA demonstrated acceptable model fit ($\chi^2/df=3.542$, GFI=.912, CFI=.878, RMSEA=.098). Standardized factor loadings ranged from .469 to .762. Construct reliability met the recommended criteria, and discriminant validity was supported. The overall Cronbach's α was .820.

Conclusions : The K-AILS demonstrated acceptable reliability and evidence of construct validity for assessing AI literacy among Korean clinical nurses. Unlike the original four-factor structure, the Korean version yielded a two-factor structure consisting of Competency and Ethics. The K-AILS may be useful for assessing AI literacy and educational needs and for evaluating the effectiveness of AI education programs for clinical nurses.

Keywords : Artificial intelligence literacy; cross-cultural adaptation; nurses; psychometrics



Preserving Person-Centred Fundamental Care in Human-AI Collaboration : A Scoping Review

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Purpose : As artificial intelligence becomes increasingly integrated into healthcare and nursing practice, it is important to understand how human–AI collaboration can support, rather than fragment, person-centered fundamental care. Guided by the Fundamentals of Care framework, this review mapped evidence on HAIC across triadic caring relationships, fundamental care dimensions, nursing roles, and ethical considerations in nursing and community care.

Methods : Multiple databases, including PubMed MEDLINE, Web of Science, CINAHL, and PsycArticles, were searched for studies published between January 2020 and July 2025. Studies involving care providers or care recipients collaborating with AI in nursing or community care settings were included. Hospital-based diagnostic and non-empirical studies were excluded. The JBI updated nine-step framework and PRISMA-ScR guideline were followed.

Results : A total of 1,744 articles were retrieved, and 26 were included in this review. Three configurations of triadic caring relationships involving care recipients, care providers, and AI systems were identified: provider-mediated, joint engagement, and recipient-facing configurations. HAIC tasks were primarily concentrated on physical care, with comparatively limited integration across physical, psychosocial, and relational dimensions. Five nursing roles emerged within HAIC: proactive care coordinator, AI output validator, data curator, AI literacy facilitator, and AI co-designer. Ethical considerations were frequently reported, with accountability and human oversight most prominent.

Conclusions : Preserving person-centered fundamental care in HAIC requires AI-generated information to be interpreted within the context of professional judgement and human support. Across different HAIC configurations, nurses remain central to maintaining continuity, coordinating care, and translating AI-supported information into individualized care that addresses recipients' physical, psychosocial, and relational needs.

Keywords : Human-AI collaboration, Artificial Intelligence, Fundamentals of Care, Person-centered care, Nursing, Community care, Scoping Review, Triadic Caring Relationship, AI-integrated Care



Development and Preliminary Evaluation of a Multi-User Virtual Reality-Based Interprofessional Education Program

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Purpose : This study aimed to develop a multi-user virtual reality-based interprofessional education program using pediatric cardiac arrest scenarios and to evaluate its usability and preliminary effectiveness.

Methods : Based on the Circle of Engagement Model, a multi-user virtual reality-based interprofessional education program was developed using a pediatric cardiac arrest scenario. The program enabled four learners to participate simultaneously in a shared virtual environment, assume role-based responsibilities, communicate in real time, and perform collaborative interventions using hand tracking. Patient status changes and physiological responses were programmed to vary according to time progression and team interventions. The program consisted of three educational sessions totaling 450 minutes and included repeated simulation and reflective debriefing. Data were collected in March 2026 from six nursing students and two medical students at K University in D Metropolitan City. Participants were assigned to two four-member teams. General characteristics and outcome variables were analyzed using descriptive statistics.

Results : The developed program demonstrated good usability, with a mean usability score of 78.13, and user experience was rated as excellent. Participants reported a high level of presence, with a mean score of 6.01, and a low level of cybersickness, with a mean score of 1.63. Pre- and post-education comparisons showed increasing trends in teamwork, communication skills, and interprofessional collaboration competency.

Conclusions : The multi-user virtual reality-based interprofessional education program provided a usable and immersive learning experience for pediatric cardiac arrest education. Its preliminary effectiveness in improving teamwork, communication skills, and interprofessional collaboration competency supports its potential as a user-friendly educational tool for strengthening collaborative practice in pediatric emergency situations.

Keywords : Interprofessional education, Pediatric cardiac arrest, Simulation-based education, Virtual reality



Caregiving Experiences of Young Adult Carers of Family Members with Cancer or Severe Chronic Illness: A Qualitative Content Analysis

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Purpose : In Korea, young adult carers take on considerable family caregiving duties at a pivotal stage of their development, but they frequently go unacknowledged by healthcare and social welfare systems. The purpose of this study was to explore and describe the caregiving experiences of young adult carers looking after family members with cancer or serious chronic illnesses.

Methods : Using a qualitative descriptive approach, we interviewed 22 young adult carers in depth between October and December 2022. Interviews were held individually, in person or by telephone, and the data were examined through conventional qualitative content analysis.

Results : Five categories emerged from the analysis: "Constraints on development and interpersonal relationships in young adulthood," "Psychological distress accumulated without expression," "Health-related caregiving undertaken without professional support and physical burden," "Institutional blind spots and unmet support needs," and "Reconstruction of the caregiving experience." Caregiving responsibilities constrained participants' educational, occupational, and career trajectories and contributed to increasing distance from peers. Psychological distress was frequently suppressed and accumulated over time, resulting in substantial emotional exhaustion. Participants also undertook health-related caregiving tasks without adequate education or information, while prolonged caregiving demands contributed to sleep deprivation and physical exhaustion. Access to appropriate information and support was further hindered by institutional barriers and eligibility criteria. Relational and professional support facilitated the restoration of emotional stability and enabled some participants to reconstruct the meaning of their caregiving experiences.

Conclusions : Young adult carers should be acknowledged not merely as family members who support patients, but as individuals who themselves need nursing assessment, education, emotional support, and advocacy. Nurses need to recognize young adult carers in clinical and community settings, evaluate their caregiving burden and health needs, and link them to appropriate health and social services.

Keywords : Caregivers, Young Adult, Caregiver Burden, Needs Assessment, Qualitative Research.



Health Outcomes Among Parents of Childhood Cancer Survivors After Treatment Completion: An Integrative Review

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Purpose : This review examined the physical health, psychological health, and quality of life of parents of childhood cancer survivors following treatment completion and explored factors influencing these outcomes.

Methods : An integrative review was conducted using the Whittemore and Knafl framework. Four databases (PubMed, Embase, CINAHL, and PsycINFO) were searched for quantitative studies published between 2016 and 2025. Search terms addressed childhood cancer survivorship, parents or caregivers, and health-related outcomes. The methodological quality of the included studies was assessed using the Mixed Methods Appraisal Tool. The findings of the eligible studies were integrated through narrative synthesis.

Results : Thirty-one studies were included. Physical health was examined in only five studies, indicating limited evidence in this area. Although chronic conditions and general healthcare use were generally comparable to those of comparison groups, chronic pain emerged as a notable concern. Psychological health received the greatest research attention, with 24 studies examining this domain. Severe psychological disorders were generally uncommon; however, a meaningful subgroup of parents experienced persistent post-traumatic stress symptoms, anxiety, depression, distress, and fear of recurrence. Among these outcomes, fear of recurrence and anxiety emerged as the most prominent psychological concerns during survivorship. Despite these challenges, several studies also identified post-traumatic growth, with higher resilience associated with greater growth. Overall parental quality of life was generally comparable to population norms. However, lower quality of life was observed among socially and economically vulnerable subgroups and was associated with greater caregiving burden and adverse child-related clinical factors. In contrast, resilience and social support consistently emerged as protective factors.

Conclusions : Although many parents demonstrate resilience following their child's treatment, a meaningful subgroup continues to experience long-term physical and psychological challenges. Family-centered survivorship care should include routine screening, early identification of vulnerable parents, and interventions that strengthen resilience and social support.

Keywords : Childhood Cancer Survivors, Health, Parents, Quality of Life



End-of-Life Healthcare Utilization among Cancer Decedents: Associations with Use of the Life-Sustaining Treatment Decision System and Decision Maker Type

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Purpose : This study aimed to describe patterns of end-of-life healthcare utilization during the last 6 months, 3 months, and 1 month of life among cancer decedents and to examine their associations with the use of the Life-Sustaining Treatment (LST) decision-making system and decision maker type.

Methods : This retrospective observational study used National Health Insurance Service data on individuals who died from cancer between February 2018 and December 2019. Participants were classified by LST decision status based on claims for LST planning fees. Propensity score matching and conditional logistic regression were used to compare end-of-life healthcare utilization between groups. Among those with LST decisions, multivariable logistic regression was used to compare self-determination and surrogate decision groups.

Results : Approximately 28% of participants were classified into the LST decision group. Hospice use ranged from 18% to 19%, whereas emergency department use ranged from 40% to 60% across the observed periods. Compared with the non-LST decision group, the LST decision group had lower use of cardiopulmonary resuscitation, mechanical ventilation, and intensive care unit admission, with these patterns being more pronounced in the self-determination group than in the surrogate decision group. Hospice use was higher in the LST decision group and highest in the self-determination group. Most LST decisions were made within 30 days before death.

Conclusions : End-of-life healthcare utilization differed by LST decision-making status and decision-maker type. These findings highlight the need to support earlier communication about patients' preferences and strengthen systems that promote patient-centered end-of-life decision-making and access to hospice and palliative care.

Keywords : Advance care planning, Cancer, End-of-life care, Healthcare utilization, Real-world data



Protocol of the Korean Nurses' Mental Health Study (KNMHS): a nationwide prospective cohort study

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Purpose : Nurses' psychological stability is a crucial prerequisite for ensuring patient safety and high-quality healthcare services. However, in highly stressful and challenging work environments, nurses are vulnerable to various mental health problems. In Korea, where young nurses in their 20s and 30s constitute a substantial portion of the nursing workforce, this issue is particularly important because they experience the dual burden of developmental challenges in early adulthood and demanding clinical work environments, which places them at increased risk of mental health problems. However, nationwide longitudinal survey data comprehensively covering a wide range of mental health problems among nurses are not yet available in Korea. Hence, the Korean Nurses' Mental Health Study (KNMHS) was developed as a longitudinal panel study to assess the multidimensional mental health of nurses in Korea. This study aims to describe the protocol for the KNMHS and to discuss its implications.

Methods : KNMHS is a prospective open cohort study that includes a baseline survey and two longitudinal follow-ups. The baseline sample will include approximately 5,000 registered nurses in their 20s and 30s. Data will be collected through a web-based platform developed specifically for this study to assess baseline characteristics and 17 mental health-related variables. Participants will be classified into mental health risk groups based on predefined cutoff scores for vulnerability and mental health symptom indicators. Descriptive, regression-based, and longitudinal analyses will examine mental health outcomes and associated factors over time. Participants will be able to view their individual survey results

Results : The KNMHS and the web-based platform for survey administration have been finalized, and recruitment will begin following ethics approval.

Conclusions : Results from the KNMHS will provide a comprehensive understanding of the multidimensional factors associated with mental health among young nurses in Korea and will inform the development of targeted mental health services and policies to promote psychological well-being among nurses.

Keywords : longitudinal study, mental health, nurses, panel study



Childhood trauma, health literacy, loneliness and psychological distress among university students: A latent profile and moderated mediation analyses

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Purpose : Childhood trauma is a robust predictor of later psychological difficulties, and university students are at elevated risk of depression and anxiety. Health literacy has emerged as a critical resource for managing stress and maintaining mental well-being, whereas loneliness is a salient risk factor that can exacerbate psychological distress. Nevertheless, the heterogeneity of childhood trauma experiences and the pathways through which health literacy and loneliness jointly influence psychological distress have not been systematically investigated. Drawing on Conservation of Resources theory, this study aimed to apply latent profile analyses of childhood trauma, to examine the relationship between childhood trauma profiles and psychological distress among university students, and to investigate the mediating role of health literacy and the moderating role of loneliness in this relationship.

Methods : A cross-sectional survey was conducted among 1,197 university students between January and May 2025. Participants were required to complete self-administered questionnaires assessing childhood trauma, health literacy, loneliness, depression, and anxiety. Latent profile analysis was used to identify childhood trauma profiles, and moderated mediation analysis was performed to examine the indirect effect of health literacy on psychological distress through loneliness.

Results : Latent profile analysis identified two profiles: a low trauma profile and a high emotional neglect profile. Health literacy significantly mediated the association between trauma profile and psychological distress for both depression (indirect $B = 0.359$, 95%CI [0.216, 0.509]) and anxiety ($B = 0.182$, 95%CI [0.068, 0.303]). Loneliness moderated the health literacy–distress association, with the protective effect of health literacy strongest among students reporting persistent loneliness and non-significant among those reporting no loneliness.

Conclusions : Our findings highlight distinct childhood trauma profiles among university students and underscore the roles of health literacy and loneliness in the onset of psychological distress. Interventions should focus on enhancing health literacy and reducing loneliness to mitigate the adverse psychological impact of childhood trauma among university students.

Keywords : Big Five personality; Personality profiles; Health literacy; Depression; Latent profile analysis; Moderation analysis



Symptom propagation and intervention targets in the depression–anxiety symptom network among nursing students: A simulation-based network study

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Purpose : Depressive and anxiety symptoms frequently co-occur, yet it remains unclear which symptoms should be prioritized when network findings are translated into intervention targets. Using cross-sectional data, this study characterized the depression and anxiety symptom network in Chinese undergraduate nursing students, examined the conditional dependency orientation between the two symptom domains, and then used simulation-based analysis to identify candidate treatment and prevention targets.

Methods : The network was densely connected, and psychomotor retardation, fidgetiness, and excessive worrying stood out as prominent cross-domain symptoms. The Bayesian DAG was more frequently oriented from anxiety symptoms toward depressive symptoms. Simulated interventions separated treatment from prevention targets: alleviating fatigue produced the largest projected reduction in overall severity, whereas aggravating excessive worrying and fidgetiness produced the largest projected increases. Targets that most reduced overall severity differed from those that most increased it.

Results : The network was densely connected, and psychomotor retardation, fidgetiness, and excessive worrying stood out as prominent cross-domain symptoms. The Bayesian DAG was more frequently oriented from anxiety symptoms toward depressive symptoms. Simulated interventions separated treatment from prevention targets: alleviating fatigue produced the largest projected reduction in overall severity, whereas aggravating excessive worrying and fidgetiness produced the largest projected increases. Targets that most reduced overall severity differed from those that most increased it.

Conclusions : In this nursing student sample, simulation-based analysis distinguished candidate treatment targets from candidate prevention targets. The directional and simulation-based findings were derived from cross-sectional data and require longitudinal or experimental validation. These results offer preliminary, symptom-specific guidance for mental health support in nursing education.

Keywords : Anxiety; Bayesian network; Comorbidity; Depression; Network intervention analysis; Nursing students; Symptom network

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Peri-Admission Physiological State Transitions and Subsequent In-Hospital Mortality Among Patients with Sepsis: A Retrospective Secondary Data Analysis

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Purpose : Early sepsis risk assessment relies largely on single-time-point physiological abnormalities or severity scores. We examined whether peri-admission physiological state transitions were associated with in-hospital mortality.

Methods : We retrospectively studied 1,098 adults with sepsis admitted through the emergency department of a tertiary hospital between 2013 and 2018. Twelve routinely measured variables reflecting hematologic/inflammatory response, organ dysfunction, electrolyte imbalance, and hemodynamic/respiratory instability were used. Clinically unfavorable values on the day before admission (D-1) and the day after admission (D+1) underwent K-means clustering. The K=2 solution defined preserved and unstable phenotypes; their combinations defined preserved-to-preserved, deterioration, recovery, and persistent instability. Fine-Gray models from a D+2 landmark assessed 90- and 30-day in-hospital mortality.

Results : The unstable phenotype was characterized by hypotension, tachycardia, and tachypnea. Groups were preserved-to-preserved (40.3%), deterioration (10.7%), recovery (25.2%), and persistent instability (23.8%). Overall, 254 patients (23.1%) died in hospital within 90 days. Compared with preserved-to-preserved, deterioration (adjusted sHR 2.42, 95% CI 1.66–3.52; $p < .001$) and persistent instability (adjusted sHR 2.05, 95% CI 1.50–2.80; $p < .001$) were associated with higher 90-day mortality; recovery was not (adjusted sHR 1.01, 95% CI 0.71–1.44; $p = .944$). At 30 days, associations were stronger for deterioration (adjusted sHR 2.66, 95% CI 1.73–4.08; $p < .001$) and persistent instability (adjusted sHR 2.28, 95% CI 1.60–3.26; $p < .001$).

Conclusions : Early transition to or persistence of physiological instability was associated with higher in-hospital mortality. These findings support repeated nursing assessment of peri-admission physiological changes, particularly vital-sign trajectories, for timely recognition and escalation.

Keywords : Sepsis, Clinical Deterioration, Physiological State Transitions



Biological indicators associated with post-stroke fatigue: a systematic review

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Purpose : Post-stroke fatigue (PSF) is a prevalent and disabling condition following stroke; however, its biological mechanisms are not fully understood. This systematic review synthesizes evidence on biological indicators associated with PSF.

Methods : PubMed, CINAHL, Scopus, and the Cochrane Library were searched from inception to May 2026. Observational studies examining biological indicators associated with PSF in adults with stroke were included. Study selection, data extraction, and quality appraisal were conducted independently by two reviewers using the JBI critical appraisal tools. Due to substantial heterogeneity in biological indicators, fatigue assessment methods, and study designs, findings were synthesized narratively.

Results : Twenty-two observational studies met the criteria. Higher levels of interleukin-1 β and red cell distribution width were associated with PSF among inflammation- and blood-related markers. For hormone, metabolism, and genetic markers, higher glycated hemoglobin and uric acid, lower apolipoprotein A1, thyroid-stimulating hormone, and tryptophan index, as well as a low-activity monoamine oxidase A genotype in women, were associated with PSF. Neuroimaging studies identified associations between PSF and lesion locations, including the basal ganglia, caudate, deep cerebral microbleeds, and subcortical white matter infarction, whereas lesion volume was not associated with PSF. Among vascular and metabolic clinical indicators, diabetes mellitus, higher body mass index, and myocardial infarction were associated with PSF. Associations of hypertension and obstructive sleep apnea with PSF were primarily reported in long-term or chronic-phase studies. Findings regarding C-reactive protein were inconsistent across studies.

Conclusions : Current evidence indicates that PSF is associated with multiple biological domains, including inflammatory and blood-based biochemical indicators, endocrine, metabolic, and genetic indicators, neuroimaging indicators, and vascular and metabolic clinical indicators, rather than a single biological mechanism. These findings may facilitate early risk identification and support individualized management of PSF, despite the absence of a definitive biomarker. Further longitudinal studies using standardized fatigue measures are needed to clarify relationships between biological indicators and PSF.

Keywords : Stroke, Post-stroke fatigue, Biomarkers, Systematic review



Relationships among Sleep Variability, Nocturnal Heart Rate Variability, and Glycemic Variability in Older Adults with Type 2 Diabetes

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Purpose : Inadequate sleep activates stress-regulatory systems, potentially impairing glycemic control. Stress-induced autonomic imbalance often manifests as reduced nocturnal heart rate variability (nHRV). This study investigated the relationships among sleep variability, nHRV, and glycemic variability, providing physiological evidence for diabetes interventions.

Methods : For this observational study, 38 older adults (aged ≥ 65) with type 2 diabetes were recruited from senior welfare centers and monitored over 10 days using Oura Ring and Dexcom G7 to track daily sleep and glucose level. Oura Ring captured sleep duration, midpoint of sleep (midway between sleep onset and offset), sleep efficiency, and nHRV, while Dexcom G7 measured daily mean glucose, yielding 362 observations (mean 9.7 days; range 5-12). To isolate within-person dynamics, variables were person-mean-centered, defining variability as daily within-person deviations. Linear mixed models were employed, adjusting for age, sex, body mass index, diet-related behaviors, and physical activity.

Results : Variability in midpoint of sleep ($B=.01$, $p=.031$) and sleep efficiency ($B=.07$, $p=.031$) were positively associated with nHRV, whereas sleep duration variability was not ($B=.00$, $p=.389$). This indicates that daily shifts toward later sleep timing and greater sleep efficiency were associated with better autonomic balance. nHRV did not moderate the associations of glycemic variability with variability in midpoint of sleep ($B=.00$, $p=.353$), sleep duration ($B=.00$, $p=.530$), and sleep efficiency ($B=.03$, $p=.101$). The direct association between nHRV and glycemic variability remained non-significant across these models (B range: $-.06$ to $-.02$, all $p > .70$).

Conclusions : Although no direct link between sleep and glycemic variability was observed, the association between sleep variability and nHRV suggests that immediate compensatory autonomic responses to short-term sleep variability might offset the negative impact of sleep disturbances on glycemic control. Given our 10-day observation period, longitudinal analysis is needed to clarify the long-term cumulative effects of sleep changes on autonomic function and glycemic control.

Keywords : Glucose variability, Heart rate variability, Sleep, Type 2 diabetes



Clinical Perspectives on Sleep Management in Type 2 Diabetes: A Thematic Analysis to Inform a Sleep-Focused Mobile Application

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Purpose : Sleep plays a critical role in glycemic control and self-management for patients with type 2 diabetes (T2D). However, existing digital health interventions for T2D management often overlook sleep-specific needs. This study explored clinicians' perspectives on requirements for sleep-focused mobile applications (apps) for T2D management.

Methods : Seven clinicians with a mean of 8.4 years of T2D care experience participated in semi-structured interviews. Data were audio-recorded, transcribed verbatim, and analyzed using thematic analysis in NVivo 1.7. Two researchers independently coded the transcripts and reached a consensus.

Results : Four primary themes were identified. The first, 'Perspectives on sleep disturbances in diabetes care' (two subthemes), highlights that clinicians perceive sleep disturbances as common, yet often overlooked in routine care. The second, 'Current sleep management in diabetes care' (three subthemes), reveals that despite recognizing the importance of sleep, clinicians prioritize diet, physical activity, and medication management over sleep due to limited consultation time and lack of clinician knowledge regarding sleep management. The third, 'Timing and target population for sleep interventions' (two subthemes), indicates clinicians prioritize middle-aged adults and those with psychological distress for sleep interventions, emphasizing prompt action upon detecting sleep issues, specifically when patients demonstrate a willingness to change. The fourth, 'Considerations for mobile sleep interventions' (two subthemes), shows current mobile app interventions are hard to implement due to low accessibility, poor health care system integration, and challenges with long-term engagement. Clinicians suggest that mobile apps for sleep management should foster personalized behavior change support, healthcare system integration, and user-centered design.

Conclusions : Bridging the gap between the recognized importance of sleep and the limited application of sleep management in routine diabetes care requires healthcare system integrated, user-centered mobile app solutions, which embed personalized behavior change strategies to optimize comprehensive diabetes care.

Keywords : Digital health intervention; Mobile application; Sleep management; Type 2 diabetes



Challenges of triage assessment of adult patients in the emergency department

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Purpose : To evaluate the triage competency of the nurses and the records of patients served by the Emergency Department (ED).

Methods : "The study was conducted using a predictive correlation model, evaluating data from 269 patients of the Emergency Department and Family Health Center, and assessing the triage skills of 10 nurses using the Triage Competency Scale (TCS) questionnaire. The results were analyzed using descriptive statistics, Pearson correlation, and multiple regression analysis."

Results : The average age of the participants in the study was 44.8 years, with 52.4% being women. Among the patients included in the study, 56.1% were classified as yellow and 40.1% as green. There was a weak negative correlation between age and classification ($r = -0.180$, $p = 0.027$), while classification had a weak positive correlation with gender ($r = 0.135$, $p = 0.02$) and a moderate positive correlation with education level ($r = 0.352$, $p = 0.001$). Regression analysis determined that age, gender, and education influenced classification. Additionally, 70% of the nurses from the EMT had more than 15 years of experience, and their average score for triage skills was 120.3, rated as "Good".

Conclusions : "A total of 96.2% (269) of the patients were classified under the green or yellow categories and accounted for 97% of the total costs. The demographic variables such as age, gender, and education level of the patients influenced their triage classification. Therefore, it is necessary to focus on providing recommendations and essential information to improve the health literacy of the population in the future".

Keywords : Triage, Triage assessment form, Influencing factors.



Development and Psychometric Evaluation of a Frailty Care Knowledge and Practice Scale for Patient Safety Among Nurses.

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Purpose : This study developed and psychometrically evaluated a Frailty Care Knowledge and Practice Scale to support patient safety-focused workforce assessment.

Methods : A cross-sectional study using convenience sampling was conducted among 379 registered nurses recruited from inpatient wards, outpatient clinics, intensive care units, emergency departments, and dialysis units. The scale was developed through literature review and expert consultation. Frailty knowledge items were scored dichotomously, while frailty practice items were rated using ordered response categories reflecting the adequacy of care behaviors. Item response theory (IRT) with Rasch analysis was applied to examine item fit, item difficulty, and discrimination parameters. Descriptive statistics were used to summarize participant characteristics.

Results : Participants had a mean age of 32.4 years (SD = 8.3) and a mean clinical experience of 9.2 years (SD = 8.5). Most participants were female (95.8%) and held a university degree. Approximately 42.2% had received geriatric-related education, and 24.8% reported prior frailty care training. For the frailty knowledge scale, correct response rates ranged from 62.3% to 99.5%. Rasch analysis indicated that most items demonstrated acceptable model fit, with item difficulty estimates spanning a broad range, suggesting adequate discrimination across different knowledge levels relevant to patient safety. Although several items showed evidence of local dependence, overall model performance was acceptable for an exploratory assessment tool. For the frailty practice scale, most items exhibited satisfactory fit and meaningful discrimination. Item difficulty patterns suggested that routine safety-related frailty care behaviors were commonly performed, whereas proactive assessment and comprehensive management behaviors were less consistently implemented, indicating potential gaps in patient safety practices.

Conclusions : The Frailty Care Knowledge and Practice Scale demonstrated acceptable preliminary psychometric properties and effectively differentiated nurses' competence in frailty-related patient safety practices. This instrument provides a practical tool for workforce assessment, identification of educational needs, and evaluation of frailty-focused patient safety interventions aimed at fall prevention and functional preservation.

Keywords : Fall prevention, Frailty Care Knowledge, Patient Safety



Trauma Nursing Knowledge Architecture Across the Continuum of Care: A Scoping Review

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Purpose : To identify and synthesise trauma-related nursing concepts reported across the continuum of adult trauma care and to develop an integrated trauma nursing knowledge architecture.

Methods : Scoping review conducted in accordance with Joanna Briggs Institute methodology and reported following PRISMA-ScR. PubMed/MEDLINE, Embase, CINAHL, Web of Science Core Collection, Cochrane Library, RISS, and ScienceON were searched for studies published between January 2000 and May 2026. Study selection was guided by the Population–Concept–Context framework. Eligible studies addressed trauma-related nursing diagnoses, interventions, outcomes, activities, continuity-related processes, or competency-related concepts involving adult trauma patients. Two reviewers independently screened studies and extracted data. Concepts were synthesised using inductive content analysis and framework-based conceptual mapping.

Results : Of 9,126 records identified, 15 studies met the inclusion criteria. Framework-based synthesis identified six integrated trauma nursing domains: (1) Clinical Prioritisation and Coordination, (2) Physiological Stabilisation and Initial Assessment, (3) Comprehensive Assessment and Symptom Management, (4) Recovery-Oriented and Supportive Care, (5) Interdisciplinary Collaboration and Continuity of Care, and (6) Competency-Based Trauma Nursing Practice.

Conclusions : Trauma nursing encompasses clinical, recovery-oriented, coordination-related, and competency-based responsibilities across the continuum of care. The proposed architecture links trauma-related concepts, domains of practice, continuity processes, competency-related perspectives, and standardised nursing terminology systems.

Keywords : trauma nursing; clinical competence; Continuity of Care, Standardized Nursing Terminology, Informatics



Bipartite Network Analysis of Intradialytic Adverse Events and Nursing Interventions Using Free-Text Nursing Records

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Purpose : This study aimed to systematically characterize intradialytic adverse events and related nursing interventions in hemodialysis patients by standardizing free-text electronic nursing records and applying weighted bipartite network analysis to identify key events, core interventions, and bridging interventions, and to assess the robustness of these findings.

Methods : This single-center retrospective observational secondary analysis included free-text electronic nursing records of adult hemodialysis patients (≥ 19 years) from a tertiary teaching hospital in Korea (July 2020–June 2025). Data were standardized at the nursing-note level using codebook-based mapping validated by independent reviewers, and analyzed using descriptive statistics and weighted bipartite network analysis, including centrality measures and sensitivity analyses under varying edge-weight thresholds.

Results : Among 163 patients, hypotension was the most prevalent adverse event (75.5%) and frequently co-occurred with fatigue (“himdeulda”), while common intervention bundles included leg elevation with ultrafiltration adjustment. Adverse events formed 13 clusters, including three major clinically interpretable groups. Within these, interventions such as postural change and ultrafiltration adjustment were repeatedly linked to multiple events, whereas physician notification, close observation, and emotional support emerged as key bridging interventions across clusters. The bipartite network comprised 116 nodes and 887 edges (density = 0.133), and sensitivity analyses demonstrated stable centrality rankings and consistent identification of core bridging interventions across analytical conditions.

Conclusions : Intradialytic adverse events and nursing interventions form a complex, interconnected structure rather than isolated pairs; identifying key bridging interventions supports the development of cluster-based, integrated care strategies and highlights the analytic value of standardized free-text nursing records.

Keywords : nursing records, renal dialysis, drug-related side effects and adverse reactions, data mining, social network analysis



Analysis of the flow rate based on length and diameter of infusion set and peripheral venous catheter in rapid fluid therapy

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Purpose : This study provides data for nurses on rapid fluid therapy by analyzing the flow rate according to the size of peripheral intravenous catheters and the length and inner diameter of the infusion sets.

Methods : The study model comprised system components that are generally recommended for administration to patients requiring rapid fluid infusion. These included Room-temperature (22°C), 0.9% saline and Hartmann's solution, Standard infusion sets certified under KS P ISO 8004:2019 (lengths of 150, 180, and 200 cm; inner diameters of 2.8, 3.2, 3.6, and 4.0 mm) and 16, 18, 20, and 22 gauge peripheral IV catheters. The cephalic and basilic veins were used and the friction-adjusted Bernoulli equation was applied to each section based on three points the midpoint of the drip chamber in the infusion set, the connection point between the end of the infusion set and the peripheral intravenous catheter, and the endpoint of the peripheral intravenous catheter connected to the vein to account for friction.

Results : This study focuses on the control volume analysis method. The results of this study indicated that when the length and inner diameter of the infusion set in the cephalic vein were the same, increasing the peripheral intravenous catheter size from 22 to 16 gauge increased the fluid flow rate by approximately 2.67-3.62 times. When the catheter size and infusion set diameter were the same, a shorter infusion set length increased the fluid flow rate approximately 1.01-1.13 times.

Conclusions : These results suggest that predicting the hourly flow rate based on the size of the peripheral intravenous catheter and the length and inner diameter of the infusion set during rapid fluid infusion can enable nurses to make autonomous decisions and efficiently manage their time in clinical settings.

Keywords : flow rate, rapid fluid therapy, peripheral venous catheter, infusion set



Analysis of Infusion Volume Error Rates According to Increases in the Number of Connected Fluids and Infusion Flow Rates: Implications for Clinical Skill Training

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Purpose : The purpose of this study was to quantify infusion volume error rates based on the number of connected infusion lines and infusion flow rates using a fluid dynamics model, and to determine the effects of catheter diameter and fluid viscosity on infusion accuracy in peripheral and central venous systems.

Methods : A theoretical simulation was conducted using a control volume approach based on the extended Bernoulli and Darcy–Weisbach equations. Four intravenous fluids with different viscosities (0.9% normal saline, 5% dextrose water, 5% albumin, and 6% hetastarch) were analyzed. The infusion system comprised an infusion set, a four-port manifold, extension tubing, peripheral venous catheters (20-, 22-, and 24-gauge), and a 5-Fr central venous catheter. Flow rates ranged from 10 to 300 mL/h with one to four connected infusion lines. Infusion volume error rates were calculated by comparing predicted and target infusion volumes.

Results : Infusion volume error rates increased with both the number of connected infusion lines and infusion flow rates. In peripheral venous catheters, the maximum error rate reached 48.3% with four connected infusion lines, whereas the corresponding maximum error in the central venous catheter was 8.3%. Smaller catheter diameters produced greater infusion volume errors because of increased hydraulic resistance. Higher-viscosity fluids showed lower error rates owing to Reynolds number-dependent frictional characteristics. Single-line infusion produced negligible error regardless of catheter type or fluid viscosity.

Conclusions : Infusion volume accuracy is strongly influenced by the number of connected infusion lines, infusion flow rate, catheter diameter, and fluid viscosity. These findings support catheter-specific flow compensation strategies and evidence-based nursing guidelines to improve intravenous infusion accuracy, optimize fluid management, and enhance patient safety.

Keywords : Fluid, Intravenous infusion, Nursing



Development of a terminology-based conceptual reference architecture for trauma nursing using NANDA-I, NIC, and NOC linkages

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Purpose : To examine how well literature-derived trauma nursing concepts are represented in NANDA International (NANDA-I), the Nursing Interventions Classification (NIC), and the Nursing Outcomes Classification (NOC).

Methods : This methodological terminology-mapping and expert appraisal study used 30 trauma nursing concepts derived from a preceding JBI-guided scoping review as predefined source concepts. Each concept was mapped to NANDA-I, NIC, and NOC using predefined semantic, conceptual, and contextual criteria. Representation was classified as Direct, Partial, or No direct representation according to the extent to which the retained terminology preserved the source concept. Two reviewers independently assessed representation classifications, and nine experts appraised the retained terminology components, representation classifications, and overall conceptual reference framework.

Results : Twelve of 30 source concepts (40.0%) showed Direct representation, 17 (56.7%) showed Partial representation, and one (3.3%) showed No direct representation. Partial representation reflected incomplete clinical scope, contextual or granularity differences, distinctions between established conditions and risk states, or differences in conceptual level. Direct representation occurred for both patient-level and selected process-oriented concepts. Inter-rater agreement was high ($\kappa = .94$), and expert appraisal supported the retained terminology components and representation classifications.

Conclusions : Most trauma nursing concepts had clinically relevant counterparts in NANDA-I, NIC, or NOC, but Direct representation was less common than Partial representation. The presence of related terminology did not by itself establish conceptual equivalence; representation depended on preservation of the clinical phenomenon, relevant context, clinical state, and conceptual scope.

Keywords : knowledge representation; NANDA International; Nursing Interventions Classification; Nursing Outcomes Classification; standardized nursing terminology; terminology mapping; trauma nursing



Physical and Mental Health-Related Quality-of-Life States and Modifiable Predictors of Their Transitions After Percutaneous Coronary Intervention: A Latent Transition Analysis

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Purpose : Health-related quality of life (HRQoL) after percutaneous coronary intervention (PCI) predicts survival, yet averaged trajectories obscure how individual patients recover. We aimed to identify physical and mental HRQoL states and to determine whether modifiable psychosocial resources predict transitions toward recovery during the first year after PCI.

Methods : In a prospective cohort of 245 patients after PCI, the SF-12 Physical (PCS) and Mental (MCS) Component Summaries were assessed at five time points: baseline and 6 weeks, 3, 6, and 12 months. Latent profile analysis of PCS and MCS, pooled across waves with measurement invariance, identified patient states, and the number of states was selected by the Bayesian Information Criterion, entropy, and clinical interpretability. Latent transition analysis estimated consecutive-wave transition probabilities. Generalized estimating equation logistic models tested time-varying self-efficacy, self-care maintenance and monitoring, health literacy, and social support as predictors of a favorable transition, defined as movement from any non-Robust state to the Robust state, adjusting for age and sex, with adjusted odds ratios per one standard deviation.

Results : Four states emerged: Robust, Physically-limited, Mentally-distressed, and Dual-burden. The Robust state increased from 34.3% at baseline to 47.8% at 12 months and was highly stable, with 65.4% self-persistence. In contrast, the Dual-burden state remained persistently prevalent, 22 to 25%, and highly stable, with 45.8%

Conclusions : After PCI, HRQoL unfolds as dynamic transitions among distinct physical and mental states, with a persistent dual-burden subgroup resistant to recovery. Because health literacy and social support drive recovery, nurse-led interventions that strengthen these modifiable resources may accelerate HRQoL recovery, especially for dual-burden patients.

Keywords : coronary artery disease, health literacy, social support, latent transition analysis, quality of life



Caregiver Type Moderates Physical and Social Recovery After Postoperative Delirium in Older Adults Following Spine Surgery

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Purpose : Despite the importance of caregivers in post-discharge recovery, limited evidence exists on how caregiver type may influence recovery after postoperative delirium in older adults undergoing spine surgery. This study aimed to examine the moderating role of caregiver type in the association between postoperative delirium and health status one month postoperatively in older adults.

Methods : This prospective observational study included 115 adults aged 70 years or older who underwent elective spine surgery at a tertiary hospital in South Korea. Seven health outcomes, assessed preoperatively and one month after surgery, included cognitive function, physical function, fatigue, sleep disturbance, anxiety, depression, and the ability to participate in social roles and activities (social function). Caregiver type was categorized as informal or formal. Multiple linear regression models were adjusted for baseline health outcome scores, age, sex, education, living conditions, surgical level, American Society of Anesthesiologists score, comorbidity, frailty, and nutritional status.

Results : Of the 115 participants, 25 (21.7%) developed postoperative delirium, and 89 (77.4%) received care from informal caregivers. Caregiver type moderated the associations of postoperative delirium with physical function (interaction $B = 10.66$, $p = 0.001$) and social function (interaction $B = 21.85$, $p < 0.001$) one month after surgery. Among participants supported by informal caregivers, those with postoperative delirium showed significantly lower physical and social function than those without postoperative delirium. In contrast, this pattern was not evident in the formal caregiver group.

Conclusions : Caregiver type may shape physical and social recovery after postoperative delirium in older adults undergoing spine surgery. These findings suggest the need for discharge planning, including structured education, practical guidance, and follow-up support for informal caregivers, to promote recovery during the hospital-to-home transition.

Keywords : Caregiver type, Discharge planning, Postoperative delirium, Postoperative recovery



The Effects of Ethical Sensitivity and Nursing Work Environment on Person-centered Care of Nurses Caring for Cancer Patients

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Purpose : The purpose of this study was to examine the effects of ethical sensitivity and nursing work environment on person-centered care of nurses caring for cancer patients.

Methods : This study used a descriptive correlational design. From May 1 to May 31, 2025, structured surveys were administered to 130 nurses employed at two general hospitals in the B metropolitan area. Data were analyzed using descriptive statistics, independent t-tests, Mann-Whitney U test, one-way ANOVA, Pearson's correlation coefficient, and multiple regression analysis through the SPSS/WIN 29.0 program.

Results : Person-centered care was significantly correlated with ethical sensitivity ($r=.76$, $p<.001$) and nursing work environment ($r=.49$, $p<.001$). Ethical sensitivity ($\beta=.68$, $p<.001$) and nursing work environment ($\beta=.20$, $p=.001$) were significant predictors of person-centered care of nurses caring for cancer patients, explaining 61.0% of the variance in person-centered care ($F=101.57$, $p<.001$).

Conclusions : Ethical sensitivity and nursing work environment substantially affected person-centered care among nurses caring for patients with cancer. Continuous ethics education, improved staffing levels, strengthened resource allocation, and supportive organizational culture are recommended to promote person-centered care of nurses caring for patients with cancer.

Keywords : Environment, Ethics, Nurses, Person-centered care



Effects of Nurses' Climate Health Literacy on Climate Health Behavior: Mediating Effect of Environmental Self Efficacy

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Purpose : The purpose of this study was to investigate a mediating effect of environmental self efficacy on the relationship between nurses' climate health literacy and climate health behavior.

Methods : A descriptive correlational study was conducted with 184 nurses in a tertiary hospital. Data were collected from March 11 to 20, 2026, using structured online self-report questionnaires measuring climate health literacy, environmental self efficacy, climate health behavior, and general characteristics. The collected data were analyzed with descriptive statistics, independent samples t-test, one-way ANOVA, Scheffé test, Pearson's correlation, multiple linear regression and bootstrapping using the IBM SPSS Statistics version 31.0.2.0 and the PROCESS macro version 5.0.

Results : The mean scores were 17.75 ± 2.16 (out of 26) for climate health literacy, 25.34 ± 6.00 (out of 42) for environmental self efficacy, and 70.73 ± 9.20 (out of 100) for climate health behavior. Environmental self efficacy showed a mediating effect on the relationship between climate health literacy and climate health behavior. In addition, environmental self efficacy had an indirect effect on the climate health behavior.

Conclusions : This study provides evidence that climate health literacy and environmental self efficacy should be considered together in promoting nurses' climate health behavior. These findings may be useful in developing interventions to improve nurses' climate health behavior.

Keywords : Climate change, health literacy, self efficacy, health behavior, nurses



Research Trends of Artificial Intelligence in Pain Nursing : A Co-word Analysis

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Purpose : This study aimed to identify the knowledge structure and research trends of artificial intelligence (AI) in pain nursing through a co-word analysis.

Methods : A total of 465 articles published up to June 1, 2026, were retrieved from PubMed, CINAHL, Cochrane Library, and Web of Science using the keywords "artificial intelligence", "pain", and "nursing". After removing duplicates (n=66) and screening titles and abstracts (n=333), 66 articles were included, and their titles, abstracts, and keywords were analyzed. The retrieved articles were managed using EndNote 21 and Microsoft 365 Excel. Annual publication trends, preprocessing, word frequency and centrality analysis, network analysis, cluster analysis, strategic diagram analysis, and visualization were conducted using Python 3.12.

Results : The number of publications has increased since 2021. The core keywords were "nurse", "nursing", "machine learning", "care", and "pain assessment". Cluster analysis identified six thematic clusters. Strategic diagram analysis revealed that (1) Natural language processing (NLP)-based nursing text and symptom analysis and (2) AI-based pain management were core themes in the field. (3) Machine learning (ML)-based postoperative pain prediction models and (4) Robot-assisted pediatric pain interventions were identified as emerging themes with high development potential. Furthermore, (5) AI-based pain assessment and clinical decision support systems (CDSS) were identified as specialized and central themes, and (6) AI-based behavioral pain monitoring in dementia was located near the center of the strategic diagram, suggesting that it is a developing theme connected with various research areas.

Conclusions : AI has been applied in various areas of pain nursing, including pain assessment, pain management, pain prediction, clinical decision support, nursing text analysis, and tailored applications for specific populations. In particular, AI-based studies assessing pain in individuals with communication difficulties were actively conducted, suggesting that AI is evolving toward supporting personalized pain nursing care.

Keywords : Pain, Nursing, Artificial Intelligence, Co-word Analysis



Comparative Analysis of the Characteristics of Patients with Unruptured Intracranial Aneurysms Undergoing Surgical and Endovascular Treatment

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Purpose : The purpose of this study was to analyze data from patients with unruptured cerebral aneurysms who underwent surgical or endovascular treatment to provide clinically relevant information on the disease, facilitate prognostic assessment, and generate evidence to support patient care and education.

Methods : This study retrospectively reviewed the medical records and radiological images of 1,044 patients who underwent surgical or endovascular treatment for cerebral aneurysms at a single medical center between January 1 and December 31, 2025. Patient and disease characteristics were analyzed and compared.

Results : Among the 1,044 patients, 282 (27.0%) were men and 760 (73.0%) were women. The mean age was significantly lower in men than in women (57.50 ± 11.30 vs. 59.75 ± 11.66 years, $p = .006$). The prevalence of hypertension was 53.3%, followed by diabetes mellitus (11.4%) and current smoking (2.0%). Thyroid disease (8.2%) was the most common comorbidity, followed by heart disease (6.0%) and cerebral infarction (3.0%). There were no significant sex differences in hypertension, diabetes mellitus, or comorbidities. Endovascular treatment was performed in 62.7% of patients, whereas 37.2% underwent microsurgical clipping. The most common aneurysm locations were the middle cerebral artery (30.8%), paraclinoid segment (19.2%), anterior communicating artery (15.5%), and posterior communicating artery (10.9%). The mean aneurysm size was 4.9 mm. Postoperative cerebral infarction occurred in 2.2% of patients, while postoperative hemorrhage and infection each occurred in 0.3%. Among patients who underwent craniotomy, there were no significant differences in postoperative complications or the Glasgow Outcome Scale (GOS) according to the type of surgery.

Conclusions : Unruptured intracranial aneurysms were more common in women, whereas men were diagnosed at a younger age. Therefore, regular screening should be emphasized, particularly for women and individuals aged 50 years or older. In addition, preoperative education should include information on the risks of cerebral infarction, hemorrhage, and infection.

Keywords : aneurysms, craniotomy, Endovascular treatment



The Effects of Patient Safety Culture, Safety Environment and Safety Control on Infection Exposure Prevention Behaviors Among Hospital Nurses

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Purpose : Hospital nurses are at high risk of infection exposure due to their frequent direct contact with patients and biological materials. Despite the critical role of organizational safety culture and individual safety behaviors in preventing occupational infections, factors influencing nurses' infection exposure prevention behaviors remain insufficiently explored. This study examined the relationships among patient safety culture, safety environment, safety control, and infection exposure prevention behaviors among hospital nurses, and identified factors influencing infection exposure prevention behaviors.

Methods : This descriptive study included 185 nurses working at one tertiary hospital and two general hospitals in C city, South Korea. Data were collected from July 15 to August 1, 2025. Data were analyzed using descriptive statistics, independent t-test, one-way ANOVA with Scheffé post-hoc test, Pearson's correlation coefficients, and stepwise multiple regression analysis.

Results : Infection exposure prevention behaviors were significantly and positively correlated with safety control ($r=.37, p<.001$), patient safety culture ($r=.33, p<.001$), and safety environment ($r=.24, p=.001$). Stepwise multiple regression analysis revealed that work unit ($\beta=.23, p=.001$), supervisor and manager attitudes toward patient safety ($\beta=.20, p=.012$), communication and procedures related to patient safety issues ($\beta=.17, p=.031$), and safety control ($\beta=.19, p=.019$) were significant predictors of infection exposure prevention behaviors, collectively explaining 22.5% of the total variance.

Conclusions : Work unit, patient safety culture, and safety control are pivotal determinants of infection exposure prevention behaviors among hospital nurses. These findings highlight the need for multi-faceted intervention programs integrating organizational, environmental, and individual dimensions to enhance infection prevention practices in clinical settings. Future research should explore additional variables that may further influence infection exposure prevention behaviors among nurses.

Keywords : Hospitals, General; Patient Safety; Safety Management; Infection exposure prevention behaviors



Person-Centered Care as a Mediator between Nursing Work Environment and Delirium Care Competency among Intensive Care Unit Nurses

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Purpose : This study aimed to examine the relationships among nursing work environment, person-centered care, and delirium care competency among intensive care unit nurses, and to test the mediating effect of person-centered care in the relationship between nursing work environment and delirium care competency.

Methods : A cross-sectional descriptive correlational study was conducted with 143 intensive care unit nurses from one tertiary hospital and two general hospitals in G Metropolitan City, South Korea. Data were collected using structured self-report questionnaires. Descriptive statistics, group comparison tests, Pearson correlation coefficients, and mediation analysis were performed. The mediating effect was tested using Hayes' PROCESS macro Model 4 after controlling for age, intensive care unit clinical experience, and delirium-related education experience. The significance of the indirect effect was examined using 5,000 bootstrap samples.

Results : Nursing work environment was positively correlated with person-centered care ($r=.52$, $p<.001$) and delirium care competency ($r=.17$, $p=.038$). Person-centered care was also positively correlated with delirium care competency ($r=.35$, $p<.001$). In the mediation analysis, nursing work environment had a significant positive effect on person-centered care ($B=0.35$, $p<.001$), and person-centered care had a significant positive effect on delirium care competency ($B=0.27$, $p<.001$). However, the direct effect of nursing work environment on delirium care competency was not significant ($B=-0.00$, $p=.979$). The indirect effect of nursing work environment on delirium care competency through person-centered care was significant ($B=0.09$, 95% bootstrap confidence interval [0.05, 0.15]).

Conclusions : Person-centered care mediated the relationship between nursing work environment and delirium care competency. These findings suggest that improving delirium care competency among intensive care unit nurses requires organizational and educational strategies that support person-centered care within a positive nursing work environment.

Keywords : delirium care competency, intensive care unit, nursing work environment, person-centered care



Exploring the experiences of shared decision-making among patients with cancer: A grounded theory study

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Purpose : Shared decision-making (SDM) enables patients with cancer to discuss treatment options, potential side effects, and personal values with healthcare providers. However, cultural and social contexts may influence how patients experience and participate in SDM. This study aimed to explore the process of SDM among Korean patients with cancer within the context of cancer treatment.

Methods : A grounded theory approach based on the methodology of Strauss and Corbin was employed. Twelve patients with cancer were recruited from a university hospital in South Korea through purposive and theoretical sampling. Data were collected through in-depth semi-structured interviews and analyzed using open, axial, and selective coding.

Results : The core category identified was “developing decision-making agency through relational collaboration.” Participants initially experienced anxiety, limited health literacy, and passive acceptance of treatment decisions following cancer diagnosis. Over time, emotional support, trust in healthcare providers, and ongoing interactions facilitated patients’ participation in treatment-related discussions. Through information sharing and collaborative relationships with healthcare providers, participants gradually developed relational autonomy and strengthened their confidence in decision-making.

Conclusions : SDM among Korean patients with cancer was identified as a dynamic relational process rather than an individualistic act of autonomous choice. The findings suggest that relational autonomy, developed through trust and collaboration with healthcare providers, plays a central role in treatment decision-making. Nurses may contribute to effective SDM by facilitating communication, providing emotional support, and strengthening relational continuity throughout the cancer care trajectory. Future interventions and institutional strategies should reflect the relational and cultural contexts of SDM in oncology care.

Keywords : Shared decision making, relational autonomy, Grounded theory, Patients with cancer



Predictors of 30-day mortality to support critical care nursing surveillance in patients with sepsis: a machine learning study using an OMOP-CDM

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Purpose : Early identification of patients at high mortality risk is a core responsibility of critical care nurses and essential for preventing failure to rescue in sepsis. This study aimed to identify clinical indicators nurses can use to recognize mortality risk in intensive care unit (ICU) patients with sepsis, by developing 30-day mortality prediction models using standardized electronic medical records (EMR) and machine learning (ML).

Methods : This retrospective cohort study included 1,550 patients aged 18 years or older with sepsis admitted to the ICU at a tertiary hospital in Korea (1994–2024); those with prior cancer were excluded. Nursing assessment data and clinical records documented at ICU admission — demographics, comorbidities, vital signs, laboratory values, medications, and procedures — were extracted from EMR standardized to the Observational Medical Outcomes Partnership Common Data Model (OMOP-CDM). Three ML models (Lasso logistic regression, gradient boosting machine [GBM], random forest [RF]) were developed and compared, and variable importance analysis identified key clinical indicators for 30-day mortality.

Results : Of 1,550 patients, 220 (14.2%) experienced 30-day mortality. The Lasso model showed the highest discrimination (area under the receiver operating characteristic curve [AUROC], 0.787, 95% CI 0.727–0.847), followed by GBM (0.762, 95% CI 0.703–0.820) and RF (0.754, 95% CI 0.695–0.813). Across all models, age, albumin, creatinine, and platelet level — routinely assessed clinical indicators — were consistently identified as key predictors, alongside vasopressin use and dialysis procedures reflecting nursing care intensity.

Conclusions : Nursing assessment indicators routinely captured can support early identification of patients with sepsis at high mortality risk. Integrating these evidence-based indicators into structured nursing assessment and clinical decision support may help nurses prioritize surveillance supported by routine automated systems, enable timely escalation of care, and contribute to preventing failure to rescue. External validation across institutions using OMOP-CDM and prospective evaluation in critical care nursing workflows are warranted.

Keywords : Intensive Care Units, Machine Learning, Mortality, Sepsis



Factors Related to Post-traumatic Stress in Occupational Accident Patients Hospitalized with Musculoskeletal Injuries

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Purpose : This study aimed to identify factors associated with post-traumatic stress among occupational accident patients hospitalized with musculoskeletal injuries, focusing on medical staff support, family support, and self-efficacy.

Methods : The participants were 183 patients hospitalized with musculoskeletal injuries following occupational accidents at four hospitals. Data were collected from August 21 to September 9, 2025. Data were analyzed using SPSS/WIN version 27.0. Factors associated with post-traumatic stress were examined using logistic regression analysis.

Results : Post-traumatic stress showed significant differences according to gender ($\chi^2=6.31$, $p=.012$), time since the occupational accident ($t=-2.01$, $p=.046$), degree of injury ($t=-4.99$, $p<.001$), method of social reintegration after discharge ($\chi^2=10.33$, $p=.016$), presence of in-hospital caregivers ($p=.038$), medical staff support ($t=5.32$, $p<.001$), family support ($t=5.14$, $p<.001$), and self-efficacy ($t=3.62$, $p<.001$). Factors associated with the post-traumatic stress risk group were degree of injury ($B=.63$, $OR=1.87$, $95\% CI=1.39-2.53$), family care upon admission ($B=2.06$, $OR=7.86$, $95\% CI=1.51-40.83$), caregiver care upon admission ($B=1.98$, $OR=7.24$, $95\% CI=2.15-24.35$), medical staff support ($B=-.10$, $OR=.91$, $95\% CI=.84-.98$), and family support ($B=-.12$, $OR=.89$, $95\% CI=.80-.98$). The model explained 46.7% of the variance.

Conclusions : Greater injury severity, the presence of in-hospital caregivers, and lower levels of medical staff and family support were identified as risk factors for post-traumatic stress. These findings provide evidence for developing interventions to reduce post-traumatic stress and promote successful social reintegration among occupational accident patients with musculoskeletal injuries.

Keywords : Family Support, Occupational Accident, Post-traumatic Stress, Self efficacy



Incidence and Risk Factors of Delirium among Neurological Inpatients in Comprehensive Nursing Care

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Purpose : This study aimed to determine the incidence of delirium and identify its associated risk factors among older patients with neurological disorders admitted to an integrated nursing care service unit.

Methods : A retrospective study design was used. Electronic medical records of older patients with neurological disorders admitted to an integrated nursing care service unit at a tertiary hospital between March 2024 and February 2025 were reviewed. Delirium was assessed using the Nursing Delirium Screening Scale (Nu-DESC). Univariate analyses and multivariate logistic regression were conducted to identify independent risk factors for delirium.

Results : The incidence of delirium was 17.6% (n=53). In the univariate analysis, delirium was significantly associated with age, sex, body mass index, smoking status, alcohol use, diagnosis, serum hemoglobin level, ICU admission, use of benzodiazepines and antibiotics, physical restraint, drainage tube insertion, and sleep disturbance. Multivariate logistic regression analysis revealed that age ≥ 80 years (odds ratio [OR]=5.63, $p=.036$), body mass index (OR=0.87, $p=.036$), benzodiazepine use (OR=3.71, $p=.019$), and sleep disturbance (OR=9.28, $p<.001$) were independently associated with delirium.

Conclusions : The findings highlight the importance of early identification of older neurological patients at high risk for delirium in integrated nursing care service units. Routine delirium screening and preventive nursing interventions may help reduce the occurrence of delirium.

Keywords : Aged, Delirium, Inpatients, Neurological Disorders, Risk Factors



Comparison of Early Warning Scores Integrating SpO₂/FiO₂ Ratio for Predicting Clinical Deterioration in Patients with Rapid Response Team Activation

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Purpose : Clinical deterioration in general-ward patients often progresses through abnormal vital signs and rising oxygen demand toward unplanned ICU transfer or short-term mortality. The Modified (MEWS) and National (NEWS) Early Warning Scores reflect oxygen therapy only as a binary flag, potentially underestimating oxygenation burden. The non-invasive SpO₂/FiO₂ (S/F) ratio may address this gap. This study compared the predictive performance of MEWS, NEWS, MEWS_S/F, and NEWS_S/F scores for clinical deterioration and identified associated factors among general-ward patients with rapid response team (RRT) activation.

Methods : This retrospective descriptive correlational study analyzed 416 adults with cardiac (ICD-10 I00–I51) or respiratory (J00–J99) diagnoses who had RRT activation at a Korean university hospital (June 2023–February 2025). Clinical deterioration was defined as unplanned ICU transfer within 12 hours after RRT intervention or 7-day in-hospital mortality. Four scores were calculated at RRT evaluation by dedicated RRT nurses; predictive performance was assessed by ROC analysis with DeLong's test, and multivariate logistic regression identified associated factors after adjusting for clinical covariates.

Results : Unplanned ICU transfer occurred in 21.6% (n=90) and 7-day mortality in 15.4% (n=64). NEWS_S/F score showed the highest predictive performance for both outcomes (AUC 0.686, 95% CI 0.629–0.743 for ICU transfer; AUC 0.759, 95% CI 0.696–0.822 for mortality; cut-off ≥11; Youden index 0.333 and 0.415). After adjustment, continuous NEWS_S/F independently predicted ICU transfer (OR=1.209, p<.001) and mortality (OR=1.232, p=.011). The NEWS_S/F high-risk group showed nearly 4-fold higher ICU transfer risk (OR=3.948, p<.001), and the MEWS_S/F high-risk group had higher 7-day mortality (OR=3.581, p=.003).

Conclusions : Integrating the S/F ratio into existing early warning scores improved prediction of clinical deterioration. The NEWS_S/F score may support ward nurses in early identification of high-risk patients and timely RRT escalation, offering an evidence-based bedside tool.

Keywords : Early warning score; Rapid response team; Clinical deterioration; SpO₂/FiO₂ ratio; Nursing



Factors associated with in-hospital clinical deterioration in mild traumatic brain injury: a single-center retrospective study

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Purpose : Risk stratification of mild traumatic brain injury commonly relies on the Glasgow Coma Scale at arrival. We aimed to identify arrival-time factors associated with in-hospital clinical deterioration and to compare the discrimination of clinical and radiographic severity indices, to inform nursing surveillance at a regional trauma center.

Methods : We retrospectively analyzed Korea Trauma Data Bank records from a single regional trauma center for one calendar year. Eligible patients had an arrival Glasgow Coma Scale of thirteen to fifteen and a head Abbreviated Injury Scale of one or higher. The primary composite outcome was defined as any of: death, emergency surgery, unassessable departure Glasgow Coma Scale due to sedation or intubation, new mechanical ventilation, massive transfusion, or in-hospital complication. We compared group differences using Mann–Whitney U or Fisher exact tests, assessed discrimination by area under the curve, stratified risk by both variables, and examined adjusted associations by multivariable logistic regression.

Results : Among 79 patients, 18 (22.8%) experienced in-hospital deterioration. Arrival Glasgow Coma Scale did not discriminate deterioration risk (area under the curve 0.44), whereas head Abbreviated Injury Scale did (0.75). Deterioration was more frequent after admission (20.3%) than during the emergency department phase (6.3%). Patients with Glasgow Coma Scale 15 and head Abbreviated Injury Scale 4 or 5 had a deterioration rate of 57.1% (8 of 14), compared with 5.9% (1 of 17) among patients with Glasgow Coma Scale 13 or 14 and head Abbreviated Injury Scale 1 to 3. Head Abbreviated Injury Scale remained associated with deterioration after adjustment for Glasgow Coma Scale (adjusted odds ratio 2.94, 95% confidence interval 1.57 to 5.51).

Conclusions : In this single-center pilot, normal arrival consciousness level did not reliably indicate low risk of in-hospital deterioration in mild traumatic brain injury. Findings suggest that nursing surveillance may benefit from incorporating radiographic injury severity alongside initial consciousness assessment.

Keywords : mild traumatic brain injury, retrospective study, risk factors, single-center study



Factors Associated with 30-Day Functional Status After Coronary Artery Bypass Grafting

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Purpose : Functional status is an important indicator of cardiopulmonary recovery following coronary artery bypass grafting (CABG). Preoperative depression and frailty at discharge in patients undergoing CABG may negatively affect functional status by reducing patients' physical and emotional capacity to cope with postoperative demands. This study aimed to identify factors associated with 30-day functional status in patients undergoing CABG, focusing on depression and frailty.

Methods : This descriptive study included 118 patients who underwent isolated CABG. General characteristics and preoperative depression were assessed before surgery, frailty at discharge, and functional status at postoperative outpatient visits. Thirty-day functional status was measured using the six-minute walk test (6MWT). Depression and frailty were assessed using the Patient Health Questionnaire-9 and the Clinical Frailty Scale. Data were analyzed using descriptive statistics, t-test, one-way analysis of variance, correlation, and multiple regression.

Results : The mean age was 62.14 (± 10.63) years, and 86.4% were men. The mean preoperative ejection fraction was 56.78%, and 5.1% underwent surgery with cardiopulmonary bypass. The mean preoperative depression score was 2.68 (± 3.87) points, and 68.6% and 12.7% were classified as pre-frail and frail at discharge, respectively. The mean 30-day 6MWT distance was 398.34 (± 110.35). Older age, female sex, cardiopulmonary bypass use, higher preoperative depression scores, and frailty at discharge were significantly associated with shorter 6MWT distance ($F = 10.65$, $p < .001$), explained 39.8% of the variance. Preoperative depression and frailty at discharge showed the strongest associations with 30-day functional status.

Conclusions : Preoperative depressive symptoms and frailty at discharge were strongly associated with poorer 30-day functional status after CABG. These findings suggest that routine assessment of depressive symptoms before surgery and frailty at discharge may help identify patients at risk for delayed functional recovery. Early recognition of high-risk patients may guide targeted, individualized strategies to promote early functional recovery after CABG.

Keywords : coronary artery bypass grafting, depression, frailty, six-minute walk test



Network Structure Analysis of Health-Related Quality of Life in Obese Adults

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Purpose : This study aimed to explore the psychological and physical interrelations of HRQoL dimensions in obese adults using network analysis.

Methods : Data were obtained from the 8th Korea National Health and Nutrition Examination Survey (KNHANES VIII). A total of 244 adults identified as obese were included in the analysis. HRQoL was assessed using the Health-Related Quality of Life Instrument with 8 Items (HINT-8), which covers mobility, pain, depression, anxiety, sleep, work, social activities, and happiness. A psychological network analysis was conducted to estimate the network structure and calculate centrality measures (betweenness, closeness, strength, and expected influence) for each variable.

Results : The network analysis revealed that Anxiety (LQ_4HT) was the most central and influential node within the HRQoL network of obese adults, demonstrating the highest scores across all centrality metrics (Betweenness: 1.588, Closeness: 1.895, Strength: 1.857, Expected Influence: 1.857). Depression (LQ_3HT) also exhibited high betweenness (1.134) and closeness (1.049), acting as a significant bridge in the network. Among physical symptoms, Pain (LQ_2HT) showed notable strength (0.635).

Conclusions : Anxiety and depression serve as core elements driving the network of health-related quality of life among obese individuals. These findings suggest that interventions targeting mental health, particularly anxiety management, may have a cascading positive effect on the overall quality of life for obese adults, offering a more effective approach than focusing solely on physical weight reduction.

Keywords : Obesity, Quality of Life, Network Analysis, Anxiety



Feasibility of Low-Cost Albumin Replacement through Reinfusion of Filtered Ascitic Fluid Following Large-Volume Paracentesis: A Mongolian Retrospective Study

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Purpose : Background: Large-volume paracentesis results in substantial albumin loss. Inadequate albumin replacement increases the risk of post-paracentesis complications, while the high cost of commercial human albumin limits adequate replacement in Mongolia. This study explored the feasibility of a low-cost protein replacement approach using filtered autologous ascitic fluid.

Objective: To evaluate albumin loss, current replacement practice, and treatment costs following large-volume paracentesis, and to assess the feasibility of a simplified reinfusion method using a sterile 0.22- μ m filter.

Methods : A retrospective study was conducted among 27 patients who underwent large-volume paracentesis (≥ 5 L) at the Second State Central Hospital of Mongolia. Estimated albumin loss, actual albumin replacement, and treatment costs were analyzed. Existing reinfusion methods, including Cell-free and Concentrated Ascites Reinfusion Therapy (CART) and a previously reported Mongolian technique, were reviewed.

Results : The mean volume of ascitic fluid removed was 11.6 ± 4.9 L. The estimated albumin loss was 98.3 ± 42.3 g, whereas the recommended replacement was 92.6 ± 39.8 g. The actual replacement was 41.0 ± 38.3 g, representing 44.2% of the recommended amount. Adequate replacement required approximately five vials of 20% human albumin, with an estimated cost of MNT 1.5 million per patient. A simplified reinfusion approach using a sterile 0.22- μ m filter was identified as a potential low-cost alternative.

Conclusions : Albumin replacement after large-volume paracentesis remains inadequate because of cost constraints. A simplified reinfusion method using filtered autologous ascitic fluid may provide a feasible and affordable alternative; however, its microbiological safety and clinical effectiveness should be confirmed in prospective studies.

Keywords : ascites, albumin, large-volume paracentesis, CART, reinfusion, 0.22- μ m filter.



Factors Influencing Mistriage Based on the Korean Triage and Acuity Scale: A Retrospective Cross-Sectional Study

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Purpose : Mistriage is important because of its potential for serious consequences, notwithstanding the beneficial effects of the emergency patient classification system employed to alleviate overcrowding in emergency departments (EDs). This study aimed to assess mistriage using the Korean Triage and Acuity Scale (KTAS) and identify factors influencing it.

Methods : We examined the factors influencing mistriage in the KTAS and rates of under- and over-triage. Participants were obtained by combining electronic health records with registry data from the National Emergency Department Information System. We assessed the eligibility of patients aged ≥ 15 years who visited the ED between July 1, 2022, and June 30, 2023. Using the KTAS classification criterion, two experienced experts determined the final acuity level. We employed multivariate logistic regression analysis to evaluate the factors that predict under- and over-triage.

Results : Of 53,947 ED encounters, 1110 participants were enrolled in this study. Mistriage occurred in 207 (18.6%) patients: 88 (7.9%) had under-triage, and 119 (10.7%) had over-triage. In adjusted analyses, under-triage was associated with lower mean arterial pressure (odds ratio [OR], 5.42; 95% confidence interval [CI], 1.45–20.32) and presenting complaints of immunity or fever (OR, 3.41; 95% CI, 1.38–8.45), while over-triage was associated with advanced age (OR, 0.52; 95% CI, 0.28–0.98), pain (OR, 1.96; 95% CI, 1.18–3.25), lower KTAS experience (OR, 1.95; 95% CI, 1.08–3.51), and several specific present complaints.

Conclusions : By improving mistriage, the quality of emergency medical services may be enhanced through reduced costs, increased operational efficiency, and improved patient safety and satisfaction. Implementation of standardized criteria, validated triage tools, and enhanced provider training is crucial for achieving more accurate emergency triage. Additionally, establishing regulatory and financial incentives and developing realistic standards for mistriage management will optimize triage processes and ensure prompt, prioritized care.

Keywords : classification, emergency nursing, emergency service, hospital, patient acuity, patient safety, triage



Association of Frailty Index Based on Laboratory Tests with 3-Year MACCE in Older Adults with Acute Myocardial Infarction: A Retrospective Cohort Study

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Purpose : Frailty is associated with adverse outcomes after acute myocardial infarction (AMI); however, evidence on its long-term prognostic value in older adults remains limited, particularly when assessed using objective measures available during acute hospitalization. This study examined the association between the frailty index based on laboratory tests (FI-Lab) at admission and 3-year major adverse cardiovascular and cerebrovascular events (MACCE) after discharge in older adults with a first AMI.

Methods : This single-center retrospective cohort study included patients aged ≥ 65 years hospitalized for a first AMI between 2016 and 2025. Frailty at admission was measured using FI-Lab, comprising 28 items, including blood tests, blood pressure, and pulse rate. Demographic, clinical, lifestyle-related, and 1-year post-discharge medication adherence data were collected from electronic medical records. Three-year MACCE was defined as a composite of all-cause mortality, recurrent myocardial infarction, stroke, and readmission for unstable angina or heart failure. Multivariable Cox proportional hazards regression was used to assess the association between frailty at admission and 3-year MACCE.

Results : Among 443 patients (mean age, 74.98 ± 7.03 years; 67.0% men), the mean FI-Lab score was 0.29 ± 0.14 . Patients were classified as robust (34.8%), moderately frail (47.6%), or highly frail (17.6%). The overall 3-year MACCE rate was 21.7%, increasing from 12.3% in robust patients to 25.6% in moderately frail patients and 29.5% in highly frail patients. After adjusting for potential covariates, moderately and highly frail patients had a higher 3-year MACCE risk than robust patients (HR=2.00, 95% CI 1.16-3.43; HR=2.06, 95% CI 1.05-4.04).

Conclusions : Frailty at admission independently predicted 3-year MACCE in older adults with a first AMI. FI-Lab may provide a practical, objective screening tool for early risk stratification during acute hospitalization and may help identify patients who could benefit from closer follow-up and tailored post-discharge management, such as cardiac rehabilitation, during the critical transition from hospital to community.

Keywords : Aged, Frailty, Major adverse cardiovascular and cerebrovascular events, Myocardial infarction



The Effects of Compassion Fatigue and Resilience on Job Stress Among Ward Nurses Caring for Patients with Hematologic Malignancies

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Purpose : Nurses caring for patients with hematologic malignancies are at high risk for compassion fatigue and job stress due to intensive treatment, protective isolation care, and frequent patient deterioration and loss. This study aimed to identify the levels of compassion fatigue, resilience, and job stress among ward nurses caring for patients with hematologic malignancies, and to examine the effects of compassion fatigue and resilience on job stress.

Methods : A descriptive correlational study was conducted with 145 nurses with at least 12 months of clinical experience in hematology wards at a tertiary hospital in Seoul, South Korea. Data were collected using a structured self-report questionnaire measuring general and work-related characteristics, compassion fatigue, resilience, and job stress. Data were analyzed using descriptive statistics, independent t-test, one-way analysis of variance, Pearson's correlation, and hierarchical multiple regression.

Results : Among the 145 participants, 97.2% were female, 74.5% were in their 20s, 85.5% were single, and 93.1% held a bachelor's degree. The mean compassion fatigue score was 58.68 ± 9.26 (range 20–100), resilience was 116.42 ± 14.66 (range 30–150), and job stress was 162.37 ± 21.17 (range 42–210). Job stress differed significantly according to educational level ($t=2.13$, $p=.035$). Compassion fatigue showed a significant positive correlation with job stress ($r=.376$, $p<.001$). Hierarchical regression revealed that compassion fatigue ($\beta=.41$, $p<.001$), educational level ($\beta=-.28$, $p=.004$), and resilience ($\beta=.19$, $p=.017$) significantly influenced job stress, explaining 21.8% of the variance.

Conclusions : Compassion fatigue was the strongest factor influencing job stress among nurses caring for patients with hematologic malignancies, highlighting the need for regular monitoring and targeted interventions to reduce compassion fatigue in this high-acuity population. Given the single-hospital, cross-sectional design and the exclusion of external work-environment factors, further research across diverse clinical settings is warranted.

Keywords : Compassion fatigue, Hematologic malignancies, Job stress, Resilience



Survival Outcomes According to Prophylactic Antiviral Therapy in HBsAg-negative/anti-HBc-positive Patients with Diffuse Large B-cell Lymphoma Treated with Rituximab-based Chemotherapy

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Purpose : To compare the clinical characteristics, treatment outcomes, and survival of HBsAg-negative/anti-HBc-positive patients with diffuse large B-cell lymphoma (DLBCL) according to prophylactic antiviral therapy during rituximab-based chemotherapy and to identify prognostic factors associated with overall survival (OS) and progression-free survival (PFS).

Methods : This retrospective cohort study included eligible HBsAg-negative/anti-HBc-positive patients with DLBCL treated at a tertiary referral center in Jeollanam-do, South Korea, between 2020 and 2024. OS and PFS were estimated using the Kaplan–Meier method and compared according to prophylactic antiviral therapy using age-adjusted Cox regression stratified by IPI risk group.

Results : Among 250 eligible patients, 130 (52.0%) were HBsAg-negative/anti-HBc-positive and comprised the study cohort. Of these, 37 (28.5%) received prophylactic antiviral therapy and 93 (71.5%) did not. Baseline characteristics were comparable between groups, except that patients receiving antiviral prophylaxis completed fewer chemotherapy cycles (4.9 vs. 5.6 cycles, $P=0.002$). Kaplan–Meier analysis demonstrated no significant differences in 3-year OS (68.0% vs. 74.9%; log-rank $P=0.378$) or 3-year PFS (65.9% vs. 71.7%; log-rank $P=0.745$) between the antiviral and non-antiviral groups. In Cox regression analysis stratified by IPI risk group and adjusted for age, prophylactic antiviral therapy was not associated with OS (HR 2.08, 95% CI 0.91–4.72) or PFS (HR 1.53, 95% CI 0.72–3.27). Advanced stage, elevated lactate dehydrogenase, and high IPI risk were associated with poorer survival.

Conclusions : Prophylactic antiviral therapy was not associated with improved OS or PFS in HBsAg-negative/anti-HBc-positive patients with DLBCL receiving rituximab-based chemotherapy. Survival outcomes were primarily associated with established lymphoma prognostic factors rather than antiviral prophylaxis. These findings highlight the importance of risk-based HBV monitoring and individualized clinical management during rituximab treatment while supporting prospective studies using virologically confirmed HBV reactivation as the primary endpoint to better define the clinical impact of prophylactic antiviral therapy.

Keywords : Antiviral Agents, Hepatitis B virus, Diffuse large B-cell lymphoma, Rituximab



Patient Experiences and Environmental Stressors Associated with Early Post-Intensive Care Syndrome after Intensive Care Unit Discharge

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Purpose : Post-intensive care syndrome may occur soon after intensive care unit discharge, yet evidence regarding its association with patients' intensive care experiences and perceived environmental stressors during this early period remains limited. This study examined whether intensive care experiences and environmental stressors assessed shortly after intensive care unit discharge were associated with post-intensive care syndrome within the first month after discharge.

Methods : A prospective observational study was conducted with 141 adult survivors of medical or surgical intensive care at a tertiary hospital in South Korea. Patients' intensive care experiences and environmental stressors were assessed within 7 days after intensive care unit discharge. Post-intensive care syndrome was evaluated 14–30 days after intensive care unit discharge using validated measures of physical, psychological, and cognitive symptoms. Data were analyzed using descriptive statistics, independent-samples t-tests, one-way analysis of variance, Pearson's correlation coefficients, and multivariable linear regression.

Results : The mean post-intensive care syndrome score was 12.98 (SD 10.32). Higher symptom scores were independently associated with unplanned admission ($\beta = .22, p < .001$), a Simplified Acute Physiology Score of 52 or higher ($\beta = .23, p < .001$), reduced awareness of the intensive care environment ($\beta = .19, p = .010$), poorer recall of intensive care experiences ($\beta = .37, p < .001$), and greater environmental stress ($\beta = .34, p < .001$). The regression model explained 83.6% of the variance, with an adjusted R^2 of .810.

Conclusions : Clinical severity, disrupted awareness and memory of intensive care, and environmental stress were associated with post-intensive care syndrome symptoms within the first month after intensive care unit discharge. Nursing assessment within 7 days after intensive care unit discharge should include patients' recollections and perceptions of intensive care experiences and environmental stressors. The findings may inform individualized strategies to support orientation, memory reconstruction, communication, sleep, and environmental comfort.

Keywords : Critical care nursing, Critical illness, Intensive care units, Psychological stress



Emergency medical worker's Communication skills and Handover awareness, importance, performance

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Purpose : This study aimed to examine emergency medical workers' communication skills, handover awareness, and the importance and performance of handover practices. Additionally, it sought to provide evidence for the development of standardized handover tools and effective communication strategies to improve patient safety during emergency care transitions.

Methods : A descriptive cross-sectional survey was conducted using a structured self-administered online questionnaire. Participants included 150 emergency medical workers (76 paramedics and 74 nurses) with at least one year of clinical experience, recruited from two tertiary hospitals, five general hospitals, and fire stations in J Province, South Korea. Data were collected between September 5 and September 30, 2024. Descriptive statistics, independent t-tests, ANOVA, χ^2 tests, Fisher's exact tests, and Importance-Performance Analysis (IPA) were performed using SPSS/WIN 26.0.

Results : The mean scores for communication skills, handover awareness, and handover importance were 3.68 ± 0.49 (out of 5), 4.63 ± 0.62 (out of 7), and 3.52 ± 0.31 (out of 5), respectively. Overall handover performance averaged 78.9%, with "chief complaint," "time of onset," and "vital signs" showing the highest performance, whereas "body weight" demonstrated the lowest importance and performance. Communication skills and handover awareness differed significantly according to handover education, availability of handover guidelines, and experiences of insufficient or inappropriate handover. Although overall perceptions of handover importance did not differ between nurses and paramedics, paramedics demonstrated significantly higher performance across multiple handover items. IPA identified trauma-related assessments, including head-to-toe examination and pupil reflex, as high-priority areas requiring improvement among nurses.

Conclusions : Differences in handover perceptions and performance between nurses and paramedics highlight the need for standardized handover protocols and structured communication tools. Prioritizing essential handover items while incorporating profession-specific clinical information may improve communication quality, facilitate safer patient transfers, and enhance continuity of emergency care.

Keywords : communication skills, emergency medical workers, handover, nurses



Multidisciplinary Whole-Person Care for a Socially Isolated Patient with Brain Abscess: A Case Report

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Purpose : To describe the outcomes of multidisciplinary whole-person care for a socially isolated patient with brain abscess, hemiparesis, limited family support, and an unsafe discharge situation.

Methods : This case report describes a 53-year-old unmarried man with a right-sided brain abscess and left hemiparesis admitted to a neurosurgical ward. Living alone and supported by limited family resources, he faced significant discharge challenges. Nurses used the FIFE framework to assess the patient's physical, psychological, and social needs. Nursing care included therapeutic communication, emotional support, rehabilitation encouragement, and coordination of multidisciplinary care with physicians, rehabilitation therapists, and social workers to develop an individualized discharge plan.

Results : Initially, the patient was bedridden, socially withdrawn, and fearful of discharge because no caregiver or suitable residence was available. Through continuous multidisciplinary interventions, therapeutic communication, emotional support, and rehabilitation, he gradually progressed to assisted wheelchair mobility and brief standing. His willingness to participate in rehabilitation and discuss future care also improved. Social workers arranged financial assistance, community resources, and placement in a long-term care facility. The patient was successfully discharged with continuity of care and no discharge-related complications.

Conclusions : Multidisciplinary whole-person care effectively addressed the patient's physical, psychological, and social needs. Nurses played a central role in coordinating care, promoting rehabilitation, and facilitating discharge planning. Early intervention, resource integration, and proactive discharge planning contributed to a safe transition to long-term care.

Keywords : Brain Abscess, Case Management, Discharge Planning, Whole-Person Care



Preliminary Psychometric Evaluation of the Korean Version of the Person-Centred Practice Inventory-Care

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Purpose : The Person-Centred Practice Inventory–Care (PCPI-C) is a patient-reported instrument designed to assess person-centred processes of care from the perspective of healthcare service users. This study aimed to evaluate the preliminary psychometric properties of the Korean version of the PCPI-C among adults with recent hospitalization experience.

Methods : This quantitative study was conducted as the second phase of a sequential instrument adaptation project. Following translation and cultural refinement informed by a qualitative focus group interviews, a pilot test was conducted with 30 adults to assess item comprehensibility. The majority of the participants reported that the items were not difficult to understand. An online survey was then conducted with 400 Korean adults aged 18 years or older who had been hospitalized for at least two days within the past year. Descriptive item statistics, item-total correlations, internal consistency reliability, and correlations with criterion measures were examined.

Results : Participants' mean age was 44.31 years (SD=10.79), and 56.7% were women. The total mean PCPI-C score was 61.92 (SD=12.87). Item means ranged from 2.82 to 3.81, and item-total correlations ranged from .642 to .818. The total scale met the recommended criteria for internal consistency (Cronbach's α =.956), and subscale reliability coefficients ranged from .743 to .850. The total score was significantly correlated with the Shared Decision Making Questionnaire (r =.686, p <.001) and Consultation and Relational Empathy Measure (r =.777, p <.001).

Conclusions : The Korean PCPI-C demonstrated acceptable item properties, excellent internal consistency, and satisfactory criterion-related validity. These preliminary findings support its potential use for assessing person-centred care from the patient perspective in Korean healthcare settings. As healthcare environments increasingly incorporate technology and artificial intelligence, the Korean PCPI-C may provide nurses with a meaningful way to assess and reflect on patient-perceived person-centred care.

Keywords : Patient-Centred Care, Psychometrics, Reliability, Validity



Factors Associated with Ethical Nursing Competence among Intensive Care Unit Nurses: A Descriptive Cross-Sectional Survey Study

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Purpose : This study examined the influence of ethical issue experience, nursing professionalism, and ethical climate on ethical nursing competence among intensive care unit (ICU) nurses.

Methods : A descriptive cross-sectional survey was conducted with nurses who had more than one year of clinical experience in ICUs of general hospitals in Jeollanam-do and Gwangju, South Korea. Data were collected from January to February 2026 using structured self-report questionnaires, and 152 responses were included in the final analysis. Data were analyzed using SPSS/WIN 31.0 with descriptive statistics, t-test, ANOVA, Pearson's correlation, and multiple regression analysis using the enter method.

Results : Ethical nursing competence averaged 3.16 ± 0.32 on a 4-point scale, and correlated positively with ethical climate ($r = .57, p < .001$) and nursing professionalism ($r = .48, p < .001$). Among the ethical climate subscales, relationships with nurse managers scored highest (4.07 ± 0.57) and relationships with the hospital lowest (3.50 ± 0.60). In the multiple regression model, ethical climate ($\beta = .41, p < .001$), nursing professionalism ($\beta = .25, p = .001$), and position ($\beta = .15, p = .023$) emerged as significant predictors, explaining 37.8% of the variance.

Conclusions : To enhance ethical nursing competence among ICU nurses, fostering a positive organizational ethical climate should be prioritized, supported by ethics leadership training for nurse managers and ethics committee operation. Systematic ethics education strengthening nursing professionalism is also needed. As ethical issue experience alone does not guarantee competence development, educational approaches facilitating reflective learning from experience should be incorporated.

Keywords : Intensive Care Units; Nurses; Ethics, Nursing; Professionalism; Organizational Culture



Prediction of Ventilator-Associated Pneumonia in Pediatric Intensive Care Unit Patients Using Machine Learning

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Purpose : This study aimed to identify risk factors associated with ventilator-associated pneumonia in pediatric intensive care unit patients and to develop and evaluate multiple machine learning prediction models.

Methods : A retrospective study was conducted using electronic medical records of 433 pediatric intensive care unit patients admitted to a tertiary hospital between 2019 and 2023. The dataset was randomly divided into training (60%), validation (20%), and test (20%) sets. To address class imbalance, the synthetic minority over-sampling technique was applied to the training data. Multiple prediction models, including least absolute shrinkage and selection operator, ridge regression, elastic net, random forest, extreme gradient boosting, and support vector machine, were developed. Model performance was evaluated using the area under the receiver operating characteristic curve, the area under the precision-recall curve, and sensitivity.

Results : Of the 433 patients, 30 (6.93%) developed ventilator-associated pneumonia. Among these patients, 56.7% were boys, the mean age was 61.5 months, and the mean hospital length of stay was 17.1 days. After application of the synthetic minority over-sampling technique, the performance of all models improved. The random forest model demonstrated the best overall performance, with an area under the receiver operating characteristic curve of 0.737 and an area under the precision-recall curve of 0.251. Key predictors consistently identified across models included surgical status, length of stay, respiratory rate, systolic blood pressure, body temperature, oxygen saturation, and functional indicators such as mobility and fall risk.

Conclusions : Ventilator-associated pneumonia in pediatric intensive care unit patients is influenced by both physiological instability and functional impairment. Early identification of high-risk patients using routinely collected clinical data may facilitate timely nursing interventions and improve patient safety. Compared with adult intensive care populations, the relative importance of predictors differed. These findings support the development of pediatric-specific prediction models that incorporate functional nursing assessments and physiological indicators.

Keywords : machine learning, pediatric intensive care unit, ventilator-associated pneumonia



Educational Needs for Anesthesia Nursing Practice among Anesthesia Nurses in Small and Medium-Sized Hospitals: IPA and Borich Needs Analysis

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Purpose : This study aimed to identify the importance and performance of anesthesia nursing practice and to determine educational needs using Importance-Performance Analysis (IPA) and Borich needs analysis among anesthesia nurses in small and medium-sized hospitals.

Methods : Participants were nurses with at least one year of anesthesia nursing experience in operating rooms at small and medium-sized hospitals with fewer than 300 beds nationwide. Data were collected using a structured questionnaire from February 28 to April 17, 2026, and 133 questionnaires were included in the final analysis. The instrument used was the Anesthesia Nursing Activity Scale. Data were analyzed using SPSS/WIN 28.0 with descriptive statistics, t-tests, ANOVA with Scheffé's post hoc test, paired t-tests, IPA, and Borich needs assessment.

Results : Importance was significantly higher than performance (4.47 ± 0.52 vs 4.12 ± 0.50 , $t=10.98$, $p<.001$). Transfusion nursing showed the highest importance, safety nursing the highest performance, and professional self-development the lowest scores in both. Importance differed significantly by experience, position, number of operating rooms, and guideline presence; performance differed by age, experience, hospital size, guideline presence, and quality assessment implementation. Five items fell into quadrant II of the IPA matrix. Professional self-development showed the highest Borich need, followed by anesthesia preparation and safety and environmental management.

Conclusions : The high-priority educational needs appeared to be related to limited opportunities to perform anesthesia nursing tasks, reflecting the characteristics of small and medium-sized hospitals, where high-risk surgeries and general anesthesia are performed less frequently and specialized equipment is relatively limited. In contrast, the high need for professional self-development may reflect nurses' intrinsic motivation to strengthen their professional identity. In conclusion, anesthesia nursing practice guidelines tailored to the characteristics of small and medium-sized hospitals should be developed and used in continuing education. In addition, anesthesia nursing items should be considered for inclusion in future quality assessment criteria.

Keywords : Small and Medium-Sized Hospitals; Nurse Anesthetists; Importance; Performance; Needs Assessment



Distinct Contributions of Physical, Psychological, and Social Frailty to Self-Care and Symptom Experience among Patients with Heart Failure

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Purpose : Frailty in heart failure (HF) is a multidimensional construct encompassing physical, psychological, and social domains. Although frailty is known to adversely affect self-care and symptom outcomes, the distinct direct and indirect contributions of each frailty domain remain poorly understood.

Methods : A cross-sectional study included 200 patients with HF diagnosed for at least six months, recruited from both inpatient and outpatient cardiology settings at a tertiary hospital to capture diverse symptom experiences. Physical frailty was operationalized using nutritional status (Nutritional Risk Index), physical function (Clinical Frailty Scale), and comorbidity burden (Charlson Comorbidity Index). Psychological frailty was assessed using the Patient Health Questionnaire-9, and social frailty using the Korean version of Perceived Social Support. Self-care maintenance, monitoring, and management were measured using the Self-Care of Heart Failure Index (SCHFI v7.0), and symptom experience using the revised Korean Heart Failure Symptom Experience Scale. Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM).

Results : The model demonstrated good fit (SRMR = 0.053) and explained 54.1% of the variance in symptom experience. Physical frailty directly increased symptom experience ($\beta = 0.207$, $p = .001$). Psychological frailty exerted the strongest overall influence on symptom experience (total effect $\beta = 0.567$, $p < .001$), with self-care maintenance and monitoring partially mediating this relationship. Social frailty primarily influenced self-care monitoring ($\beta = -0.341$, $p < .001$) and self-care management ($\beta = -0.505$, $p < .001$). Higher self-care monitoring was associated with greater symptom experience ($\beta = 0.250$, $p < .001$), indicating that patients with more severe symptoms may engage in more active symptom surveillance.

Conclusions : Psychological frailty emerged as the strongest determinant of symptom burden, whereas social frailty primarily influenced self-care processes. The positive association between self-care monitoring and symptom experience suggests that symptom monitoring may reflect responses to worsening symptoms. These findings support domain-specific frailty assessment and tailored

Keywords : Heart failure, Self-care, Frailty, Symptoms



Analysis of inter-rater agreement and accuracy in assessing postoperative drainage characteristics

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Purpose : Postoperative drainage characteristics such as color and turbidity provide critical clues to surgical complications, yet their assessment relies heavily on subjective clinical judgment, risking miscommunication and delayed recognition of complications. This study quantified inter-rater agreement and accuracy in assessing drainage characteristics against a laboratory-based reference standard, to determine the need for a standardized drain-color indicator.

Methods : One hundred photographs of Jackson-Pratt drains from patients undergoing hepato-biliary-pancreatic surgery were rated by 20 clinicians (16 nurses and 4 surgeons). Each rater assessed three drainage characteristics (bile, bleeding, chyle) on a four-point ordinal scale. The reference standard was determined by an expert surgeon who integrated the photographs with objective drain laboratory values (hemoglobin, bilirubin, triglyceride). Krippendorff's α assessed within-group reliability, and weighted Cohen's κ , sensitivity, and specificity quantified accuracy against the reference.

Results : Overall, agreement was limited and differed markedly by characteristic. Within-group reliability was moderate for bleeding ($\alpha = 0.69$) but low for bile ($\alpha = 0.46$) and chyle ($\alpha = 0.29$). Accuracy against the reference ranged from moderate for bile (weighted $\kappa = 0.64$) to poor for chyle ($\kappa = 0.29$). Chyle was consistently the weakest characteristic, with the lowest sensitivity (sensitivity = 0.37), whereas bleeding was detected most sensitively (sensitivity = 0.99).

Conclusions : Visual assessment of drainage characteristics showed limited reliability and accuracy, most notably for chyle. These findings suggest the limitation stems from the absence of a shared standard rather than individual competence, supporting the need for an objective, standardized drain-color indicator and systematic education.

Keywords : Postoperative Care, Surgical Drainage, Clinical Competence, Patient Safety



Oral Health and Nutrition as Trajectories for Holistic Development of Children Beyond the 1000 days of Life

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Purpose : The next 1000 days of a child's life is a critical developmental window for healthy growth and holistic development. The study aimed to examine the oral health and nutrition status of children ages 2 to 5 years who are living in the rural community in the Philippines.

Methods : This comparative quantitative design included 318 children at the local municipality pre-school center. The primary caregivers gave the assent and consent. A validated checklists were used. Descriptive and inferential statistics are tools used to examine the respondents' characteristics and differences in oral health and nutrition according to age and sex.

Results : The 5-year-olds (mean=1.36, SD=0.49) and 4-year-olds (mean=1.42, SD=0.51) have poor dietary intake while 3 year-olds (mean=1.67, SD=0.50) and 2-year-olds (mean = 2.00, SD = 0.00) have fair dietary intake. Oral health, highest risk mean on 3-year-olds (mean=2.89, SD=0.33), followed 2-year-olds (mean=2.83, SD=0.41), 4-year-olds (mean=2.75, SD=0.45), and 5-year-olds (mean=2.73, SD=0.44). On nutrition, respondents differ significantly on age where variance between the age groups, $F(3, 313) = 4.610$, $p = .004$ were statistically significant. On oral health, there is no significant difference across age groups, $F(3, 314) = 0.445$, $p = .721$. while significant difference between male and female regarding nutrition ($p = 0.036$). Similarly, there is statistically significant on oral health based on sex ($p = .040$).

Conclusions : Poor dietary intake is revealed as ages increases from 2 to 5. On oral health, high risk factors were present across ages. Age and sex of children is significantly associated with nutrition and oral health. Recommendations are provided on sustainable school health initiatives and policies on longer-term interventions engaging the primary caregivers for the holistic development of children beyond the 100 days of life.

Keywords : Oral health, Nutritional status, Holistic development



Associations among Maternal Identity, Fear of Childbirth, and Prenatal Health Care Behaviors in Nulliparous Women with Infertility

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Purpose : This study aimed to examine the levels of maternal identity, fear of childbirth, and prenatal health care behaviors, and to identify the relationships among these variables in nulliparous pregnant women with a history of infertility.

Methods : A descriptive cross-sectional survey was conducted with 135 nulliparous pregnant women who had experienced infertility diagnosis or treatment. Participants were recruited from online infertility-related communities, and data were collected from March 19 to April 1, 2026. Maternal identity, fear of childbirth, and prenatal health care behaviors were measured using structured questionnaires. Two additional questions were included to explore specific prenatal health care practices. Data were analyzed using descriptive statistics, independent t-tests, one-way ANOVA with Scheffé post hoc tests, and Pearson's correlation coefficients.

Results : The mean scores were 3.49 out of 4 for maternal identity, 2.60 out of 6 for fear of childbirth, and 4.49 out of 5 for prenatal health care behaviors. Maternal identity was negatively correlated with fear of childbirth ($r = -.46, p < .001$) and positively correlated with prenatal health care behaviors ($r = .59, p < .001$). Fear of childbirth was negatively correlated with prenatal health care behaviors ($r = -.43, p < .001$). Significant differences were found in the study variables according to selected general and obstetric characteristics.

Conclusions : Maternal identity, fear of childbirth, and prenatal health care behaviors were significantly interrelated in nulliparous pregnant women with infertility. These findings suggest the need for integrated prenatal nursing interventions that support maternal identity, reduce fear of childbirth, and promote appropriate prenatal health care behaviors.

Keywords : Infertility, nulliparous, Maternal Identity, Fear of childbirth, Prenatal care, Health Behavior



Development of a MyData-based health care program (POI-MyData) for women with premature ovarian insufficiency

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Purpose : Women with premature ovarian insufficiency (POI) and early menopause require continuous management for long-term health problems such as osteoporosis and cardiovascular disease. However, because patients often visit multiple healthcare institutions, they face the burden of repeatedly explaining their condition. This study aimed to develop a MyData-based program that enables women with POI to record and securely share their personal health records (PHR) to support continuity of care.

Methods : Based on findings from our prior studies, core content was developed primarily on the basis of major clinical references, including the 2024 European Society of Human Reproduction and Embryology (ESHRE) POI guideline, the American College of Obstetricians and Gynecologists (ACOG), the European Menopause and Andropause Society (EMAS), and UpToDate. A hybrid application supporting both Android and iOS was designed to be used not only by women with POI but also by those with menstrual irregularities and women in the general population. The developed program was then evaluated for content validity by expert review, and the content and user flow were revised accordingly.

Results : POI-MyData comprises a patient application and a healthcare provider web interface. It functions as a patient-generated health data (PGHD) platform that shares patient-entered data via QR code or PDF before consultations. The program allows users to selectively share only the health data they choose through password-protected access, and the shared data remain available only for a limited period, becoming inaccessible once the authorized time expires. The data are structured into four domains of baseline data (entered once at registration) and three domains of dynamic data (recorded routinely).

Conclusions : POI-MyData supports self-directed health management and pre-consultation data sharing between patients and healthcare providers. Building on clinically relevant PGHD, this study developed a MyData-based PHR program for women with POI. Future studies are needed to evaluate its usability and effectiveness in clinical settings.

Keywords : Primary Ovarian Insufficiency, Personal Health Records, Mobile Applications, Patient-Centered Care, Medical Records



Factors associated with ovarian reserve function in women with menstrual irregularity: A cross-sectional study

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Purpose : Ovarian reserve is an important indicator of female reproductive potential. It may be helpful to identify factors associated with ovarian reserve to enable the early identification of women at risk for premature ovarian insufficiency (POI). This study aimed to identify factors associated with ovarian reserve function in reproductive-aged women with menstrual irregularity.

Methods : Women aged 18–44 years with amenorrhea or oligomenorrhea were recruited through social media advertisements and online announcements using convenience sampling. A total of 111 participants completed the survey, and blood samples were subsequently collected at a health screening center in Busan. Ovarian function–related hormones (FSH, AMH, LH, estradiol, prolactin, and TSH), quality of life (SF-12v2), perceived stress (PSS), and sleep quality (PSQI) were assessed. Multiple regression analyses were performed using STATA version 17.0.

Results : The mean age was 29.2 ± 6.4 years, and the mean body mass index (BMI) was 24.6 ± 5.7 kg/m². The mean annual menstrual frequency was 7.4 ± 3.6 , and 85.7% of participants reported irregular menstruation, while 68.1% reported poor sleep (PSQI > 5). Ovarian function–related hormones (median [IQR]) were as follows: FSH 5.3 [3.8–6.7] IU/L, LH 10.6 [6.2–15.4] IU/L, estradiol 53.8 [40.2–143.0] pg/mL, AMH 5.4 [3.8–8.2] ng/mL, prolactin 14.6 [10.6–21.4] ng/mL, and TSH 1.4 [1.0–2.2] mIU/L. In multiple regression analyses, AMH was significantly predicted by age ($B = -0.043$, $p < .01$) and sleep quality (PSQI, $B = -0.095$, $p < .01$), whereas annual menstrual frequency was significantly predicted by age ($B = 0.128$, $p < .05$) and BMI ($B = -0.186$, $p < .01$). PSS was not significant in either model.

Conclusions : Modifiable factors such as sleep quality and BMI were associated with ovarian reserve and menstrual function as well as age. These findings suggest that a multidimensional approach including sleep and weight management is needed in the reproductive health care of women with menstrual irregularity.

Keywords : Primary Ovarian Insufficiency, Anti-Müllerian Hormone, Amenorrhea, Body Mass Index, Sleep



Suicidal Ideation and Associated Health Risk Behaviors Among Korean Adolescents with E-Cigarette Experience: A Gender-Based National Cross-Sectional Study

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Purpose : This study examined gender-specific factors associated with suicidal ideation among Korean adolescents with e-cigarette experience.

Methods : This study is a descriptive study that conducted a secondary analysis using data from the 20th (2024) Korean Youth Risk Behavior Web-based Survey (KYRBWS) to identify factors influencing suicidal ideation among adolescents with e-cigarette experience. A total of 3,863 adolescents with e-cigarette experience were included, comprising 2,510 boys and 1,353 girls. Complex sample logistic regression analysis was performed to identify factors associated with suicidal ideation.

Results : For both boys and girls, habitual and intentional drug use and hospitalization due to violence were significantly associated with higher odds of suicidal ideation. Among girls, cigarette smoking was significantly associated with suicidal ideation. Among boys, alcohol consumption showed only a marginal association before Bonferroni correction.

Conclusions : This study is significant in that it analyzed the influence of health risk behaviors on suicidal ideation among adolescents with e-cigarette use experience, based on Jessor's Problem Behavior Theory, with a focus on gender differences. Habitual and intentional drug use and hospitalization due to violence were identified as common factors significantly associated with suicidal ideation in both male and female adolescents. In contrast, combustible cigarette smoking was a significant factor among male adolescents, while alcohol consumption was significant among female adolescents. These findings clearly demonstrate gender-specific differences in the factors influencing suicidal ideation and suggest the need for differentiated prevention strategies through collaboration among families, schools, and communities. Clinicians, nurses, educators, and mental health professionals should play a proactive role in identifying and monitoring risk factors such as adolescent smoking, alcohol use, and history of violence-related treatment, and implement early interventions. In addition, providing accurate and developmentally appropriate education on substance use is essential to suicide prevention efforts targeting adolescents.

Keywords : adolescent, health risk behaviors, suicidal ideation, vaping



Reducing Unplanned Pigtail Catheter Dislodgement Through a Standardized Catheter Care Program in a Pediatric Surgical Ward: A Quality Improvement Project

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Purpose : To improve patient safety by reducing unplanned pigtail catheter dislodgement through implementation of a standardized catheter care program in a pediatric surgical ward.

Methods : Unplanned pigtail catheter dislodgement was identified as a patient safety concern in a pediatric surgical ward. Root cause analysis revealed inconsistent catheter fixation techniques among nurses, inadequate caregiver education and communication, lack of standardized catheter care procedures, and absence of regular nursing education and quality audits. A multifaceted quality improvement program targeting both nursing staff and family caregivers was implemented. Interventions included the development of standardized catheter fixation procedures, an innovative flipped classroom approach integrating pre-class instructional videos, hands-on skills practice, and immediate instructor feedback for nurses, video-based caregiver education, bedside reminder cards for catheter care, and regular nursing quality audits to reinforce adherence to standardized catheter care practices.

Results : Following implementation, pigtail catheter dislodgement decreased from three events to zero. All 15 nurses achieved 100% competency in standardized pigtail catheter care. All caregivers completed the educational video and achieved 100% on the post-test. The program standardized catheter care and improved nurses' competency and caregiver education.

Conclusions : The standardized catheter care program effectively prevented unplanned pigtail catheter dislodgement and enhanced patient safety. Integrating standardized nursing practice, innovative flipped classroom education, caregiver education, and continuous quality audits provides a practical and sustainable strategy for improving catheter care in pediatric surgical wards.

Keywords : Pediatric nursing, Patient safety, Pigtail catheter, Quality improvement



Factors Influencing Quality of Life in the Pregnant Women with Preterm Labor Based on the Uncertainty in Illness Theory

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Purpose : The purpose of this study was to identify factors influencing quality of life in the pregnant women with preterm labor based on the Mishel's Uncertainty in Illness Theory.

Methods : This is a cross-sectional study funded by Korean government (NRF-2024-00358533). The participants were 230 pregnant women with preterm labor who admitted for treatment to a maternal-fetal intensive care unit (MF-ICU), obstetric ward, or delivery room in three hospitals located in Suwon, South Korea. In this study, influencing factors of quality of life were selected based on the Mishel's Uncertainty in Illness Theory. Data were collected using self-report questionnaires from October 2025 to March 2026. The hierarchical multiple regression was used to identify factors influencing quality of life using SPSS 29.0.

Results : The quality of life were significant correlated with self-efficacy ($r=.405$, $p<.001$), illness uncertainty ($r=-.485$, $p<.001$), symptom experience ($r=-.321$, $p<.001$), professional support ($r=.270$, $p<.001$), and spousal support ($r=.300$, $p<.001$). In the final model, controlling the demographic and obstetric characteristics, quality of life was significantly predicted by uncertainty ($\beta=-.29$, $p<.001$), Self-efficacy ($\beta=.17$, $p=.007$), spousal support ($\beta=.12$, $p=.025$), and family economic status ($\beta=.41$, $p<.001$). This regression model was significant ($F=12.76$, $p<.001$) and explained 49% of the variance of quality of life.

Conclusions : These findings suggest that nursing interventions to improve the quality of life in pregnant women hospitalized for preterm labor treatment should focused on reducing illness uncertainty, improving self-efficacy of health care and strengthening spousal support. Also, nurse professional should consider the economic vulnerability in care. Therefore, Further intervention study to reduce illness uncertainty and to promote self-efficacy, spousal support through various education and support strategies should be developed and actively applied. Especially e-health intervention would be very beneficial to enhance husband participation and to reduce uncertainty through repetitive education and self-care practice such as deep breathing without limitation of time and space.

Keywords : Preterm Labor, Uncertainty, Quality of Life



Temporal Relationships Between Child Sleep Quality and Caregiver Depression in Families of Children with Angelman Syndrome: A Dynamic Structural Equation Modeling Study

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Purpose : Angelman syndrome (AS) is a rare neurodevelopmental disorder associated with severe sleep disturbances and substantial caregiving demands. Although caregiver depression is common among families of children with AS, the temporal relationships among child sleep quality, caregiving stress, and caregiver depression remain poorly understood. This study examined the dynamic associations among these variables using a dynamic structural equation model (DSEM) to provide evidence for family-centered support strategies.

Methods : A total of 65 primary caregivers of children with AS completed daily assessments of caregiver-perceived child sleep quality, caregiving stress, and caregiver depression for 14 consecutive days. DSEM with Bayesian estimation was used to estimate same-day, autoregressive, and cross-lagged effects. Impulse response function (IRF) analysis was conducted to examine the temporal persistence and recovery patterns of the observed effects.

Results : Better caregiver-perceived child sleep quality was significantly associated with lower caregiver depression ($\beta = -0.49$, 95% CI = -0.60 to -0.38). In contrast, caregiving stress was not significantly associated with caregiver depression ($\beta = 0.06$, 95% CI = -0.03 to 0.15). Child sleep quality at the previous time point also significantly predicted current caregiver depression (CL = -0.12 , 95% CI = -0.31 to -0.12), whereas the cross-lagged effect of caregiving stress was not significant (CL = 0.12 , 95% CI = -0.60 to 0.78). IRF analysis demonstrated that the effect of child sleep quality on caregiver depression gradually attenuated over time and approached baseline within approximately one week.

Conclusions : Child sleep quality was more strongly associated with caregiver depression than caregiving stress in families of children with AS. The temporal persistence of this effect suggests that caregiver psychological distress may not resolve through short-term support alone. Interventions for families of children with AS should incorporate ongoing management of child sleep problems together with sustained psychological support for caregivers. These findings provide longitudinal evidence to inform the development of family-centered interventions for rare disease populations.

Keywords : Angelman Syndrome, Caregivers, Sleep, Depression, Psychological Stress



Pre-pregnancy Urinary Incontinence Predicts Persistent Perinatal Urinary Incontinence: A Prospective Longitudinal Cohort Study

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Purpose : Urinary incontinence (UI) is a common pelvic floor disorder that occurs perinatally. Although perinatal UI has traditionally been regarded as a transient condition associated with pregnancy and delivery, the influence of pre-pregnancy pelvic floor vulnerability on UI onset and persistence remains unclear. Hence, this study examined longitudinal changes in UI from late pregnancy to one month postpartum, and whether pre-pregnancy UI history predicts persistent perinatal UI.

Methods : This prospective longitudinal cohort study recruited 100 women with singleton pregnancies at ≥ 36 weeks' gestation between June 2022 and June 2025; 87 who completed the one-month postpartum follow-up were analyzed. UI was assessed using the Japanese version of the International Consultation on Incontinence Questionnaire–Short Form (ICIQ-SF). Pre-pregnancy UI history and perinatal characteristics were obtained from questionnaires and medical records. Longitudinal changes were analyzed using McNemar's test and trajectory analysis.

Results : UI prevalence significantly decreased from 67.8% in late pregnancy to 23.0% at one month postpartum ($p < 0.001$). Among the 59 women with UI during late pregnancy, symptoms resolved in 42 (71.2%) by one month, but persisted in 17 (28.8%) participants. Women with a history of pre-pregnancy UI had a significantly higher UI prevalence in late pregnancy (96.6% vs. 53.4%) and at one month postpartum (37.9% vs. 15.5%). Trajectory analysis showed that women with pre-pregnancy UI history were more likely to have persistent UI trajectory, indicating that pre-pregnancy UI is a predictor of persistent perinatal UI.

Conclusions : A history of pre-pregnancy UI was associated with both the prevalence and persistence of perinatal UI, suggesting that perinatal UI reflects underlying pelvic floor vulnerability rather than being a transient consequence of pregnancy and delivery. Assessing pre-pregnancy UI history may identify women at a high risk of persistent postpartum UI. These findings support future artificial intelligence-based prediction models for pelvic floor disorders.

Keywords : Pregnancy, Urinary Incontinence, Postpartum Period, Pelvic Floor Dysfunction



Effects of a REBT-based Emotion Regulation Program for Mothers of School-aged Children with Attention-Deficit/Hyperactivity Disorder

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Purpose : Mothers of children with ADHD may experience negative emotions and emotion regulation difficulties while caring for their children. This study aimed to develop and evaluate the effectiveness of an emotion regulation program based on Rational Emotive Behavior Therapy(REBT) for mothers of children with ADHD.

Methods : The emotion regulation program was developed based on participants' needs, a literature review, and the ADDIE model. This study employed a nonequivalent control-group pretest-posttest design. The program consists of eight weekly sessions, including small-group sessions, home assignments, and individualized feedback. A total of 47 participants (24 in the experimental group and 23 in the control group) participated. Data were collected from May to August 2024 using self-reported questionnaires evaluating irrational beliefs, emotion regulation strategies, depression, parenting stress, and parenting behaviors. Data were analyzed using descriptive statistics, the chi-square test, Fisher's exact test, the independent t-test, and generalized estimating equations.

Results : The emotion regulation program was developed based on participants' needs, a literature review, and the ADDIE model. This study employed a nonequivalent control-group pretest-posttest design. The program consists of eight weekly sessions, including small-group sessions, home assignments, and individualized feedback. A total of 47 participants (24 in the experimental group and 23 in the control group) participated. Data were collected from May to August 2024 using self-reported questionnaires evaluating irrational beliefs, emotion regulation strategies, depression, parenting stress, and parenting behaviors. Data were analyzed using descriptive statistics, the chi-square test, Fisher's exact test, the independent t-test, and generalized estimating equations.

Conclusions : The REBT-based emotion regulation program was effective in reducing irrational beliefs, maladaptive emotional responses, depression, parenting stress, and negative parenting behaviors among mothers of children with ADHD. The findings suggest that addressing irrational beliefs may be a useful strategy for improving maternal emotion regulation and provide preliminary evidence of REBT-based interventions in pediatric nursing and parental education.

Keywords : ADHD, Rational Emotive Behavior Therapy, Emotion Regulation, Mother, Child



The process of discontinuing in vitro fertilization among infertile women: A grounded theory study

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Purpose : This study aimed to construct a situation-specific theory by exploring the experiences and psychosocial processes of infertile women in Korea who discontinued in vitro fertilization (IVF) treatment.

Methods : ixteen infertile women who had stopped IVF treatment participated in this study. Data were collected through individual in-depth inteerviews conducted between February and December 2023. Theoretical sampling was applied, and the interview transcripts were analyzed using the grounded theory approach of Corbin and Strauss.

Results : Through open coding, 37 concepts and 14 categories were indentified. The central phenomenon was described as "Pain from the experience of renunciation of IVF procedures". Two types as a result, "Getting away from the fremework of pregnancy attempt" and "Hoping the completion of a traditional family model". The core category was identified as "Escape from the pain of giving up of infertile women and live as an active women".

Conclusions : The findings highlight the need for greater social understanding of women who discontinue IVF. Positive public perceptions may support these women in rebuilding autonomous lives beyond infertility treatment. Educational and public awareness programs are needed to reduce negative social attitudes, along with psychosocial support systems for women who have experienced the discontinuation of IVF treatment.

Keywords : Fertilization In Vitro; Grounded theory; Infertility; Qualitative research; Women



Capturing Infection Prevention Behaviors in Preschool-Aged Children: Development and Validation of a Parent-Reported Instrument

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Purpose : The aim of this methodological study was to develop the parent-reported Infection Prevention Behaviors Scale–Kids (IPBS-Kids) to comprehensively assess infection prevention behaviors among preschool-aged children and to establish its psychometric properties through the evaluation of content validity, construct validity, and reliability.

Methods : This methodological study developed and validated a parent-reported instrument to measure infection prevention behaviors among preschool-aged children. Data were collected from April 1, 2026, to May 30, 2026. A total of 583 participants were included across the phases of instrument development and psychometric evaluation. Validity was evaluated through expert content validity, item analysis, exploratory factor analysis (EFA), and confirmatory factor analysis (CFA). Reliability was assessed using Cronbach's alpha and test–retest reliability. Data were analyzed using IBM SPSS Statistics and AMOS.

Results : The developed parent-reported instrument for measuring infection prevention behaviors among preschool-aged children consisted of 38 items across six factors and demonstrated strong validity and reliability. The six factors were “Self-Initiated Habit Formation,” “Modeling and Reinforcement,” “Transmission Blocking,” “Adherence to Personal Hygiene,” “Preventive Actions for the Community,” and “Respiratory Infection Prevention Behaviors.” The final instrument demonstrated excellent internal consistency (Cronbach's $\alpha = .955$) and excellent test–retest reliability (ICC = .871).

Conclusions : The IPBS-Kids demonstrated robust psychometric properties and provides the first validated parent-reported instrument for comprehensively assessing infection prevention behaviors among preschool-aged children. The instrument may support the objective assessment of children's infection prevention behaviors and the evaluation of infection prevention interventions in research and practice.

Keywords : preschool child, infection control, health behavior, psychometrics



Development and evaluation of nursing simulation education program of pediatric trauma patient

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Purpose : This study aimed to develop a simulation-based nursing education program for the care of pediatric trauma patients for cadets at the Korea Armed Forces Nursing Academy and to evaluate its effectiveness.

Methods : This study was based on the ADDIE instructional design model and consisted of five phases: analysis, design, development, implementation, and evaluation. Participants included six experts for focus group interviews (three trauma specialists and three pediatric nursing specialists), eight experts for content validity assessment of the developed simulation scenario (four nurses and four nursing education experts), and 32 cadets from the Korea Armed Forces Nursing Academy who participated in the program evaluation (16 in the experimental group and 16 in the control group). The experimental group participated in a 110-minute pediatric trauma patient simulation education program, whereas the control group received a 30-minute online video-based educational session. A pretest-posttest controlled experimental design was employed to evaluate clinical competence, learning self-efficacy, and learning satisfaction.

Results : There was no difference in the homogeneity test between two group. Significant group×time interaction effects were found for clinical performance ability ($F=9.30$, $p=.001$) and self-efficacy in learning ($F=4.87$, $p=.011$). Education satisfaction was also significantly higher in the experimental group than in the control group ($t=32.98$, $p<.001$). Thus, all three hypotheses were supported.

Conclusions : The pediatric trauma nursing simulation education program was effective in enhancing cadets' clinical performance ability and self-efficacy in learning. Given the limited opportunities to care for pediatric trauma patients in clinical settings and the particular vulnerability of children to traumatic injuries due to their developmental characteristics, simulation-based education incorporating diverse scenarios tailored to different developmental stages may serve as an effective educational strategy for strengthening competency in pediatric trauma nursing.

Keywords : Pediatric, Program development, Simulation training, Trauma nursing



Translation, Cultural Adaptation, and Preliminary Psychometric Evaluation of the Korean Version of the MISSCARE Survey-PED

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Purpose : Missed nursing care is a critical indicator of nursing quality and patient safety. However, no Korean version of the MISSCARE Survey-PED is currently available for pediatric settings. Therefore, this study aimed to translate and culturally adapt the MISSCARE Survey-PED into Korean and evaluate its preliminary psychometric properties among Korean pediatric nurses.

Methods : The instrument underwent forward translation, back-translation, and review by the original author. Six pediatric nursing experts evaluated translation equivalence and content validity over two rounds of expert panel review. Cognitive debriefing was conducted with six currently practicing pediatric nurses from six diverse pediatric settings. Data were collected online among pediatric nurses with at least six months of clinical experience between April and August 2026.

Results : Following expert panel review, the oral hygiene (mouth care) item was removed due to cultural inapplicability in Korean clinical settings, resulting in a final 45-item Korean version (28 activity items and 17 reason items). All retained items demonstrated acceptable content validity ($I-CVI=0.833-1.000$; $S-CVI/Ave=0.959$). Cognitive debriefing confirmed item clarity and cultural appropriateness. A total of 286 pediatric nurses were included in the present analysis. Internal consistency was high for both the activity domain (Cronbach's $\alpha=0.904$) and the reasons domain (Cronbach's $\alpha=0.932$). The most frequently missed nursing activities were participation in rounds, providing emotional support to children and families, ambulation education and encouragement, and discussing post-discharge care plans with children and families. The factors perceived as most influential contributors to missed nursing care were sudden increases in patient volume and acuity, frequent interruptions, insufficient nursing staff, and emergency situations.

Conclusions : The Korean version of the MISSCARE Survey-PED demonstrated satisfactory preliminary psychometric properties, supporting its potential utility for assessing missed nursing care and identifying system-related contributors to guide quality-improvement efforts in Korean pediatric settings. Further analyses, including confirmatory factor analysis and construct validity evaluation, are ongoing.

Keywords : missed nursing care, pediatric nursing, cultural adaptation, psychometric evaluation, translation



Development and Psychometric Evaluation of a Korean Positive Youth Development Scale Based on the 7Cs Model

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Purpose : Positive Youth Development (PYD) is a strengths-based framework that promotes healthy development by emphasizing adolescents' strengths and potential. Although scales based on the 5Cs model (Competence, Confidence, Connection, Character, and Caring) have been the most widely used to measure PYD, the framework has expanded to the 7Cs model by incorporating Contribution and Creativity. However, scales reflecting the 7Cs model remain limited for Korean adolescents. This study aimed to develop and validate a Korean PYD scale based on the 7Cs model.

Methods : A preliminary 77-item scale was developed through a systematic literature review, a review of existing instruments, content validity assessment by an expert panel, and assessment of item comprehensibility by adolescents. Data from 448 adolescents aged 11–15 years were analyzed to evaluate structural validity using exploratory and confirmatory factor analyses and to examine convergent validity, criterion-related validity, and internal consistency.

Results : The final scale consisted of 36 items across seven factors. Although exploratory factor analysis extracted six factors, Character and Caring were retained as separate constructs based on the theoretical framework of the 7Cs model. The retained seven-factor structure explained 57.1% of the total variance. Although average variance extracted was below .50 for several factors, composite reliability exceeded .70 for all factors, supporting convergent validity. The overall Cronbach's α was .94, with subscale coefficients ranging from .79 to .88. Criterion-related validity was supported by positive correlations with flourish and negative correlations with depression and intention to engage in health risk behaviors.

Conclusions : This scale provides a culturally and developmentally appropriate measure of PYD for Korean adolescents. The findings support the proposed seven-factor structure of the 7Cs model. The scale may be used to assess PYD in research and practice, and further validation across diverse adolescent populations is warranted.

Keywords : Adolescent, Korea, Positive Youth Development, Scale



Occupational Characteristics and High-Risk Pregnancy Outcomes Among Korean Nurses: A Secondary Analysis of the Korea Nurses' Health Study

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Purpose : Nurses experience occupational demands that may affect pregnancy health. However, it remains unclear whether high-risk pregnancy outcomes are related to shift work itself or to broader occupational and reproductive health factors. This study examined these associations among Korean female nurses.

Methods : This cross-sectional secondary analysis used fourth-wave data from the Korea Nurses' Health Study, collected from 2015 to 2019. After excluding missing data, 1,330 nurses were included. Shift work type was classified as non-shift work, shift work without night shifts, and shift work with night shifts. Multivariable logistic regression examined adjusted associations between occupational characteristics and high-risk pregnancy outcomes. Firth's penalized logistic regression was used for outcomes with fewer events.

Results : Among 1,330 nurses, 748 (56.2%) reported at least one high-risk pregnancy outcome, and the frequencies of these outcomes did not differ significantly by shift work type. In adjusted analyses, neither shift work type nor shift work status was associated with any high-risk pregnancy outcome. However, selected occupational and reproductive health factors showed significant associations. Higher emotional labor was associated with increased odds of preterm labor (aOR=1.106, $p=.004$), and working in hospitals with 100–599 beds was associated with higher odds of gestational diabetes mellitus than working in hospitals with ≥ 600 beds (aOR=1.754, $p=.025$). Not moving objects weighing ≥ 10 kg was associated with lower odds of preterm birth (aOR=0.303, $p=.024$) and placental abruption (aOR=0.090, $p=.034$). In addition, absence of uterine myoma history was associated with lower odds of preterm birth, preterm labor, and placenta previa.

Conclusions : High-risk pregnancy outcomes among Korean nurses were not associated with shift work alone, but appeared to reflect broader occupational and reproductive health factors. Pregnancy-supportive work environments should reduce physical workload, manage emotional labor, ensure adequate rest, and provide individualized work adjustment.

Keywords : High-Risk Pregnancy, Nurses, Occupational Exposure, Shift Work Schedule



Factors Associated with Death Anxiety in Women with Gynecological Cancer

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Purpose : Women with gynecological cancer often experience death anxiety due to uncertainty about prognosis and treatment, yet limited evidence exists regarding its associated factors. This study aimed to identify factors associated with death anxiety in women with gynecological cancer.

Methods : A cross-sectional study was conducted among 125 women receiving treatment for gynecological cancer at a tertiary hospital in Seoul, South Korea. Data were collected using structured questionnaires assessing death anxiety, depression, resilience, experiences of others' cancer-related deaths, and cancer-related characteristics. Hierarchical multiple regression analysis was performed to identify factors associated with death anxiety.

Results : Hierarchical multiple regression analysis identified cancer stage ($\beta = -.26$, $p = .005$), depression ($\beta = .27$, $p = .004$), and resilience ($\beta = -.20$, $p = .022$) as significant predictors of death anxiety. The final model explained 23.3% of the variance in death anxiety ($R^2 = .233$). Women with lower-stage cancer reported significantly higher levels of death anxiety than those with advanced-stage disease ($F = 4.68$, $p = .004$).

Conclusions : Depression, resilience, and cancer stage were significantly associated with death anxiety in women with gynecological cancer. These findings suggest that routine assessment of psychological distress and resilience, together with individualized psychosocial interventions, may help reduce death anxiety. Healthcare providers should also provide timely emotional support for patients who experience the death of fellow patients or family members during the cancer trajectory.

Keywords : Death anxiety; Depression; Gynecological cancer; Resilience



Women's perspectives on childbirth care: Q-methodology study

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Purpose : Recently, women's preference for natural, private, and self-directed childbirth has been increasing. Therefore, clearly understanding women's new perceptions of childbirth care is crucial for establishing a future-oriented maternal healthcare system. This study aims to identify women's perceptions of childbirth care using Q methodology.

Methods : Thirty-nine statements on childbirth care were developed based on semi-structured interviews (8 childbirth women at women's clinics, midwifery centers, or at home, and 4 medical staff) and literature reviews. Thirty-five childbirth women were asked to rank these statements from least to most important. By-person factor analysis was used to identify factors (viewpoints) which, supplemented with interview data, were interpreted as perceptions.

Results : Three viewpoints emerged: 1) "other-reliant and safety-seeking type", preferring physical and therapeutic instructions from skilled medical staff rather than spousal support. 2) "self-controlled and nature-seeking type", preferring a self-controlled natural childbirth through the emotional and physical support of spouses and the professional support of medical staff. 3) "other-rejecting and freedom-seeking type", preferring a free delivery in a comfortable and independent environment rather than the support or treatment of medical staff.

Conclusions : Women's perceptions of childbirth care were diverse. In the future, individualized care tailored to the characteristics of each type of childbirth care is necessary, and this will be a good opportunity to innovate the maternal healthcare system.

Keywords : Obstetric Nursing; Parturition; Perception; Q-Sort



K-OASIS Development Protocol: A Framework for Developing a Mood Meter-Based Emotional Image Database for Korean Adolescents

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Purpose : Existing emotional image databases have limited applicability to Korean adolescents because they were primarily developed for Western adult populations and do not adequately reflect the cultural and developmental characteristics of Korean adolescents. This study aimed to propose the K-OASIS Development Protocol, a standardized framework for developing a Mood Meter-based emotional image database specifically designed for Korean adolescents to support future emotion assessment and digital mental health research.

Methods : The K-OASIS protocol consists of six sequential phases: (1) establishing a Mood Meter-based emotion framework using the valence–arousal model; (2) developing culturally relevant emotional scenarios reflecting Korean adolescents' daily experiences; (3) generating standardized emotional images using AI-assisted methods; (4) refining images through expert review; (5) conducting Delphi validation to assess emotional representativeness, cultural relevance, ethical suitability, and content validity; and (6) preparing a large-scale standardization study using Mood Meter ratings and self-reported valence–arousal assessments.

Results : A structured six-phase development framework was established to construct a culturally adapted emotional image database. Approximately 900–1,000 candidate images are being developed across the four Mood Meter zones. Standardized visual development guidelines, metadata criteria, and a Delphi validation protocol have been established to ensure image quality, emotional clarity, cultural appropriateness, and methodological consistency before standardization.

Conclusions : The K-OASIS Development Protocol provides the first systematic framework for developing a Mood Meter-based emotional image database for Korean adolescents. This protocol establishes a methodological foundation for future standardization and offers a reproducible approach for emotion assessment, AI-assisted affective computing, and digital mental health research.

Keywords : Emotion, Mood, Arousal, Image, Adolescent, Protocol



The influence of death anxiety and self-transcendence on well-dying awareness among women with cancer

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Purpose : This study aimed to identify how death anxiety and self-transcendence influence well-dying awareness among women with cancer.

Methods : From October 15, 2024, to August 11, 2025, a total of 105 women diagnosed with breast and gynecologic cancers were recruited from two hospitals located in City J. The instruments were the Death Anxiety Scale, the Self-Transcendence Scale, and the Well-Dying Awareness Scale. Data were analyzed using descriptive statistics, Pearson correlation, and multiple regression analysis.

Results : The mean scores of the participants were 2.43 for death anxiety, 2.97 for self-transcendence, and 4.50 for well-dying awareness. Breast cancer patients showed significantly higher well-dying awareness than those with gynecologic cancers ($t=2.14$, $p=.035$). In addition, patients diagnosed at stage I reported significantly higher levels of well-dying awareness compared with those at stages II and III ($F=6.56$, $p=.002$). Well-dying awareness demonstrated significant negative correlations with the death anxiety subdimensions of loss of existence ($r=-.41$, $p<.001$), and consequences after death ($r=-.23$, $p=.020$), while showing a strong positive correlation with self-transcendence ($r=.61$, $p<.001$). Multiple regression analysis indicated that loss of existence ($\beta=-.37$, $p=.007$) and self-transcendence ($\beta=.43$, $p<.001$) were significant predictors of well-dying awareness. The final regression model accounted for 41% of the total variance.

Conclusions : The analysis revealed that well-dying awareness among women with cancer is influenced by self-transcendence and anxiety related to the loss of existence. These findings suggest the importance of nursing interventions aimed at reducing this existential anxiety and enhancing self-transcendence, which may ultimately contribute to improving well-dying awareness in this population.

Keywords : Advance Care Planning, Anxiety, Attitude to Death, Awareness, Spirituality, Women



Risk Perception and Decision Support for Travel by Car at the Onset of Labor Based on Nursing Safety Knowledge in the AI Era

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Purpose : Ensuring safety during travel from home to the hospital at the onset of labor is fundamental to nursing practice aimed at protecting the health of both mother and child. This study sought to clarify the associations between physical, psychological, and environmental conditions during car travel at the onset of labor and the occurrence of accidents and near-miss events from the perspective of nursing safety knowledge in the AI era. It also aimed to explore directions for the development of data-driven decision support systems that can enhance clinical judgment and promote safer perinatal care.

Methods : An online survey was conducted among 1,023 women who had given birth within the past five years. Data were collected on symptoms experienced during travel, anxiety about in-vehicle childbirth, the driver, travel time, and the occurrence of accidents or near-miss events. Chi-square tests, nonparametric tests, and binary logistic regression analysis were performed.

Results : Accidents occurred in 0.5% of cases, and near-miss events in 5.1%. Women who experienced accidents reported significantly higher anxiety about in vehicle childbirth, whereas those who experienced near miss events whereas among those who experienced near-miss events, travel time was significantly shorter ($p < 0.05$). Longer travel times were associated with lower odds of accidents and near-miss events. These findings provide foundational evidence for developing AI-based risk prediction models and nursing decision support tools for safer travel during labor onset.

Conclusions : Ensuring safety during car travel at the onset of labor requires integration AI-driven risk perception support with educational interventions for pregnant women and their families. Collaboration between nursing expertise and artificial intelligence is expected to advance new nursing practices that more effectively safeguard maternal and neonatal well being.

Keywords : Artificial intelligence, Nursing safety knowledge, Onset of labor, Travel by car



Health Literacy and Influencing Factors among Adolescents

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Purpose : This study aimed to investigate the levels of objective health literacy among Korean adolescents and to identify the independent factors influencing adequate health literacy, focusing on individual health-risk behaviors and subjective health perceptions.

Methods : A secondary data analysis was conducted using a sample of 1,769 middle and high school students from 14 cities and counties in Jeonbuk State. Data were collected from July to September 2025. After excluding missing data, 1,694 participants were included in the final analysis. Data were analyzed using IBM SPSS Statistics ver. 26.0 (or 28.0) via descriptive statistics, independent t-test, ANOVA, and binary logistic regression analysis.

Results : The final regression model demonstrated an acceptable fit and accounted for 12.6% of the variance in adequate health literacy, with a classification accuracy of 75.1%. Residential area, grade, subjective health status, self-reported health literacy, ease of internet access to health information, and health-risk behaviors emerged as significant independent predictors. Adolescents living in rural areas were 1.46 times more likely to have adequate health literacy than those living in urban areas. Participants with poor subjective health status were significantly less likely to achieve adequate health literacy compared to those with good health status (Odds ratio=0.41). Higher self-reported health literacy served as a significant protective factor (Odds ratio=1.48). Easier access to health information through the internet also increased the likelihood of adequate health literacy (odds ratio=1.21). Conversely, an increase in individual health-risk behaviors was identified as a critical barrier, substantially decreasing the likelihood of adequate health literacy (Odds ratio=0.54).

Conclusions : School and community based programs should focus on improving adolescents' practical skills to access, evaluate, and use reliable health information, with particular attention to those with low perceived health competence and health-risk behaviors.

Keywords : Adolescent, Health behavior, Health literacy



The Effect of Negative Parenting Attitudes on Problematic Smartphone Use among Adolescents from Single-Parent Families: Sequential Dual Mediating Effects of Peer Relationships and Depression

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Purpose : This study aimed to investigate the sequential mediating effects of peer relationships and depression on the relationship between negative parenting attitudes and problematic smartphone use among adolescents from single-parent families.

Methods : A descriptive correlational study was conducted using secondary data from the seventh wave of the Korean Children and Youth Panel Survey 2018, collected in 2024. The participants were 146 first-year high school students who owned smartphones and lived with one parent. Data included negative parenting attitudes, peer relationships, depression, and problematic smartphone use. Data were analyzed using IBM SPSS/WIN 27.0 and PROCESS macro 4.0. Mediating effects were tested using PROCESS macro Model 6 with 10,000 bootstrap samples and bias-corrected 95% confidence intervals.

Results : Negative parenting attitudes had direct effects on peer relationships ($B=-0.22$, $p=.002$) and depression ($B=0.22$, $p=.009$), but not on problematic smartphone use. Peer relationships directly affected depression ($B=-0.26$, $p=.010$), and depression directly affected problematic smartphone use ($B=0.42$, $p<.001$). Regarding mediating effects, depression significantly mediated the relationship between negative parenting attitudes and problematic smartphone use ($B=0.09$; 95% CI, 0.02~0.19), whereas peer relationships did not show a significant individual mediating effect. Peer relationships and depression also showed a significant sequential dual mediating effect on this relationship ($B=0.02$; 95% CI, 0.00~0.06).

Conclusions : To prevent problematic smartphone use among adolescents from single-parent families, emotional and relational pathways should be considered rather than focusing only on negative parenting attitudes. School- and community-based interventions should focus on reducing depression and strengthening peer relationships in this population.

Keywords : Depression, Negative parenting attitudes, Peer relationships, Problematic smartphone use



Feasibility of Automated Facial Expression Analysis During Child-Robot Interaction in Hospitalized Preschool Children recovering from surgery: A Pilot Study

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Purpose : Preschool children recovering from surgery often have difficulty communicating pain and emotional experiences, resulting in emotional assessment relying primarily on proxy reports. This pilot study aimed to evaluate the feasibility of using automated facial expression analysis to capture emotional responses during child-robot interaction among hospitalized preschool children. Exploratory outcomes included emotional valence, arousal, and basic facial expressions.

Methods : This pilot feasibility study was guided by Bowen's feasibility framework, focusing on acceptability, implementation, and practicality. A convenience sample of children aged 4–7 years recovering from tonsillectomy was recruited from a pediatric surgical ward. Participants completed a single-session interaction, and the entire session was video-recorded and analyzed using FaceReader (version 10). Primary feasibility outcomes included recruitment rate, study completion, face detection, emotion extraction, and analyzable video rates. Exploratory outcomes included emotional valence, arousal, and basic facial expressions. All outcomes were summarized using descriptive statistics.

Results : Eleven children completed the study (recruitment and completion rates: 100%). Successful face detection, emotion extraction, and analyzable video rates were 96.9%, 89.5%, and 86.4%, respectively. Mean emotional valence was -0.16 ($SD = 0.21$), and mean arousal was 0.38 ($SD = 0.13$). Across the analyzed interaction sessions, Neutral accounted for the largest proportion of analyzed time (64.67%), followed by Surprise (9.24%), Sadness (7.54%), and Happy (2.51%).

Conclusions : This study demonstrated the preliminary feasibility of automated facial expression analysis during child-robot interaction in hospitalized preschool children recovering from surgery. These findings support the use of automated facial expression analysis as a feasible objective outcome measure for future pediatric clinical research. Larger studies incorporating validated emotional assessment instruments are warranted to establish its clinical utility and validity.

Keywords : automated facial expression analysis, preschool children, child-robot interaction



Lived Experiences of Shipboard Duty Among Female Naval Personnel in South Korea: A Phenomenological Study

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Purpose : This study aimed to explore the lived experiences and essential meanings of shipboard duty among female naval personnel in South Korea.

Methods : A phenomenological qualitative design was used. Five female naval personnel with at least two years of shipboard duty experience participated in individual semi-structured interviews. Participants included officers and a non-commissioned officer. Saturation was determined after the fifth interview, as meaningful statements and theme clusters converged. Data were analyzed using Colaizzi's seven-step method.

Results : The analysis yielded 56 themes, 14 theme clusters, and 4 categories. First, 'becoming a sailor beyond the label of woman' reflected efforts to be recognized by competence rather than gender, professional pride, and naval identity. Second, 'living in a workplace that never closes' described rotating watches, sleep insufficiency, unpredictable voyages, and an isolated maritime operational and living environment. Third, 'negotiating relationships and privacy within limited female living spaces in male-centered ship structures' captured family-like solidarity and mutual support coexisting with lack of privacy, hygiene concerns, menstrual management, and interpersonal tension, as female living spaces were limited within ships designed around male personnel. Fourth, 'navigating a career within institutional boundaries' revealed structural conditions that made it difficult to continuously accumulate sea-duty experience linked to career evaluation, including limited female berthing and living-space capacity, restricted ship assignment opportunities, pregnancy, childbirth, and childcare.

Conclusions : Shipboard duty was an ambivalent experience of professional pride, belonging, physical and psychological burdens, and career-related structural constraints. To support sustainable shipboard duty for women, occupational health-oriented systems addressing menstrual, hygiene, and reproductive health concerns, fatigue, musculoskeletal burden, and psychological well-being are needed, along with improved living infrastructure, postpartum and childcare-sensitive assignment policies, and career management pathways that support continuity in sea-duty experience.

Keywords : Military Personnel, Occupational Health, Qualitative Research, Women



Factors Influencing Emergency Nursing Care Competency among School Nurses: Focusing on Teacher Efficacy, Self-Confidence in First Aid, and Professionalism

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Purpose : School nurses play a critical role in managing health emergencies within school settings; however, their emergency nursing care competency remains an underexplored area despite its importance for student safety. This study investigated the relationships between teacher efficacy, self-confidence in first aid, professionalism, and emergency nursing care competency among school nurses, and identified factors influencing emergency nursing care competency.

Methods : This descriptive study included 217 school nurses at elementary, middle, and high schools across four metropolitan cities and provinces in South Korea. Data were collected in February 2026 using four validated instruments measuring teacher efficacy, self-confidence in first aid, professionalism, and emergency nursing care competency. Data were analyzed using descriptive statistics, independent t-test, one-way ANOVA with Scheffé post-hoc test, Pearson's correlation coefficient, and multiple regression analysis.

Results : Emergency nursing care competency was positively correlated with professionalism ($r=.70$, $p<.001$), self-confidence in first aid ($r=.64$, $p<.001$), and teacher efficacy ($r=.57$, $p<.001$). Multiple regression analysis identified professionalism ($\beta=.49$, $p<.001$) and self-confidence in first aid ($\beta=.36$, $p<.001$) as significant predictors, explaining 60.8% of the variance in emergency nursing care competency.

Conclusions : Professionalism and self-confidence in first aid are critical determinants of school nurses' emergency nursing care competency. To enhance competency, institutional support for cultivating professional values and attitudes is essential. Furthermore, developing and continuously implementing case-based, career-specific simulation programs is strongly recommended to improve school nurses' confidence and clinical competency in managing diverse school health emergencies.

Keywords : Emergencies; First Aid; Professionalism; School Nursing



Voices from the Neonatal Intensive Care Unit: Lived Experiences of Fathers of Preterm Infants

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Purpose : To explore and understand the lived experiences of fathers during their preterm infants' hospitalization in the Neonatal Intensive Care Unit.

Methods : In-depth interviews were conducted between February and May 2025 with 11 fathers of preterm infants born at 28 weeks of gestation or later and hospitalized in a neonatal intensive care unit for at least 5 days. Data were analyzed using Giorgi's descriptive phenomenological method.

Results : Five themes emerged, reflecting fathers' experiences of navigating uncertainty, emotional burden, and gradual adaptation to fatherhood during their infants' hospitalization. Fathers described suppressing their own negative emotions while supporting their spouses, gradually developing trust in healthcare professionals and embracing their paternal role. The themes included: (1) being thrust helplessly into chaos, (2) holding onto reason and enduring calmly, (3) finding relief through firm trust, (4) securing time to prepare for fatherhood, and (5) growing alone and together.

Conclusions : Findings suggest that fathers of preterm infants are independent recipients of care whose needs are often overlooked within traditionally mother-centered care. Comprehensive nursing practice should provide tailored emotional support, clear communication, and opportunities for involvement in infant care to facilitate fathers' role adaptation and emotional well-being. These findings offer culturally grounded insights from the Korean context and support the global advancement of family-centered care in neonatal intensive care settings.

Keywords : Neonatal Intensive Care Unit, paternal experience, preterm infant



Gender Differences in Health Behaviors Associated with Body Image Misperception among Korean Adolescents

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Purpose : Accurate body image perception is an important determinant of healthy lifestyle behaviors during adolescence. However, many adolescents misperceive their body weight, which may influence dietary practices and physical activity patterns. This study examined the association between body image misperception and health-related behaviors among Korean adolescents, with particular attention to gender differences.

Methods : This cross-sectional study utilized data from the 2024 Korea Youth Risk Behavior Web-based Survey. A nationally representative sample of 54,653 middle and high school students from 799 schools was included in the analysis. Body image misperception was categorized according to discrepancies between actual weight status and self-perceived body weight. Associations between body image misperception, dietary behaviors, and physical activity were examined separately for boys and girls.

Results : Body image misperception was common among Korean adolescents and showed distinct behavioral patterns according to gender. Among boys, overestimation of body weight was associated with lower participation in vigorous, moderate, and muscle-strengthening physical activities. Boys with weight overestimation also reported less favorable dietary behaviors, including lower fruit consumption and greater fast-food intake. In contrast, girls with either underestimation or overestimation of body weight were more likely to engage in vigorous or muscle-strengthening physical activities. Associations between body image misperception and dietary behaviors among girls were generally weaker and less consistent than those observed among boys.

Conclusions : Body image misperception is associated with different patterns of health behaviors among adolescent boys and girls. These findings highlight the importance of incorporating body image awareness into school-based health promotion programs and suggest that intervention strategies should be tailored according to gender-specific behavioral characteristics.

Keywords : body image distortion, adolescents, physical activity, dietary behavior, body size



Comprehensive Analysis of Loneliness Among Adolescents and Young Adults: An Umbrella Review

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Purpose : Loneliness among adolescents and young adults (AYA) is increasingly recognized as a public health concern linked to psychosocial vulnerability, digital behavior, and mental health. This umbrella review synthesized quantitative review-level evidence on prevalence, risk and protective factors, health and functioning outcomes, and intervention effects related to loneliness among AYA.

Methods : This quantitative umbrella review followed a registered PROSPERO protocol. PubMed, CINAHL, Embase, PsycINFO, Scopus, and Web of Science were searched from January 1, 2000 to March 24, 2026, with Google Scholar and reference-list screening. Eligible studies were systematic reviews or meta-analyses reporting quantitative loneliness findings for AYA aged 10–24 years. Methodological quality was assessed using the JBI checklist, primary-study overlap using GROOVE and corrected covered area, and certainty using an adapted GRADE approach. Findings were synthesized narratively and, where appropriate, through exploratory second-order random-effects meta-analyses.

Results : Twenty-three reviews published between 2006 and 2025 were included. Methodological quality was generally moderate to high, and overall overlap was very low (CCA=0.381%). Loneliness was common but varied across regions and contexts. Protective factors included self-esteem, resilience, social support, family functioning, parent-child relationships, and peer relationships, whereas social anxiety and left-behind child status were associated with greater loneliness. Loneliness was consistently associated with depression, anxiety, stress, suicidality, and internalizing problems. Exploratory second-order analyses showed pooled associations with depression/depressive symptoms ($r=0.524$, 95% CI 0.430–0.606) and problematic internet-related behaviors ($r=0.267$, 95% CI 0.235–0.299). Interventions showed small beneficial effects (pooled effect=0.214, 95% CI 0.072–0.356). Certainty of evidence was low to very low.

Conclusions : Loneliness in AYA is a multidimensional public health issue shaped by psychological, relational, digital, and social contexts. Early identification, standardized assessment, and multilevel interventions are needed. Findings should be interpreted cautiously because of heterogeneity and low certainty.

Keywords : Loneliness, Adolescents, Young adults, Umbrella review, Mental health



Effects of Parenting Styles on Media Use Among Individuals with Down Syndrome: The Moderating Effect of Parental Media Literacy

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Purpose : Media use supports communication, education, and independence among individuals with Down syndrome, but limited risk awareness and media literacy may increase vulnerability to inappropriate use. This study examined media-use patterns, the effect of parenting style on daily media-use time, and the moderating effect of parental media literacy.

Methods : This descriptive cross-sectional study included 112 parents of individuals with Down syndrome aged 7–35 years in South Korea. Participants were recruited from a welfare center and online parent communities serving individuals with Down syndrome and their families. Parents reported the individuals' media use and their own parenting style and media literacy. Parenting style was assessed using a Korean adaptation of the Maternal Behavior Research Instrument, and parental media literacy was measured using a 26-item instrument. Data were analyzed using SPSS 27.0 and PROCESS Model 1 with 5,000 bootstrap samples, adjusting for parent and individual characteristics. Ethical approval was obtained from the Gachon University Institutional Review Board (1044396-202503-HR-069-01).

Results : Mean daily media-use time was 6.44 hours (SD=5.73). Of 106 classifiable parenting styles, 51 were affectionate–controlling and 50 affectionate–autonomous; five were rejecting styles, and six were unclassified because of tied subscale scores. The moderation analysis included the two predominant styles (n=101) and explained 46.47% of the variance ($R^2=.4647$, $p<.001$). Compared with the affectionate–controlling style, the affectionate–autonomous style had a significant positive effect on media use ($b=15.16$, $p=.033$). Parental media literacy had no direct effect ($b=-0.0215$, $p=.664$), but the interaction was significant ($b=-0.1675$, $p=.046$). The conditional effect was significant only at low media literacy (effect=3.57, $p=.027$). Higher parental education was associated with less media use.

Conclusions : Parental media literacy buffered the effect of affectionate–autonomous parenting on media use. Family-centered nursing interventions should strengthen parental media literacy and guidance skills rather than focus solely on restricting media-use time. Longitudinal studies are needed to clarify causal pathways and intervention targets.

Keywords : Down syndrome, Screen Time, Media Literacy, Parenting Style, Child, Adolescent, Young Adult



Midwives' Thoughts on Supporting Mothers in Japan Who Choose Exclusive Formula Feeding for Non-Medical Reasons

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Purpose : Breastfeeding provides optimal benefits for both mothers and infants, and the World Health Organization (WHO) strongly recommends breastfeeding due to its short- and long-term health advantages. In Japan, however, an increasing number of mothers choose exclusive formula feeding for non-medical reasons, influenced by experiences such as Dysphoric Milk Ejection Reflex (D-MER) and co-parenting perspectives. Midwives are trained to promote breastfeeding through the WHO "Ten Steps to Successful Breastfeeding" and the Baby-Friendly Hospital Initiative (BFHI). Understanding midwives' thoughts regarding support for mothers who prefer exclusive formula feeding is essential for improving future breastfeeding support. This study aimed to clarify midwives' thoughts on supporting mothers who choose exclusive formula feeding for non-medical reasons.

Methods : Semi-structured interviews were conducted with midwives. Interview data were analyzed using Krippendorff's content analysis method (1980). Ethical approval was obtained from the institutional review board of the researchers' affiliated university.

Results : Five categories emerged from the analysis of a midwives' narratives: (1) Diverse maternal reasons for feeding choices, (2) Influence of hospital culture and environment, (3) Meaning attributed to breastfeeding, (4) Need for understanding postpartum mental health and D-MER, and (5) Empathic attitudes in providing support.

Conclusions : This midwife perceived that exclusive formula feeding was being practiced as a result of mothers' diverse reasons for feeding choices, influenced by hospital culture and environmental factors. She also recognized the need to understand the personal meaning of breastfeeding, postpartum mental health, and conditions such as D-MER, and she supported mothers with an empathic and non-judgmental attitude.

Information from social networks and peers has highlighted the perceived advantages of exclusive formula feeding, and some mothers determine their preferred feeding style before obtaining professional breastfeeding knowledge. To promote breastfeeding, it is essential to convey the significance of breastfeeding and to provide empathic support that prioritizes postpartum mental health.

Keywords : Midwife, Exclusive Formula Feeding, Non-Medical Reasons



Effects of a Conceptual Model-Based Intervention Integrating the Theory of Planned Behavior and Andragogy for a Mother-Led Disaster Preparedness Project Team in Japan

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Purpose : City A in Japan is located in an area where a large-scale disaster is predicted to occur in the near future. However, disaster preparedness for mothers and children, who require particular support during disasters, remains insufficient.

This study aimed to clarify how disaster preparedness and disaster literacy changed among a mother-led disaster preparedness project team through an intervention based on a conceptual model integrating the Theory of Planned Behavior and andragogy.

Methods : In 2023, a disaster preparedness project team was formed by mothers living in City A. The 11 team members learned about disaster preparedness, planned a disaster preparedness program for mothers and children, and implemented the program they had planned in the community. Evaluation was conducted using questionnaire surveys at four time points: before learning, after learning, after planning, and after program implementation. The questionnaire consisted of items on disaster preparedness status and questions based on a disaster literacy scale. Comparisons across the four time points were conducted using the Friedman test. Participation in the survey was voluntary, and the study was conducted with approval from the research ethics committee of the author's affiliated university.

Results : Cooperation was obtained from all 11 members. Comparison across the four time points showed that the total score for disaster preparedness significantly improved from before learning to after program implementation: 26.36 ± 7.41 , 34.18 ± 6.49 , 39.82 ± 6.11 , and 44.00 ± 6.71 , respectively. The disaster literacy subscales—ability to understand disasters, ability to take immediate action, and ability to make necessary preparations—also improved significantly across the four time points.

Conclusions : Disaster preparedness status and disaster literacy improved across the four time points. These findings suggest that not only learning about disaster preparedness but also planning and implementing activities to address preparedness-related issues faced by local mothers contributed to the promotion of practical preparedness.

Keywords : mothers, disaster prevention project teams, disaster preparedness



From Awareness to Practice: How Parents Seek Support for Children's Sex Education

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Purpose : This study explored how parents of preschool children recognize, interpret, and respond to sexuality education needs in everyday life. Using a mixed-method approach, the study aimed to identify parental response processes and decision-making patterns regarding early childhood sexuality education and to develop an evidence-based framework for pediatric nursing interventions.

Methods : A qualitative multimethod design integrating semantic network analysis and in-depth interviews was employed based on the Information–Motivation–Behavioral Skills model. Online discourse data were collected from major Korean parenting communities and Q&A platforms between 2020 and February 2026. After screening, 124 relevant posts were analyzed using Python-based text mining and network analysis techniques. Additionally, semi-structured interviews were conducted with 18 parents of children aged 4–6 years. Interview data were analyzed using inductive thematic analysis and the constant comparative method. Ethical approval and strategies to ensure rigor, including investigator triangulation and member checking, were applied.

Results : Parents' sexuality education practices emerged as reactive and context-dependent rather than systematically planned. Semantic network analysis identified "storybook" as the structural core of online discourse, functioning as both an educational tool and psychological buffer for parental discomfort. Four sequential phases of parental response were identified: (1) situational recognition through children's curiosity, (2) selective searching using mediated resources and peer support, (3) struggle with a role–action gap characterized by uncertainty and low confidence, and (4) demand for structured and collaborative support. Although parents recognized themselves as primary sexuality educators, many experienced difficulty translating awareness into confident practice.

Conclusions : Parental sexuality education should be understood as an evolving social practice shaped by daily interactions and digital environments. Pediatric nurses can play a key role by providing anticipatory guidance, age-specific communication strategies, and verified educational resources. Systematic, nursing-integrated support frameworks are needed to bridge the gap between parental awareness and effective educational action.

Keywords : Sex Education; Parents; Child, Preschool; Information Seeking Behavior; Qualitative Research



Factors influencing health-promoting behaviors by health vulnerability profiles in middle-aged women: A latent profile analysis

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Purpose : This study aims to identify the latent profile types of health vulnerability among middle-aged women, and to examine the differences and predictors of health-promoting behaviors by profile.

Methods : The study was a secondary analysis of data from the 2025 Community Health Survey. A final sample of 53,063 participants was analyzed using R version 4.6.0. with tidyverse, haven, tidyLPA and labelled package. Latent profile analysis was performed using the R3STEP and BCH method.

Results : Health vulnerability among middle-aged women was categorized into four profiles: healthy group, physical vulnerability, mental health risk, and complex vulnerability. Significant differences were observed across the latent profiles for health behaviors, including health screenings within the past 2 years ($\chi^2 = 238.84$, $p < .001$), cancer screenings within the past 2 years ($\chi^2 = 161.18$, $p < .001$), influenza vaccination ($\chi^2 = 28.15$, $p < .001$), walking practice ($\chi^2 = 121.36$, $p < .001$), and strength training ($\chi^2 = 285.90$, $p < .001$). Older age, a history of smoking, physical inactivity, non-participation in health screening, and diagnosed hypertension or diabetes mellitus were associated with an increased likelihood of belonging to the complex vulnerability profile.

Conclusions : The present study demonstrated that health vulnerability among middle-aged women is associated with individual lifestyle and health-promoting behaviors. These findings highlight the need for profile-specific, prevention-oriented health management interventions, particularly for women in the high-risk health vulnerability profile.

Keywords : Health-promoting behaviors, Middle-aged women, Latent profile analysis



Health Vulnerability Accumulation and Preventive Behavior Intervention Points among Middle-Aged Women Using Korea Community Health Survey Data: A System Dynamics Approach

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Purpose : This study aimed to identify latent classes of health vulnerability among middle-aged women, examine differences in preventive health behaviors across classes, and explore intervention points for reducing health vulnerability accumulation using system dynamics modeling.

Methods : Data were obtained from the 2019–2025 Korea Community Health Survey. The final sample included 388,109 women aged 40–64 years. Latent class analysis was conducted using eight indicators: poor subjective health, hypertension, diabetes, physical inactivity, high stress, depression, current smoking, and monthly binge drinking. Preventive health behaviors included influenza vaccination, health screening, and cancer screening. A system dynamics model was developed based on observed annual net changes in latent class proportions from 2019 to 2025. Scenario simulations included baseline, risk behavior reduction, screening intervention, and integrated intervention.

Results : Five latent classes were identified: complex high-vulnerability, relatively low-vulnerability, binge drinking-centered health-risk behavior, chronic disease and physical-health vulnerable, and mental health–risk behavior vulnerable groups. Preventive behavior rates differed significantly across classes. Influenza vaccination was lowest in the binge drinking-centered health-risk behavior group, while health screening and cancer screening were lowest in the mental health–risk behavior vulnerable group. In the baseline scenario, the binge drinking-centered and chronic disease/physical-health vulnerable groups increased over time. Risk behavior reduction and screening intervention attenuated these increases, and the integrated intervention showed the most favorable overall trajectory.

Conclusions : Health vulnerability among middle-aged women is heterogeneous and dynamically accumulated. Tailored and integrated preventive strategies are needed to reduce vulnerability accumulation and strengthen community-based nursing interventions.

Keywords : Middle-aged women, Health vulnerability, Preventive health behavior, Latent class analysis, System dynamics



Rest and Recovery in School-Age Children: A Qualitative Study

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Purpose : To explore the meaning and methods of rest experienced by school-age children and to understand what actually brings them recovery.

Methods : Twelve children in grades 4 to 6 (aged 10–12 years) attending elementary schools in South Korea were recruited through purposive sampling. Individual semi-structured, in-depth interviews were conducted from February to May 2026, once per child for 20 to 60 minutes, until data saturation was reached. Data were analysed using inductive qualitative content analysis (preparation, organising, and reporting) by two researchers through discussion and consensus.

Results : Children's experience of rest was organised into six main categories, 18 categories, and 40 sub-categories. The six main categories were an academically centred daily life; the experience and triggers of fatigue; the meaning of rest; the methods of rest; the outcomes of rest; and the relationships and environments of rest. For children, rest was a multidimensional concept overlapping comfort, autonomy, absorption, the distinction between fun and true rest, and energy replenishment, and it was practised through static, active, and sensory methods. Whether recovery occurred varied by child and situation, and children expressed fatigue and recovery through bodily language in which the physical and the emotional were not yet differentiated.

Conclusions : For children, rest was distinct from the inactivity or mental emptiness adults often assume; it was an active recovery experience, chosen by children themselves when their bodies called for it and enacted in diverse forms. Children's rest can be understood only through their own experiences and language rather than an adult frame. The findings offer a conceptual basis for nursing practice and future research supporting school-age children's health and rest.

Keywords : child, fatigue, qualitative research, rest



Development and Feasibility of an Online Family Resilience Enhancement Program for Parents of Children with Spinal Muscular Atrophy

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Purpose : Parents of children with spinal muscular atrophy (SMA) experience prolonged caregiving demands and social isolation, which may compromise family functioning. This study aimed to develop an online family resilience enhancement program for parents of children with SMA and to evaluate its feasibility and participants' experiences.

Methods : The program was developed based on Walsh's Family Resilience Theory and the ADDIE model. A needs assessment was conducted through in-depth interviews with eight mothers of children with SMA, and the program was refined through expert content validity assessment. A preliminary implementation was conducted with three participants from January to February 2026. Feasibility was evaluated in terms of recruitment and retention, implementation, and participant satisfaction. Participants' experiences were explored through interviews and analyzed using Braun and Clarke's reflexive thematic analysis.

Results : The needs assessment revealed the importance of a family-centered program that promotes shared coping, family role adjustment, open communication, peer support, and an accessible online delivery tailored to the caregiving environment. Based on these findings, a four-session online family resilience enhancement program (two individual and two small-group sessions) was developed. All participants completed the program without attrition, no major implementation issues were identified, and participant satisfaction was high (3.72/4). Reflexive thematic analysis identified five themes: recognition of family strengths and hope for the future; changes in family role adjustment and resource awareness; enhanced emotional expression and mutual understanding in family communication; a desire to expand participation to other family members; and a safe environment that lowered barriers to participation.

Conclusions : The program demonstrated feasibility and acceptability, suggesting its potential as a family-centered intervention that reflects the experiences and needs of parents of children with SMA. These findings provide a foundation for developing family resilience-based interventions for families caring for children with rare diseases.

Keywords : Family Resilience, Parents, Program Development, Spinal Muscular Atrophy



Pathways From Peer Support to Grit Through Bicultural Acceptance and Self-Esteem Among Multicultural Adolescents in South Korea

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Purpose : This study examined pathways linking parental education, friend support, bicultural acceptance, self-esteem, and grit among adolescents from multicultural families.

Methods : A secondary analysis was conducted using data from the sixth wave of the second cohort of the Multicultural Adolescents Panel Study. The analytic sample included 1,621 adolescents with complete data on the study variables. Friend support, bicultural acceptance, self-esteem, and grit were assessed using the corresponding panel measures, and maternal and paternal education were included as parental characteristics. Descriptive statistics, reliability analysis, Pearson correlations, and path analysis using maximum likelihood estimation were performed. Model fit was evaluated using the chi-square statistic, comparative fit index (CFI), Tucker–Lewis index (TLI), and root mean square error of approximation (RMSEA).

Results : The model demonstrated good fit: $\chi^2(3)=10.813$, $p=.013$, $CFI=.994$, $TLI=.969$, and $RMSEA=.040$ (90% CI [.016, .067]). Friend support was positively associated with bicultural acceptance ($\beta=.306$, $p<.001$), self-esteem ($\beta=.389$, $p<.001$), and grit ($\beta=.052$, $p=.047$). Bicultural acceptance was positively associated with self-esteem ($\beta=.250$, $p<.001$), and self-esteem was positively associated with grit ($\beta=.329$, $p<.001$). Maternal education had a small positive association with bicultural acceptance ($\beta=.061$, $p=.019$), whereas paternal education was not significantly associated with bicultural acceptance or self-esteem. The model explained 9.9% of the variance in bicultural acceptance, 27.7% in self-esteem, and 12.7% in grit. The standardized indirect effect of friend support on grit was .153, exceeding its direct effect.

Conclusions : Friend support may promote grit among multicultural adolescents primarily through stronger bicultural acceptance and self-esteem. School- and community-based programs that foster supportive peer relationships, positive bicultural identity, and self-worth may strengthen adolescents' perseverance and adaptive development.

Keywords : Multicultural adolescents, Peer support, Bicultural acceptance, Self-esteem, Grit



Immediate Psychological and Physiological Responses to Parent-Child Touch Care in Early Adolescents and Their Mothers: An Exploratory Study

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Purpose : To examine the immediate psychological and physiological responses of children aged 10–15 years and their mothers following a single session of parent–child touch care.

Methods : This exploratory pre-post study involved nine mother-child dyads. Because the control group included only one dyad, inferential analyses focused on eight intervention dyads. Mothers provided touch care to both upper arms of their children. Maternal mood, children's psychological stress responses, salivary oxytocin and alpha-amylase concentrations, and parasympathetic activity derived from beat-to-beat cardiac intervals were assessed before and after the session. Pre-post changes were examined using Wilcoxon signed-rank tests, and associations between changes in outcomes were explored using Spearman rank correlations.

Results : Maternal total mood disturbance decreased from a median of 20.0 to 11.5 ($p = .046$). Maternal tension-anxiety and fatigue-inertia also decreased significantly. Children's total stress scores decreased from 17.0 to 13.5 ($p = .018$). Salivary oxytocin did not change significantly in mothers or children. Children's alpha-amylase increased from 28.8 to 36.5 units per milliliter ($p = .050$). Changes in children's oxytocin were negatively correlated with changes in alpha-amylase (Spearman correlation coefficient = $-.826$, $p = .011$). In the five dyads with analyzable cardiac data, parasympathetic activity decreased significantly after touch care in both mothers and children (both $p = .043$).

Conclusions : A single parent-child touch care session was followed by improved maternal mood and reduced psychological stress responses in children. However, physiological responses were mixed and did not uniformly indicate relaxation. The inverse association between changes in children's oxytocin and alpha-amylase suggests a possible interaction between affiliative and stress-related biological responses. Larger controlled studies are needed to confirm these findings and clarify their clinical significance.

Keywords : Adolescents; Maternal mood; Stress responses; Touch care



Characteristics of Adverse Childhood Experiences, Positive Childhood Experiences, and Somatic Symptoms among Korean Children

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Purpose : Adverse childhood experiences (ACEs), positive childhood experiences (PCEs), and somatic symptoms are critical child health indicators. Although extensively studied individually, they are rarely described together among Korean children. This study described ACEs, PCEs, and somatic symptoms using nationally representative data.

Methods : This secondary analysis utilized data from the 16th wave of the Panel Study on Korean Children, including 1,268 participants with complete age and sex information. Descriptive statistics summarized ACEs, PCEs, and somatic symptoms. Sex differences were examined using independent t-tests and chi-square tests, and somatic symptoms were analyzed by ACE and PCE levels.

Results : Of the 1,268 participants, 650 (51.3%) were boys and 618 (48.7%) were girls. Mean ACE, PCE, and somatic symptom scores were 1.6 ± 1.0 , 4.9 ± 1.7 , and 0.4 ± 0.9 for boys, and 1.6 ± 0.9 , 4.7 ± 1.7 , and 0.6 ± 1.1 for girls. No sex differences were found in total ACEs, PCEs, or somatic symptoms. However, school violence victimization (22.6% vs. 12.9%, $\chi^2=20.54$, $p<.001$) and positive self-perception (53.1% vs. 43.4%, $\chi^2=12.71$, $p<.001$) were more common in boys, whereas headache (13.1% vs. 9.2%, $\chi^2=5.70$, $p=.017$), nausea (5.7% vs. 2.3%, $\chi^2=10.23$, $p=.001$), and abdominal pain (11.8% vs. 7.1%, $\chi^2=9.46$, $p=.002$) were more common in girls. Among children with lower ACE exposure, abnormal somatic symptoms did not differ by PCE level (5.8% vs. 7.2%, $\chi^2=0.30$, $p=.587$). Conversely, among those with higher ACE exposure, higher PCE levels were significantly associated with lower abnormal somatic symptoms than lower PCE levels (3.0% vs. 10.1%, $\chi^2=7.47$, $p=.006$).

Conclusions : Higher PCE levels were associated with fewer abnormal somatic symptoms among children with greater ACE exposure, suggesting a protective role of positive experiences. Interventions should not only prevent ACEs but also promote PCEs through supportive family, school, and community environments to improve children's health.

Keywords : ACEs(Adverse Childhood Experiences), PCEs(Positive Childhood Experiences), Somatic Symptoms



Experiences of Therapeutic Decision-Making in Pediatric Complex Chronic Care Among Caregivers and Healthcare Professionals: A Phenomenological Study

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Purpose : As the survival of children with complex chronic conditions (CCCs) has improved, therapeutic decision-making has become an increasingly complex and ongoing process for caregivers and healthcare professionals. Despite the growing emphasis on shared decision-making, little is known about how these groups experience this process. This study explored the essence of therapeutic decision-making as experienced by caregivers of children with CCCs and healthcare professionals.

Methods : A phenomenological study was conducted using Colaizzi's seven-step method. Data were collected through individual in-depth face-to-face interviews with 10 caregivers of children with CCCs and 10 healthcare professionals, who were purposively recruited from a tertiary hospital in South Korea. To enhance trustworthiness, the study employed peer review by experienced qualitative researchers, team reviews across all analytical stages.

Results : Three themes and seven subthemes were identified. The first theme, Caregivers' journey through therapeutic decision-making, encompassed three subthemes: confronting decision-making without adequate preparation, shouldering responsibility for the child's life, and prioritizing the child's everyday life and dignity. The second theme, Healthcare professionals' responsibility to maintain balance amid uncertainty, comprised two subthemes: weighing all available therapeutic options and offering professional guidance to alleviate caregivers' burden. The third theme, Therapeutic partnerships and support systems developed through interaction, included two subthemes: collaborative decision-making that recognizes caregivers as active partners and integrated support systems that facilitate therapeutic decision-making.

Conclusions : Therapeutic decision-making for children with CCCs should be understood not be understood as a single treatment choice, but rather as a relational process in which caregivers and healthcare professionals continually negotiate uncertainties, responsibilities, and values. These findings highlight the need for sustained, family-centered, and integrated models of care that support therapeutic decision-making across the entire trajectory of a child's illness.

Keywords : Caregivers, children with complex chronic conditions, healthcare professionals, therapeutic decision-making



Latent Profiles of Family Disclosure-Related Characteristics Among Women with Hereditary Breast Cancer: The K-CASCADE Cohort Study

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Purpose : Family disclosure is a critical process for women with hereditary breast cancer, facilitating genetic testing and preventive risk management for at-risk relatives. This study aimed to identify latent profiles related to family disclosure and characterize these profiles.

Methods : Baseline survey data collected between November 2020 and May 2026 from 242 women with hereditary breast cancer carrying pathogenic variants in BRCA1, BRCA2, PALB2, ATM, or CHEK2 enrolled in the ongoing K-CASCADE multicenter cohort study were analyzed (<https://kcascade.kr/>). Latent profile analysis was performed using the tidyLPA package in R version 4.5.1. Indicators included age, time since genetic testing, genetic knowledge, sense of obligation to inform relatives, family communication, family support, and genetic affinity, which were identified through a scoping review.

Results : Among the one- to six-profile solutions, the three-profile model was selected as the optimal model because it demonstrated the lowest BIC and SABIC values, significant BLRT ($p < .001$), acceptable entropy (0.789), an adequate minimum class proportion (14.5%), and meaningful interpretability. The optimal three-profile solution classified participants into three distinct profiles: (1) moderate genetic knowledge and low family relationship ($n = 77$, 31.8%); (2) high readiness ($n = 130$, 53.7%); and (3) long-term informed-low family relationship ($n = 35$, 14.5%). The results of the univariate analysis revealed significant differences among the three profiles in marital status ($p < .001$), sense of obligation ($p < .001$), family communication ($p < .001$), family support ($p < .001$), and genetic affinity ($p < .001$). Post hoc analyses showed that Profile 2 had the highest levels of sense of obligation, family communication, and family support, whereas Profile 3 had higher genetic affinity than Profile 1.

Conclusions : Distinct family disclosure profiles highlight the need for profile-specific approaches to family disclosure support. These findings provide a foundation for developing tailored decision support interventions to improve family disclosure among women with hereditary breast cancer.

Keywords : Family disclosure, Hereditary breast cancer, Latent profile analysis



Longitudinal Changes in Health-Related Quality of Life Among Individuals at High Risk for Hereditary Breast and Ovarian Cancer

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Purpose : Individuals with hereditary breast and ovarian cancer (HBOC) and their relatives may require ongoing support for their physical and psychological well-being. This study examined longitudinal changes in health-related quality of life (HRQoL) from baseline to the first follow-up (18-24 months later).

Methods : A secondary longitudinal analysis was conducted using baseline and first follow-up data from participants for HBOC and their relatives enrolled in the ongoing K-CASCADE multicenter cohort study (<https://kcascale.kr>). Baseline data from 753 participants and matched first follow-up data from 403 participants were analyzed; two unmatched follow-up records were excluded. Physical Component Summary (PCS) and Mental Component Summary (MCS) scores were calculated as norm-based scores standardized to a reference population mean of 50 and a standard deviation of 10, with higher scores indicating better HRQoL. Longitudinal changes were examined using linear mixed-effects models with time was a fixed effect and participant-specific random intercepts.

Results : At baseline, the mean Physical Component Summary and Mental Component Summary scores were 47.01 and 49.04, respectively. The PCS score was approximately 0.30 standard deviations below the reference norm, whereas the MCS score was close to the norm. The estimated mean PCS score increased to 49.90 at follow-up, representing an increase of 2.90 points (95% confidence interval [CI], 2.10–3.70), with a significant effect of time, $F(1, 481.85) = 50.48, p < .001$. The estimated mean MCS score increased slightly to 49.35; however, the 0.32-point increase was not statistically significant (95% CI, –0.62 to 1.25), $F(1, 491.93) = 0.44, p = .506$.

Conclusions : PCS was significantly higher at the first follow-up than baseline, whereas MCS did not differ significantly between the two time points. Continued follow-up should assess both PCS and MCS and provide supportive care based on participants' changing needs.

Keywords : Health-related quality of life, Hereditary breast and ovarian cancer (HBOC), Longitudinal study



Development of a Communication-Based Baby Robot to Support Caregivers' Emotional Engagement with Infants

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Purpose : This study aimed to develop a communication-based baby robot within the field of human-robot interaction, designed from a caregiver's perspective and modeled on infant babbling (ages 3–6 months), to support the emotional engagement of caregivers unfamiliar with infant care through positive emotional experiences.

Methods : A theoretical framework was built on Stern's affect attunement and Bandura's self-efficacy. An interdisciplinary nursing and engineering team developed the robot using design thinking. A commercial healing baby robot for older adults, "Kamatte Hiro-chan" (Vstone Co., Ltd.), was used as the base platform. Two prototypes were built: a modified base model with an accelerometer-based emotion transition algorithm, and a smartphone-app-linked model developed using React Native. The latter combined voice recognition using Google Cloud Speech-to-Text with accelerometer sensing. In this model, the emotional stage progressed in response to 57 registered utterances/keywords based on maternal infant-directed speech patterns (Kabaya, 2013). Generative artificial intelligence was used during app development to support code implementation and improve efficiency. Demonstration testing was conducted with both models to evaluate human-robot interaction.

Results : In the modified base model, gradual stage changes required prolonged holding, which sustained interaction but made it difficult to determine whether crying stopped because of holding or natural transition. In the app-linked model, stage-based responses to registered utterances encouraged intentional speaking to the infant and made communication feel more tangible. However, consecutive shakes exceeding the threshold often skipped stages, limiting recognition of prolonged soothing behavior. Participants reported positive emotional experiences, such as feeling happy or finding it endearing when the baby stopped crying.

Conclusions : This study suggests that an experiential baby robot may foster positive emotional experiences and support caregivers' emotional engagement with infants. Future work should include testing with users who have a strong aversion to handling infants, along with further refinement of the algorithm and functional design.

Keywords : Baby robot, Caregiver support, Human-robot interaction, Positive emotional experience



Risk Factors for Mild Cognitive Impairment in Middle-Aged Women: A 14-Year National Cohort Study Comparing Complete-Case Analysis and Multiple Imputation

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Purpose : Mild cognitive impairment (MCI) is an important stage preceding dementia, yet evidence regarding its risk factors in middle-aged women remains limited. Missing data are common in large longitudinal healthcare databases and may affect the identification of risk factors. This study aimed to identify factors associated with incident MCI in middle-aged women and to examine whether different approaches to handling missing data influence the identification of these factors.

Methods : This retrospective cohort study used customized data from the Korean National Health Insurance Service (NHIS) collected between 2009 and 2022. The study included 483,184 women aged 40–65 years without baseline cognitive impairment. Incident MCI was defined as a new diagnosis of KCD-8 code F06.7 during follow-up. Sociodemographic, physiological, lifestyle, reproductive, and comorbidity-related factors were examined using multivariable logistic regression. Complete-case analysis (CCA) and multiple imputation (MI) were applied to compare the impact of different missing-data handling approaches. Sensitivity analyses including dementia-related disorders were performed to evaluate the robustness of the findings.

Results : Older age, higher body mass index, diabetes mellitus, depression, sleep disturbance, osteoporosis, hearing loss, and physical activity were consistently associated with incident MCI in both analyses. Compared with CCA, MI additionally identified income level, hemoglobin, total cholesterol, parity, and breastfeeding history as significant predictors. Sensitivity analyses produced similar findings, indicating that the identified risk factors remained robust across different approaches to handling missing data.

Conclusions : Incident MCI in middle-aged women was associated with multiple sociodemographic, physiological, lifestyle, reproductive, and comorbidity-related factors. The choice of missing-data handling method influenced the identification of several risk factors, particularly socioeconomic and reproductive characteristics. These findings support earlier nursing assessment of women at increased risk of cognitive decline and highlight the importance of appropriate missing-data handling when developing evidence for dementia prevention.

Keywords : Cognitive health, Middle-aged women, Mild cognitive impairment, Multiple imputation



Professional Information-Access Networks Across Developmental Stages in Children with Developmental Disabilities

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Purpose : Mothers of children with developmental disabilities need developmentally responsive information support, yet little is known about how their professional information-access networks vary across children's developmental stages. This study aimed to examine mothers' professional information-access networks across developmental stages and to identify differences in network structure, central professional sources, and cross-sector connectivity.

Methods : This study conducted a secondary analysis of doctoral dissertation data from 235 mothers of children with developmental disabilities in South Korea. Children were classified into three developmental-stage groups: preschool age, elementary school age, and middle and high school age. Mothers listed up to five professional occupations from which they had obtained information about their child's developmental disability and rated their satisfaction with the information received. A two-mode mother-by-professional occupation matrix was projected into a one-mode network of professional occupations for each developmental-stage group. Network structure, degree centrality, and satisfaction-weighted external-internal index values were examined.

Results : Professional information-access networks differed across developmental stages. The preschool-age network showed the densest structure (average degree = 6.33; density = 0.57), while the middle and high school-age network was more dispersed, with the lowest average degree (4.15) and longest mean distance. Developmental center therapists were the most directly connected sources in the preschool-age and elementary school-age networks, whereas child psychiatrists were most directly connected in the middle and high school-age network. Nurses were among the leading central sources in the preschool-age and elementary school-age networks but not in the middle and high school-age network. Positive satisfaction-weighted external-internal index values indicated cross-sector information access across all stages.

Conclusions : Mothers' professional information-access networks varied across children's developmental stages. Findings highlight the need for developmentally responsive information support and suggest a potential role for nurses in strengthening cross-sector information access, particularly during early developmental stages.

Keywords : Care coordination, Developmental disabilities, Mothers, Social network analysis



Migraine Attack Characteristics and Longitudinal Cardiovascular Health Change in Women: Implications for Preventive Nursing Care in the MECH-HK Cohort

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Purpose : Although migraine is a established CVD risk factor, how attack features affect long-term cardiovascular health (CVH) remains unclear. We prospectively evaluated if diary-recorded migraine attack features relate to longitudinal CVH deterioration among women.

Methods : We analyzed 236 women from the prospective MECH-HK study with a diary compliance rate of 75% and complete CVH profiles over 15.8 months mean follow-up. Four metrics were tracked monthly: frequency (MAF), duration (MD), pain intensity (MI), and symptom presence (MSP). To summarize multi-dimensional feature co-occurrence, an analytic composite attack score (0–4) was constructed by summing the four dichotomized binary feature indicators (high=1, low=0) and categorizing participants into low (0), moderate (1–2), and high (3–4) attack load groups. CVH was evaluated at baseline and follow-up using a modified Life's Essential 8 (LE8) framework (diet, physical activity, nicotine exposure, sleep quality, BMI, blood lipids, blood pressure, and perceived stress).

Results : Among 236 women (mean age: 51.2 ± 9.6 years), elevated levels of all four individual attack features were independently associated with higher risks of overall CVH score decline: MAF (OR = 1.95, 95% CI: 1.11–3.49), MD (OR = 2.17, 95% CI: 1.22–3.91), MI (OR = 1.93, 95% CI: 1.12–3.35), and MSP (OR = 1.95, 95% CI: 1.11–3.48; all $p < 0.05$). Compared to the low group, participants with a high composite attack load exhibited significantly higher odds of CVH deterioration (OR = 2.81, 95% CI: 1.43–5.67, $p = 0.003$). Domain-specific analyses linked high composite loads to adverse shifts in diet (OR = 4.22, $p = 0.001$), sleep (OR = 2.23, $p = 0.036$), and blood lipids (OR = 2.11, $p = 0.037$).

Conclusions : Higher migraine attack burden was significantly associated with an increased risk of longitudinal CVH decline in women. These findings underscore the value of tracking of migraine attack features to preserve long-term cardiovascular health.

Keywords : Migraine attack features; Composite attack load; Cardiovascular health; Preventive nursing



Physical Activity, Muscle Mass Changes, and Postpartum Mood in Older Pregnant Women: A Pilot Longitudinal Study

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Purpose : Preventing postpartum depression is a global health challenge. Advanced maternal age has been reported as a risk factor for postpartum depression and physical fatigue. Because fatigue is associated with postpartum depression, maintaining physical fitness during pregnancy may support maternal mental health after childbirth. This pilot study examined changes in physical activity and muscle mass during pregnancy and postpartum, and their relationship with postpartum mood among older pregnant women.

Methods : Fifteen pregnant women aged ≥ 35 years without severe complications were enrolled. Body weight and muscle mass were measured using a body composition analyzer three to four times during pregnancy and once at 1-2 months postpartum. Data on parity, pre-pregnancy exercise habits, and exercise during pregnancy were collected using self-administered questionnaires. Postpartum mood was assessed using the Profile of Mood States 2 (POMS 2), and T-scores were analyzed. This study was approved by the Research Ethics Committee of Kyoto Tachibana University.

Results : The participants included 8 primiparous and 7 multiparous women. The mean muscle mass-to-body weight ratio decreased from 63% before 26 weeks of gestation to 61% at 27-32 weeks and 60% after 33 weeks, then recovered to 65% postpartum. Twelve women (80%) engaged in regular exercise for at least 4 weeks during pregnancy. Walking was the most common activity ($n=10$), followed by prenatal yoga ($n=4$). All participants had Total Mood Disturbance scores below 60. Elevated Anger-Hostility scores were observed in two participants, while low Vigor-Activity and Friendliness scores were observed in two and four participants, respectively.

Conclusions : No clear association was found between exercise status or muscle mass and postpartum mood. However, most participants-maintained exercise habits during pregnancy, and their overall postpartum mood was generally favorable. Further studies with larger samples are needed to clarify the effects of exercise volume and intensity on postpartum mood.

Keywords : muscle mass, older pregnant women, postpartum depression



Associations among subjective health, menopausal symptoms, psychosocial stress, and salivary amylase activity in middle-aged women

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Purpose : Menopausal symptoms are influenced not only by hormonal changes but also by psychosocial and individual factors. However, the relationship between menopausal symptoms, stress responses, and subjective health remains unclear. This study aimed to examine the associations among menopausal symptoms, psychosocial stress, physiological stress, and subjective health in middle-aged women.

Methods : A questionnaire survey was administered to women participating in a health education program. The questionnaire included items on subjective health, menopausal symptoms assessed using the Simplified Menopausal Index (SMI), perceived stress, and stress-coping behaviors. Salivary amylase activity was measured as a physiological indicator of stress in addition to self-reported stress measures. Associations among subjective health, menopausal symptoms, psychosocial stress, and salivary amylase activity were analyzed.

Results : Valid responses were obtained from 42 women. The most frequently reported menopausal symptoms assessed using the Simplified Menopausal Index SMI were fatigue, shoulder stiffness, back pain, coldness of the hands and feet, and sweating. Based on SMI scores, approximately 50% of participants were recommended to make lifestyle modifications, while 20.8% were considered to require medical consultation and treatment.

Perceived stress was reported as physical (58%), psychological (50%), and social (27%). However, self-reported stress levels were not consistent with the physiological stress indicator, salivary amylase activity. No significant associations were found among subjective health, menopausal symptoms, and psychosocial stress. Despite experiencing psychosocial stress and severe menopausal symptoms, many participants reported a high level of subjective well-being.

Conclusions : 1. Subjective health was not necessarily associated with menopausal symptoms or psychosocial stress. 2. Physiological and psychosocial stress indicators did not always correspond. 3. Person-centered assessment and nursing support that consider individual perceptions of health are important for women experiencing menopausal symptoms.

Keywords : Subjective health, Menopausal symptoms, Psychosocial stress, Middle-aged women



Identifying Sociopsychological Issues Among Women with Infertility for the Development of Policies Addressing Population Decline

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Purpose : The purposes of this study are to review the sociopsychological status of women with infertility in the context of the population crisis caused by low birth rates, to comprehensively analyze the impact of sociopsychological factors on these women, and to provide a preliminary database for the development of infertility support policies and service interventions.

Methods : This study is a descriptive research design that identifies the current status of sociopsychological status of women with infertility based on literature review.

Results : Infertility-related stigma has widespread adverse effects on women's mental health and quality of life, with severe stigma associated with increased anxiety, depression, and reduced quality of life. A meta-analysis reported prevalence rates of 22.9% for major depressive disorder and 31.6% for depression among women with infertility worldwide. Women with infertility in Asia may experience greater psychological distress because childbirth and child-rearing are strongly associated with women's social identity and expectations. In addition, relatively low treatment success rates and repeated medical consultations, examinations, and procedures contribute to persistent stress and uncertainty. The inability to predict when pregnancy will occur during treatment further increases anxiety and other negative emotions. Infertility-related stress is influenced by multiple psychosocial factors, including identity crisis, social isolation, stigma, relationship conflicts, and financial burdens. Despite prolonged investments of time, emotional resources, and financial costs, women often face uncertain treatment outcomes, which may intensify psychological distress and negatively affect their quality of life.

Conclusions : The findings highlight the need for comprehensive infertility support policies that address not only treatment but also the sociocultural stigma and psychosocial burdens experienced by women with infertility. Developing integrated psychological, social, and financial support services may contribute to improving their quality of life and promoting sustainable responses to the population decline crisis.

Keywords : Infertility, Psychological Stress, Social Stigma, Population Decline



Muscle Mass Adjustment Method Alters the Sarcopenic Obesity–Diabetes Association in Postmenopausal Women: KNHANES 2024

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Purpose : To examine associations of sarcopenia, obesity, and sarcopenic obesity with glycemic status among postmenopausal women, and whether these associations differ by muscle mass adjustment method.

Methods : This cross-sectional study analyzed postmenopausal women aged ≥ 50 years from the 2024 KNHANES. Sarcopenia was defined by AWGS 2025 as bioimpedance-derived appendicular skeletal muscle index $< 5.7 \text{ kg/m}^2$ plus low handgrip strength ($< 20 \text{ kg}$ at ages 50–64; $< 18 \text{ kg}$ at ≥ 65). Obesity was body fat percentage $\geq 35\%$. Participants were classified as normal, obesity alone, sarcopenia alone, or sarcopenic obesity. Complex survey-weighted multinomial logistic regression compared prediabetes and diabetes with normal glycemia, adjusting for menopausal, sociodemographic, and lifestyle factors. Sensitivity analyses used ASM/BMI criteria and DXA-derived muscle mass and body fat as definitions for evaluating robustness.

Results : Among 1,350 women eligible for phenotype classification, 1,326 were included in the fully adjusted analysis. The weighted prevalence of sarcopenia was 6.2% (95% confidence interval [CI], 4.7–7.7), comprising sarcopenia alone (3.6%) and sarcopenic obesity (2.6%); the prevalence of obesity alone was 40.3%. Compared with normal body composition, obesity alone was associated with prediabetes (adjusted odds ratio [aOR], 1.80; 95% CI, 1.34–2.42) and diabetes (aOR, 1.96; 95% CI, 1.35–2.84). Under the primary ASMI-based definition, neither sarcopenia alone nor sarcopenic obesity was associated with either glycemic outcome. Sarcopenic obesity was not associated with prediabetes (aOR, 0.93; 95% CI, 0.35–2.50) or diabetes (aOR, 1.47; 95% CI, 0.58–3.72). In the ASM/BMI sensitivity analysis, sarcopenic obesity was associated with diabetes (aOR, 2.28; 95% CI, 1.17–4.46), but not with prediabetes (aOR, 1.16; 95% CI, 0.54–2.48). In the DXA sensitivity analysis, each 5-percentage-point increase in body fat was associated with prediabetes (aOR, 1.49; 95% CI, 1.27–1.74) and diabetes (aOR, 1.40; 95% CI, 1.15–1.70).

Conclusions : Adiposity was associated with dysglycemia, whereas associations between sarcopenic obesity and diabetes varied by muscle-mass definition, underscoring the need for standardized phenotyping among postmenopausal women.

Keywords : Body composition; Glycemic status; Postmenopausal women; Sarcopenic obesity



Can Subcutaneous Moisture Meters Help Detect Peripheral Intravenous Infiltration? A Preliminary Study

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Purpose : Peripheral intravenous catheterization is common among hospitalized patients, with peripheral intravenous infiltration being a frequent complication, particularly in children. However, its detection relies heavily on subjective visual observation by nursing staff. This study aimed to explore whether a subcutaneous moisture meter can assist in assessing peripheral intravenous infiltration.

Methods : We enrolled 107 pediatric patients (aged 0–17 years) with peripheral intravenous catheters. Upon catheter removal, tissue hydration at the insertion site and the contralateral non-injection site was measured using a Moisture Meter D portable tissue moisture meter. Infiltration severity was simultaneously evaluated using the Pediatric Peripheral Intravenous Infiltration Scale (PPIIS). Data were analyzed using SPSS (v29).

Results : The mean water content at the insertion site was significantly higher than at the contralateral site ($34.9\% \pm 8.7\%$ vs. $30.8\% \pm 9.9\%$, $p < 0.01$). However, significant differences in tissue hydration between the insertion and contralateral sites persisted regardless of whether the PPIIS indicated infiltration or no infiltration. Furthermore, PPIIS scores showed no significant difference between the two groups.

Conclusions : Subcutaneous moisture meters can detect localized hydration changes at intravenous insertion sites. However, whether these increases stem from active fluid leakage or impaired local circulation warrants further investigation.

Keywords : Peripheral Intravenous Infiltration, Subcutaneous moisture meters, Peripheral Intravenous Infiltration Scale



Beyond Usability: Social and Emotional Factors Drive Pediatric Professionals' Acceptance of Socially Assistive Robots

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Purpose : To identify the predictors of behavioral intention toward socially assistive robots (SARs) among pediatric healthcare professionals, and to examine how clinical unit context and prior SAR exposure influence acceptance, with implications for implementing AI-enabled companionship in child-centered care settings.

Methods : A cross-sectional survey was conducted at a tertiary pediatric medical center in northern Taiwan. A validated 24-item questionnaire based on the extended Unified Theory of Acceptance and Use of Technology 2 (UTAUT2), augmented with Trust as an independent construct, was administered to 125 pediatric healthcare professionals (nurses = 100; physicians = 25) across pediatric internal medicine, intensive care, emergency, and surgery units. All participants had observed a standardized SAR demonstration prior to participation. Standard multiple regression, one-way ANOVA with Bonferroni post-hoc correction, and independent-samples t-tests were performed.

Results : The regression model accounted for 72.2% of variance in behavioral intention. Social Influence and Hedonic Motivation were co-primary predictors, indicating that pediatric professionals evaluate SARs primarily on a robot's capacity to emotionally engage hospitalized children rather than on ease of use alone. Performance Expectancy and Trust also reached significance, while Effort Expectancy did not. A significant dose-response effect was observed: professionals with greater prior SAR exposure reported progressively higher acceptance and stronger behavioral intention. Pediatric intensive care unit staff reported significantly lower Trust scores than all other units, reflecting heightened accountability concerns in high acuity child care environments. No differences were found between nurses and physicians.

Conclusions : In pediatric care, AI-enabled robots are evaluated as child-facing relational agents, not merely clinical tools. Implementation strategies should embed structured SAR exposure within pediatric units and prioritize institutional accountability frameworks, particularly in intensive care settings, to bridge the trust gap and accelerate AI integration in child-centered nursing practice.

Keywords : child-centered care, pediatric nursing, socially assistive robots, technology acceptance



Parenting Stress, Marital Satisfaction and Parenting Behaviors Among Parents of Children Within Two Years Old : An Actor–Partner Interdependence Mediation Model

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Purpose : Warm and positive parenting behavior is essential for early children's healthy development, yet it may be weakened by parenting stress and marital difficulties. Based on family systems theory, this study aimed to examine the association of parenting stress, marital satisfaction and parenting behavior. It further investigated whether marital satisfaction mediated the actor and partner effects of parenting stress on parenting behavior.

Methods : This study used data from the second wave of the Korean Early Childhood Education and Care Panel Study (2023), which included 1,246 parents of two years old. Main study variables were parenting stress, marital satisfaction and parenting behaviors. Parents' employment, number of children and family income were included as covariates. The data were analyzed using IBM SPSS 29.0 and AMOS 29.0.

Results : When compared dyadic difference of parents, mothers reported higher parenting stress and parenting behavior, whereas fathers reported higher marital satisfaction. For both parents, parenting stress was negatively associated with marital satisfaction and parenting behavior. The Actor–Partner Interdependence Mediation Model (APIMeM) showed good fit. Parenting stress had significant negative actor effects on parenting behavior and marital satisfaction partially mediated these associations for both parents. Partner effects were mainly mediated by parent's marital satisfaction that one parent's parenting stress influenced the other parent's parenting behavior.

Conclusions : Parenting stress negatively affects parenting behavior directly and indirectly through own and parents' marital satisfaction. These findings highlight the interdependence between mothers and fathers and suggest that dyadic interventions targeting parenting stress and marital satisfaction may promote positive parenting behavior.

Keywords : Parenting Stress, Marital Satisfaction, Parenting Behaviors



Conceptual Analysis of "Midwifery Companionship" Using AI Based on Rodgers' Method and Its Evaluation

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Purpose : To examine a conceptual analysis of "midwifery support" conducted by AI, following Rodgers' methodology.

Methods : In April 2024, we conducted a search using Ichushi and CiNii. We used keywords related to perinatal care and women's health, and performed an "AND" search with these terms and "midwifery," limiting the search to qualitative studies; 44 articles were selected. The authors extracted the descriptive content from these articles, which was then analyzed by AI. Three authors reviewed the validity of the analysis results and discussed them until consensus was reached.

Results : Attributes were organized into eight categories: [Continuous Engagement], [Trust and Equal Partnership], [Empathy and Emotional Connection], [Respect for Individuality], [Autonomy and Decision-Making Support], [Holistic Support (Physical, Psychological, Social)], [Provision of Security and Safety], and [Accompanying Growth and Transformation]. The antecedent conditions consisted of eight categories: [Life events such as pregnancy, childbirth, and child-rearing], [Existence of anxiety, distress, and conflict], [Emergence of support needs], [Opportunities for contact with and relationship-building with healthcare providers], [Family and social background], [Reduction of Anxiety and Acquisition of a Sense of Security], [Enhancement of Autonomy and Self-determination], and [Acquisition of Maternal Roles and Parenting Skills]. The outcomes consisted of seven categories: [Reduction of Anxiety and Acquisition of a Sense of Security], [Enhancement of Autonomy and Self-determination], [Acquisition of Maternal Roles and Parenting Skills], [Positive Experiences of Childbirth and Child-rearing], [Improvement of Well-being], [Deepening of Expertise and Improvement of Practice], and [Supporters' Sense of Fulfillment and Achievement]. A comparison with the authors' review of "Companion-Based Midwifery Practice in Japan" revealed similarities, including the identification of categories related to midwives' motivation and professional identity.

Conclusions : The concept of "companionship" is defined as "a process of providing holistic support based on a trusting relationship, through continuous, empathetic, and individualized engagement, while supporting autonomy."

Keywords : Midwifery, AI, Companionship, Conceptual Analysis



Satisfaction with preparatory education for the implementation of integrated care - Focusing on visiting nurses at public health centers in Seoul

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Purpose : In this study, we try to check whether there is a difference in satisfaction after job training of visiting nurses at the Seoul Autonomous District Health Center ahead of this project depending on whether they participate in the pilot project.

Methods : On November 3, 2025, a structured online questionnaire was conducted to 82 people in 25 districts participating in the education and 33 responses were collected. The importance and satisfaction of each of the lower four sub-topics of the two main topics, 'Integrated Community Care Policy and Nursing' and 'The Role of Community Integrated Care Cases and Visiting Nurses', were checked. An IPA(Importance-Performance Analysis) was conducted on the importance and satisfaction of education of nurses with and without pilot project experience.

Results : The 33 people who responded had an average working experience in the community of 8.9 years and an average working experience in the hospital of 6.6 years. There were 17 public service workers, and most of them were working at the community center. The importance of the community integrated care policy and the cases of nursing and community integrated care projects and the role of visiting nurses was 4.00 and 3.94 points, respectively, while the satisfaction of the community integrated care policy and the cases of nursing and community integrated care projects and the role of visiting nurses was 3.94 and 3.84 points, respectively. The visiting nurses who experienced the pilot project were significantly more satisfied with the status of the population requiring care ($p=0.031$) and the status and preparation process of the integrated care project ($p=0.045$).

Conclusions : Although this study has limitations in generalizing only 40% of the educational participants, it was found that educational satisfaction was high in the group of visiting nurses with experience in pilot projects. In the future, job training or policy briefing sessions require a curriculum for each level according to whether or not they have experience in pilot projects.

Keywords : integrated care, visiting nurse, health care center



Relationships between climate-health literacy and perceptions and behaviors related to climate change and health among school nurses: a cross-sectional survey

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Purpose : Climate change poses a significant threat to human health, positioning school health teachers as vital responders to climate-related health risks. This study examined the factors influencing perceptions and behaviors related to climate change and health (PBCH) among Korean school nurses, focusing on Climate Health Literacy (CHL).

Methods : A descriptive cross-sectional study was conducted with 227 school nurses across Korea, using an online survey conducted in October 2025. Data were collected using validated instruments for CHL and the adapted Korean Version of the Climate, Health, and Nursing Tool. The analyses included descriptive statistics, t-tests, ANOVA, Pearson's correlations, and multiple linear regressions.

Results : The mean CHL and PBCH scores were 19.86/26 and 3.96/5, respectively. Regression analysis revealed that CHL was the strongest predictor of perception and behavior ($\beta = .58, p < .001$). Other significant predictors included participation in climate change prevention activities ($\beta = .18, p < .001$) and extensive work experience (15–19 years: $\beta = .12, p = .048$; 20+ years: $\beta = .17, p = .022$). The model accounted for 49.9% of total variance.

Conclusions : Enhancing CHL and expanding participation in school-based climate prevention activities are essential for improving climate-related health practices among school nurses, and ultimately fostering student health and school climate resilience.

Keywords : climate change, health literacy, school, nurses



The relationship between social isolation and fall experience among older adults: the mediating role of mobility limitation and the moderating effects of residential safety

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Purpose : To examine the mediating role of mobility limitation and the moderating effect of residential safety in the relationship between social isolation and fall experience among older adults.

Methods : A secondary analysis was conducted using the 2023 National Survey of Older Koreans, involving 10,078 participants aged 65 and over. Data were analyzed using SPSS 25.0 and the PROCESS Macro, including frequency analysis, descriptive statistics, chi-square tests, bootstrapping with 5,000 resamples, Model 4 for the mediation effect and Model 1 for the moderation effect.

Results : Social isolation significantly predicted mobility limitation ($\beta=0.473$, $p<.001$), and mobility limitation significantly predicted fall experience ($\beta=0.266$, $p<.001$). The direct effect of social isolation on fall experience was not significant ($p=.349$); however, the bootstrapped 95% confidence interval for the indirect effect did not include zero, indicating full mediation by mobility limitation. Moderation analysis showed the interaction between social isolation and residential safety significantly predicted fall experience ($\beta=0.310$, $p<.05$).

Conclusions : Mobility limitation fully mediated the relationship between social isolation and fall experience. Although the direct effect of social isolation was not statistically significant, its indirect effect through mobility limitation was significant based on the bootstrap analysis, indicating that social isolation increases the likelihood of falls primarily by aggravating mobility limitation. Residential safety significantly moderated the association between social isolation and fall experience, with the effect of social isolation being stronger among those with higher residential safety. A plausible interpretation is reverse causation: older adults at higher risk of falls may have already installed safety features such as grab bars. Higher residential safety may therefore serve as a marker of a high-risk group, which could explain why social isolation exerted a greater effect on falls in this group. These findings suggest fall prevention for older adults requires interventions that reduce social isolation and maintain mobility function, rather than home environment improvements alone.

Keywords : fall experience, mobility limitation, residential safety, social isolation

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Measurement Invariance of Family Communication Scale Using Multigroup Confirmatory and Latent Class Analysis

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Purpose : This study aimed to examine the measurement invariance of the Family Communication Scale (FCS) across gender, age, educational level, and household income using multi-group confirmatory factor analysis (MG-CFA) and multi-group latent class analysis (MG-LCA), and to provide evidence supporting its use across diverse demographic groups in future research and practice.

Methods : A secondary analysis was conducted using data from the 15th Panel Study on Korean Children. Multi-group confirmatory factor analysis (MG-CFA) was performed to confirm the factor structure and test configural, weak, strong, and strict invariance across gender, age, education, and household income. Multi-group latent class analysis (MG-LCA) was also applied. After identifying the optimal latent class model, MI was evaluated using chi-square difference tests between constrained and unconstrained models to compare class structures and item-response probabilities.

Results : The MG-CFA supported configural, weak, strong, and strict invariance across all demographic variables. In the MG-LCA, a three-class solution (high, moderate, and low family communication) was identified as the best fit. MI was upheld for gender and education. For age and household income, MI was generally supported; however, caution is warranted when interpreting latent class comparisons as partial non-invariance could not be excluded.

Conclusions : This study provides empirical evidence supporting the measurement invariance of the Family Communication Scale (FCS) through the use of multi-group confirmatory factor analysis (MG-CFA) and multi-group latent class analysis (MG-LCA). The findings establish a methodological basis for valid comparisons across diverse demographic groups and support the application of the FCS in future research, national surveys, and nursing practice related to family communication.

Keywords : measurement invariance, multigroup confirmatory factor analysis, multigroup latent class analysis, Family Communication Scale



Mediating Effect of Health Information Literacy on the Association Between Socioeconomic Factors and Health Related Quality of Life in Korean Older Adults Aged 65 Years and Older

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Purpose : Korea has already surpassed the threshold for a super aged society, and interest in older adults' health problems and health related quality of life is increasing. This study examined the relationships between socioeconomic factors (educational level and income quartiles) and health related quality of life among Korean adults aged 65 years and older, and tested the mediating effect of health information literacy in these relationships.

Methods : This descriptive, correlational secondary analysis used data from the 9th Korea National Health and Nutrition Examination Survey (2023–2024) and included 1,676 community-dwelling adults aged 65 years and older with complete data on socioeconomic factors, health information literacy, and health-related quality of life (EQ-5D). Multiple and hierarchical weighted regression analyses, adjusted for sex, age, marital status, economic activity, depressive symptoms, presence of chronic disease, and subjective health perception, were conducted to examine the effects of educational level and income level on health information literacy and health-related quality of life and to test the mediating role of health information literacy.

Results : Both educational level and income level were significantly associated with older adults' health information literacy, with higher scores observed in the high school graduate and college or above groups. However, only educational level had a significant effect on health related quality of life, whereas income level showed no significant direct or indirect effects on health related quality of life. Health information literacy was positively associated with health related quality of life and was found to partially mediate the relationship between educational level and health related quality of life.

Conclusions : Educational level, particularly high school and college-or-above, was identified as a key socioeconomic factor associated with higher health information literacy and better health-related quality of life among older adults, whereas income level was not significantly related to health-related quality of life and showed no mediating effect.

Keywords : Health information literacy; Health related quality of life; Older adults; Socioeconomic factors



Latent Trajectory Classes of Frailty and Their Association with Overall Quality of Life Trajectories in Middle-Aged and Older Korean Adults: A Longitudinal Study

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Purpose : Frailty and overall quality of life (QoL) may follow heterogeneous patterns across aging, yet their longitudinal relationship remains insufficiently understood. This study identified latent trajectory classes of frailty and overall QoL, examined their associations, and explored whether multidimensional factors and age modified these relationships.

Methods : Data were obtained from 10 waves (2006–2024) of the Korean Longitudinal Study of Aging. Frailty was assessed using a cumulative-deficit index encompassing physical, functional, and psychological domains, whereas overall QoL was measured using a single-item indicator. Growth mixture modeling identified latent trajectory classes among 10,254 adults aged 45 years or older, and multinomial logistic regression examined factors associated with overall QoL trajectory membership among 6,968 participants with complete data, including the moderating effect of age.

Results : Three frailty trajectories—high persistent, moderate increasing, and low gradually increasing—and three overall QoL trajectories—high maintained, low improving, and mid declining—were identified, with acceptable classification quality for frailty and QoL models (entropy=.94 and .76, respectively). Frailty trajectory membership was strongly associated with QoL trajectories ($\chi^2=716.23$, $p<.001$). Compared with the low gradually increasing frailty group, the high persistent and moderate increasing frailty groups had substantially greater odds of belonging to the mid-declining QoL trajectory (OR=9.14, 95% CI=4.24–19.73; OR=13.08, 95% CI=8.35–20.50, respectively). Sleep disturbance, fear of falling, current smoking, and urban residence were associated with unfavorable QoL trajectories, whereas higher income, regular physical activity, social participation, and better self-rated health were protective. Age significantly moderates these associations, with the effect of frailty trajectories on the declining QoL trajectory weakening with age (OR=0.90 and 0.94).

Conclusions : Frailty and overall QoL exhibit distinct but closely linked longitudinal trajectories. Early identification of unfavorable frailty patterns and multidimensional interventions targeting modifiable risk factors from midlife may help preserve QoL throughout aging.

Keywords : Aging, Frailty, Longitudinal Study, Quality of Life



Community-Based Strategies for Early Identification and Management of Decreased Oral Function in Older Adults

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Purpose : Decreased oral function and oral frailty are common but often under-recognized conditions among community-dwelling older adults. They are associated with chewing difficulty, swallowing problems, nutritional risk, frailty, sarcopenia, functional decline, and increased care needs. Early identification in community settings is therefore essential to support timely referral, self-management, and preventive care. This integrative review aimed to synthesize evidence on community-based strategies for early identification and management of decreased oral function in older adults.

Methods : This integrative review examined studies published between 2018 and 2026. Included studies focused on community-dwelling, rural, underserved, or long-term care older adults and addressed oral frailty, oral hypofunction, oral health screening, risk assessment tools, teledentistry, or referral-related care models. Data were narratively synthesized according to study population, screening approach, oral health indicators, care setting, referral implications, and implementation barriers.

Results : The reviewed evidence showed that decreased oral function is a major community health issue. Oral frailty was associated with physical frailty, social frailty, functional disability, sarcopenia, and mortality among community-dwelling older adults. Rural community data showed oral frailty in approximately 22.5% and oral hypofunction in approximately 43.6% of older adults, indicating the need for proactive screening. Screening tools such as the Oral Frailty Index-8 may help identify older adults at risk of oral frailty and future functional decline. Digital and remote assessment approaches, including video-based oral assessment and teledentistry, may improve access to screening, triage, referral, and follow-up, particularly for rural, underserved, and mobility-limited older adults. However, digital literacy, cognitive impairment, limited internet access, workforce capacity, and the lack of standardized referral pathways remain important implementation barriers.

Conclusions : Community-based strategies are important for early identification and management of decreased oral function in older adults. Integrating brief oral frailty screening, digital assessment, nursing education, and referral pathways into community health services may improve preventive oral care and support healthy aging.

Keywords : Community health, early identification, older adults, oral frailty



Factors Influencing Quality of Life Among the Oldest-Old: A Systematic Review

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Purpose : This study systematically reviewed factors influencing quality of life among community-dwelling oldest-old adults aged 80 years or older and aimed to provide evidence for developing interventions to improve their quality of life.

Methods : This systematic review was conducted in accordance with the PRISMA guidelines, and the protocol was registered in PROSPERO (CRD420251087320). Studies published between 2015 and 2025 were searched in PubMed, CINAHL, Scopus, Web of Science, RISS, KISS, DBpia, and ScienceON. Observational studies examining factors associated with quality of life among community-dwelling oldest-old adults were included. Study quality was assessed using the NHLBI Quality Assessment Tool.

Results : A total of 12,816 records were identified through database searches, and 14 studies were included after duplicate removal and title, abstract, and full-text screening. Most studies used cross-sectional designs. Quality of life was assessed using the WHOQOL-BREF, WHOQOL-OLD, EQ-5D, EQ-VAS, SF-12, LEIPAD, and WHOQOL-AGE. Factors influencing quality of life were categorized into sociodemographic, health-related, health behavior, and psychological and social factors. Functional decline, frailty, chronic diseases, pain, mobility limitations, poor self-rated health, depression, and social isolation were associated with lower quality of life. In contrast, better activities of daily living, social support, social participation, positive affect, and autonomy were associated with higher quality of life. Findings regarding sex, age, living alone, smoking, and alcohol consumption were inconsistent across studies.

Conclusions : Quality of life among the oldest-old is influenced by a combination of physical health, functional status, and psychological and social factors. Integrated approaches that include maintaining function, preventing frailty and falls, managing depression, strengthening social relationships, and promoting autonomy are needed. Further longitudinal studies and subgroup analyses are required to clarify causal relationships among these factors.

Keywords : Influencing factors; Oldest-old; Quality of life; Systematic review



Factors Influencing Quality of Life among the Oldest-Old: Based on Wilson and Cleary's Health-Related Quality of Life Model

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Purpose : This study aimed to identify pathways among factors influencing quality of life in community-dwelling oldest-old adults and examine their direct and indirect effects based on Wilson and Cleary's health-related quality of life model.

Methods : This descriptive survey study included 250 community-dwelling adults aged 80 years or older. Data were collected through one-on-one interviews using structured questionnaires and analyzed using SPSS 23.0 and AMOS 23.0. Descriptive statistics, correlation analysis, and path analysis were conducted. The path model was tested using maximum likelihood estimation, and model fit was evaluated using χ^2 , χ^2/df , NFI, SRMR, CFI, and TLI. Direct, indirect, and total effects were tested using bootstrapping.

Results : The final model showed acceptable fit for some indices: $\chi^2=12.14(df=3, p=.007)$, $\chi^2/df=4.05$, NFI=.97, SRMR=.04, CFI=.98, and TLI=.82. In the direct effect hypothesis testing, 9 of the 15 hypotheses were supported. The number of chronic diseases had a positive effect on depression, whereas social support and self-efficacy had negative effects on depression. Depression had negative effects on instrumental activities of daily living, subjective health status, and quality of life. Self-efficacy had positive effects on instrumental activities of daily living and quality of life, and social support had a positive effect on quality of life. The explanatory power for quality of life was 52%. Three of the 7 simple mediation effects were significant; the number of chronic diseases, self-efficacy, and social support had indirect effects on quality of life through depression.

Conclusions : Wilson and Cleary's model was partially applicable in explaining quality of life among community-dwelling oldest-old adults. Integrated nursing interventions addressing depression, self-efficacy, social support, chronic disease management, and physical function are needed to improve quality of life in this population.

Keywords : Depression, Oldest-Old, Quality of life, Self-efficacy, Social support



Isotemporal Substitution of Sedentary Time and Physical Activity Intensities in Relation to Objectively Measured Sleep in Middle-aged Women¹

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Purpose : Aims: To examine how reallocating time among sedentary behavior and light-, moderate-, and vigorous-intensity physical activity is associated with objectively measured sleep outcomes in middle-aged women, using an isotemporal substitution approach.

Methods : Methods: This secondary analysis included 205 healthy, community-dwelling women aged 45 to 64 years, drawn from the baseline data of a longitudinal intervention study in the Republic of Korea. Physical activity and sleep outcomes—sleep efficiency, total sleep time, and wake after sleep onset—were measured using a waist-worn triaxial accelerometer (wGT3X-BT, ActiGraph, Inc., Pensacola, FL, USA) over three consecutive days. Isotemporal substitution models based on ordinary least squares regression with heteroscedasticity-robust standard errors estimated the association of replacing 30 minutes of one behavior with an equal amount of another, controlling for total activity time and age.

Results : Results: Replacing 30 minutes of sedentary time with light activity was associated with higher sleep efficiency (0.26 percentage points, $p < .001$) and shorter wake after sleep onset (-0.77 minutes, $p < .01$). Substituting sedentary time with moderate activity showed a similar pattern, with higher sleep efficiency and shorter wake after sleep onset (both $p < .01$). Replacing light activity with moderate activity was likewise associated with higher sleep efficiency and shorter wake after sleep onset (both $p < .05$), whereas replacing light activity with sedentary time was associated with lower sleep efficiency and longer wake after sleep onset (both $p < .01$). Reallocating light or moderate activity to vigorous activity was associated with lower sleep efficiency (both $p < .05$). No substitution was significantly associated with total sleep time.

Conclusions : Conclusions: Replacing sedentary time with light- or, especially, moderate-intensity physical activity may improve sleep continuity in middle-aged women, whereas reallocation toward vigorous activity showed no favorable associations. Promoting light- to moderate-intensity activity may be a feasible strategy to enhance sleep quality in this population.

Keywords : actigraphy, middle aged, physical activity, sleep



Selecting Candidate Frailty Assessment Tools for Developing a Digital Self-Assessment Platform for Community-Dwelling Older Adults

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Purpose : To identify candidate frailty assessment tools suitable for developing a digital self-assessment platform for community-dwelling older adults using a structured comparative evaluation framework.

Methods : Twelve established frailty assessment tools were identified through a literature review and comparatively evaluated using a predefined evaluation framework integrating COSMIN measurement properties with practical considerations for community-based application. The framework comprised seven domains: general characteristics, reliability, validity, feasibility, applicability to Korean older adults, conceptual coverage of frailty, and relevance to preventive intervention planning. Rather than identifying a single superior instrument, the evaluation aimed to identify candidate instruments that collectively provide practical assessment options for future digital implementation in community settings.

Results : The comparative evaluation identified three candidate instruments suitable for community-based frailty assessment in Korean older adults. The Korean FRAIL Scale (K-FRAIL), Comprehensive Korean Frailty Instrument (CKFI), and Korean Frailty Scale (KFS) were selected because they offer different levels of comprehensiveness, ranging from brief screening to multidimensional assessment, while sharing strong applicability to Korean community settings. Collectively, these instruments provide a practical foundation for developing a digital frailty assessment platform suitable for community-based use.

Conclusions : The findings support the selection of candidate frailty assessment instruments that provide flexible assessment options for Korean community-dwelling older adults. Building on these findings, future research will develop a self-administered web- and mobile application-based frailty assessment platform incorporating the selected instruments. The platform will be designed to allow older adults with basic Korean literacy to complete the assessment independently, enabling longitudinal monitoring of frailty status through repeated self-assessments. The ultimate goal is to enable community-dwelling older adults to independently monitor changes in their frailty status over time through an accessible digital platform, thereby supporting early identification and self-management of frailty.

Keywords : Community-dwelling older adults, Frailty, Frailty assessment, Self-assessment



Network Analysis of Perceived Stress and Health-Related Quality of Life Among Daily Smokers According to Smoker Type and Survey Year

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Purpose : The COVID-19 pandemic may have altered the relationships between perceived stress and health-related quality of life (HRQoL) among smokers. However, changes in these relationships according to smoker type have not been well characterized. This study examined the network structure linking perceived stress and HRQoL among daily smokers according to smoker type and survey year and identified central intervention targets.

Methods : Data from 1,607 adults aged ≥ 26 years who reported daily smoking in the 2021 and 2023 Korea National Health and Nutrition Examination Survey were analyzed. Perceived stress was assessed using a single-item measure, and HRQoL was evaluated using the Health-Related Quality of Life Instrument with 8 Items (HINT-8). Network analyses were conducted using the EBICglasso algorithm. Centrality indices and network density were estimated, and network stability was assessed using 2,000 bootstrap iterations.

Results : Depression and work consistently showed the highest centrality across all networks. Among hardcore smokers, the direct association between perceived stress and happiness observed in 2021 was no longer evident in 2023, suggesting changes in the psychological network following the COVID-19 pandemic. In contrast, general smokers showed relatively stable network structures across both survey years, with perceived stress remaining directly connected to pain and sleep. Network stability was acceptable overall and for the 2021 networks but was relatively lower in the 2023 subgroup analyses.

Conclusions : The network structure linking perceived stress and HRQoL differed according to smoker type and survey period. Depression and work emerged as central components of HRQoL across all networks and should be considered priority targets when designing interventions for daily smokers. In addition, intervention strategies may need to differ according to smoker type, with greater emphasis on psychological well-being and resilience among hardcore smokers and integrated management of stress, pain, and sleep among general smokers.

Keywords : Angelman Syndrome, Sleep Wake Disorders, Caregivers, Depression, Network Analysis, Longitudinal Studies



Association between meal-companionship patterns and glycemic control according to self-reported dietary management practice among older adults with diabetes: KNHANES 2022–2024

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Purpose : This study examined whether the association between meal-companionship patterns and HbA1c differed according to self-reported dietary management practice among older adults with diabetes. We also conducted gender-stratified analyses.

Methods : Data were obtained from the ninth Korea National Health and Nutrition Examination Survey (KNHANES, 2022–2024). A total of 1,015 adults aged 65 years and older with physician-diagnosed diabetes were included. Meal-companionship patterns were classified as eating all three meals alone, eating some meals alone and some with others, or eating all three meals with others. Self-reported dietary management practice (yes/no), measured with a single item, was examined as a moderating variable, and the outcome was HbA1c (%). Survey-weighted hierarchical linear regression analyses with interaction terms were conducted, followed by gender-stratified analyses.

Results : After covariate adjustment, neither meal-companionship patterns nor dietary management practice was significantly associated with HbA1c, but their interaction was significant ($p < 0.001$). The interaction was significant among both men ($p = 0.011$) and women ($p = 0.038$). The estimated adjusted mean HbA1c values suggested a crossover pattern: among participants not practicing dietary management, HbA1c was higher in the eating alone group (6.84%) than in the eating together group (6.50%), whereas among those practicing dietary management, HbA1c was higher in the eating together group (6.85%) than in the eating alone group (6.57%).

Conclusions : Among older adults with diabetes, the association between meal-companionship patterns and HbA1c may differ by self-reported dietary management practice, suggesting that eating with others is neither uniformly beneficial nor uniformly harmful for glycemic control. These findings suggest that dietary support may need to consider both meal-companionship patterns and self-reported dietary management practice.

Keywords : Diabetes mellitus, Older adults, HbA1c, Meal companionship, Eating alone, Eating together, Dietary management



Relationship between Physical Environmental Factors and Frailty Among Community-Dwelling Older Adults: A Scoping Review

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Purpose : This scoping review aimed to identify and map physical environmental factors associated with frailty among community-dwelling older adults using the World Health Organization age-friendly environments framework.

Methods : This study followed the PRISMA-ScR guidelines. A comprehensive search identified 15,451 records from PubMed, CINAHL, Embase, Scopus, Web of Science, RISS, KISS, DBpia, and KCI. After duplicate removal, 7,636 records were screened by title and abstract. After reviewing 51 full-text articles, a final total of 41 studies were included. Eligible studies involved community-dwelling older adults, assessed frailty or frailty-related vulnerability, and examined physical environmental factors. Data were charted and synthesized narratively into an evidence map across three physical domains: outdoor spaces and buildings, transportation, and housing.

Results : Evidence was most extensively mapped in outdoor spaces and buildings, followed by housing and transportation. Outdoor factors included walkability, sidewalk conditions, green space, aesthetics, perceived safety, destination accessibility, road and crossing safety, and public building or facility accessibility. These factors were linked to frailty, frailty components, walking, physical activity, mobility, and functional limitations, although some associations were indirect or mixed. Transportation evidence focused on public transportation access, stop accessibility, driving cessation, mobility resources, and daily destination access. Housing evidence included housing quality, home suitability, stairs or lack of elevator access, heating, indoor cold, home modification, and housing stability. Poor housing conditions, inadequate heating, indoor cold, and lack of elevator access were associated with frailty. Frail older adults also reported greater unmet needs for accessible public spaces, suitable housing, transportation, and nearby services.

Conclusions : Physical environmental factors are linked to frailty-related vulnerability among community-dwelling older adults, especially through mobility, physical activity, exhaustion, and functional limitation. A research gap exists in objectively measuring physical environment. Future longitudinal and intervention studies should clarify causal pathways and identify modifiable environmental targets for frailty prevention and ageing in place.

Keywords : age-friendly environment, community-dwelling older adults, frailty, physical environment



Structural Background, Acculturation-Related, and Experiential Factors Associated with Self-Rated Health among E-9 Migrant Workers in South Korea: A Complex-Sample Hierarchical Regression Analysis

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Purpose : This study examined the incremental explanatory contributions of structural background, acculturation-related, and experiential factors to self-rated health among migrant workers holding non-professional employment (E-9) status in South Korea, who experience health risks linked to precarious work, social adaptation, and limited healthcare access. This analysis was guided by Dahlgren and Whitehead's (1991) Social Determinants of Health model.

Methods : This cross-sectional secondary analysis used data from 3,238 E-9 migrant workers in the 2024 Survey on Immigrants' Living Conditions and Labour Force, representing 302,208 workers after weighting. Self-rated health was measured using a single item on a 5-point response scale and treated as a continuous outcome. Sampling weights, strata, and clusters were incorporated. Complex-sample linear regression models were fitted using hierarchical block entry. Model 1 included sex, age, religion, industry sector, and length of stay. Model 2 added Korean language proficiency, difficulties living in Korea, and overall satisfaction with life in Korea. Model 3 added discrimination, interpersonal relationship satisfaction, leisure satisfaction, and unmet healthcare needs during the past year.

Results : Model 1 explained 1.8% of the variance in self-rated health ($R^2=.018$). Model 2 increased the explained variance to 13.2% ($R^2=.132$; $\Delta R^2=.114$), and Model 3 increased it to 18.7% ($R^2=.187$; $\Delta R^2=.055$). In the final model, difficulties living in Korea ($B=-.108$, $p=.001$) and unmet healthcare needs ($B=-.503$, $p<.001$) were associated with poorer self-rated health, whereas overall satisfaction with life in Korea ($B=.187$, $p<.001$) and interpersonal relationship satisfaction ($B=.221$, $p<.001$) were associated with better self-rated health.

Conclusions : Acculturation-related factors ($\Delta R^2=.114$) and experiential factors ($\Delta R^2=.055$) contributed more to explained variance than structural background alone. Nursing and policy interventions should strengthen acculturation support, social relationships, and timely healthcare access for E-9 migrant workers in South Korea.

Keywords : acculturation, migrant workers, self-rated health, social determinants of health, unmet healthcare needs



Economic, Cultural, and Social Capital and Self-Care Capacity among Older Adults with Hypertension: The Mediating Role of Digital Health Literacy

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Purpose : Self-care capacity is an important component of chronic disease management and may be influenced by economic, cultural, and social resources that shape access to and use of health information. In a digital environment, these resources may contribute to self-care capacity through digital health literacy. This study examined whether digital health literacy mediates the association between multidimensional capital and self-care capacity among older adults with hypertension.

Methods : A cross-sectional study was conducted with 135 community-dwelling older adults with hypertension. Economic, cultural, and social capital, digital health literacy, and self-care capacity were measured using validated questionnaires. Hierarchical regression and mediation analyses were conducted after adjusting for demographic and health-related variables. Mediation effects were tested using bootstrapping with 5,000 resamples.

Results : Digital health literacy was positively associated with self-care capacity ($\beta = .359$, $p < .001$). Cultural capital showed a significant indirect effect on self-care capacity through digital health literacy (indirect effect = 0.184, 95% CI: 0.019–0.353), indicating full mediation. No significant indirect effects were observed for economic or social capital. However, social capital remained significantly associated with self-care capacity after inclusion of digital health literacy ($\beta = .345$, $p < .001$). The final model explained 54.8% of the variance in self-care capacity.

Conclusions : Self-care capacity among older adults with hypertension appears to be shaped through distinct pathways according to the type of capital. Cultural capital contributes to self-care capacity by enhancing digital health literacy, whereas social capital has an independent association with self-care capacity. Community nursing interventions should integrate culturally tailored digital health literacy education with strategies that strengthen community-based social support.

Keywords : Cultural Capital; Digital Health Literacy; Economic Capital; Older Adults with Hypertension



Social Support and Aging in Place Intention among Rural Older Adults in South Korea: The Mediating Role of Place Attachment

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Purpose : Aging in place (AIP) is a central orientation in community-based integrated care and is particularly relevant to equity in aging societies. Among rural older adults, AIP intention may be shaped by interpersonal resources and place-based attachment, in addition to health status and service availability. This study examined whether place attachment mediates the association between social support and AIP intention among rural older adults in South Korea.

Methods : A cross-sectional study was conducted with 133 community-dwelling older adults residing in rural areas of South Korea. Social support, place attachment, and AIP intention were measured using structured, validated questionnaires. Mediation analysis was performed using a three-step regression approach, and the indirect effect of social support on AIP intention through place attachment was tested using bootstrapping with 5,000 resamples.

Results : Social support was positively associated with place attachment ($\beta=.436, p<.001$) and with AIP intention ($\beta=.357, p<.001$). When place attachment was entered into the model, the direct association between social support and AIP intention was attenuated to non-significance ($\beta=.153, p=.062$). In contrast, place attachment remained significantly associated with AIP intention ($\beta=.467, p<.001$). Bootstrapping confirmed a significant indirect effect of social support on AIP intention through place attachment (95% CI: 0.074–0.267), consistent with a full mediation pattern.

Conclusions : AIP intention among rural older adults appears to be shaped less by social support itself than by the place attachment it fosters. Community nursing practice within integrated care should assess both social support and place-based resources when addressing the needs of rural older adults, and interventions that strengthen social support may enhance AIP by fostering place attachment.

Keywords : Aging in Place; Community Health Nursing; Health Equity; Place Attachment; Social Support



Validity and Measurement Invariance of the Korean Version of the Supportive Care Needs Scale for Patients with Tuberculosis

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Purpose : This study aimed to translate, culturally adapt, and evaluate the validity, reliability, and measurement invariance of the Korean version of the Supportive Care Needs Scale for Patients with Tuberculosis as a standardized tool.

Methods : The original instrument was translated and culturally adapted using a standardized translation process, followed by expert review and pilot testing. A cross-sectional survey was conducted among 330 adults receiving tuberculosis treatment at three medical institutions in South Korea. Construct validity was evaluated using exploratory and confirmatory factor analyses. Criterion validity, internal consistency reliability, and measurement invariance across age, gender, and education groups were examined.

Results : The Korean version retained 25 items across five domains of supportive care needs. The content validity index was $\geq .80$, and exploratory factor analysis supported the original five-factor structure, explaining 76.3% of the total variance, while confirmatory factor analysis demonstrated acceptable model fit. Convergent validity was supported by average variance extracted values of .65-.79 and composite reliability values of .90-.95. Criterion validity was confirmed through a significant correlation with a tuberculosis nursing needs measure. Internal consistency was Cronbach's alpha .962. Measurement invariance testing supported scalar invariance across age and education groups and metric invariance across gender groups, supporting valid subgroup comparisons while indicating caution when comparing latent mean scores between men and women.

Conclusions : The instrument may facilitate comprehensive needs assessment, support patient-centered tuberculosis care, and provide a standardized measure for future clinical research and subgroup comparisons.

Keywords : Factor analysis; Instrument validity; Measurement invariance; Tuberculosis



Driving Forces of Community-Based Collaboration toward a Dementia-Inclusive Society: Reevaluating Community Resources through Interactive Seminars Leading to the “Community Care Conference”

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Purpose : Promoting a dementia-inclusive society requires diverse stakeholders to share a common vision and to assess local resources. Although it is widely acknowledged that community development should focus on local strengths, the specific driving forces behind its implementation remain unclear. This study aimed to identify community “strengths” and “challenges” perceived by diverse participants through interactive seminars and to clarify the driving forces that enabled the reevaluation of these community resources, leading to community-based collaboration, specifically the “Community Care Conference”.

Methods : Three interactive seminars employing card games, scenario videos, and story manga were conducted in District A, City X, in partnership with a Life Support Coordinator—a professional responsible for coordinating community resources. Data were collected through a follow-up meeting with nine participants and reflective sessions involving the Life Support Coordinator and researchers, and were then interpreted through the lens of community assessment to categorize these findings according to community characteristics.

Results : The analysis identified “key persons”—including the community center director, volunteer welfare commissioners, and neighborhood association chairpersons—as influential leaders capable of mobilizing the community. Everyday practices, such as habitual greetings and a decades-long flower-arranging activity, emerged as a distinctive “community culture.” Identified challenges included declining communication and low participation among males. In response, the Life Support Coordinator engaged these key figures to organize a “Community Care Conference,” formalizing the resource collaboration originally envisioned.

Conclusions : The seminars facilitated the re-evaluation of resources such as “key persons” and “community culture,” translating them into functional assets. Although residents did not initiate spontaneous initiatives, the Life Support Coordinator’s role in organizing these resources into a “Community Care Conference” represents good practice for sustaining collaboration. This “linking function” is a practical lever for moving from a learning phase to a sustainable system of shared understanding and collaboration.

Keywords : community care conference, community development, community resources, dementia-inclusive society



The Effects of Andropause Symptoms, Psychological Distress, and Social Support on Quality of Life among Middle-aged Men

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Purpose : This study aimed to examine the levels of andropause symptoms, psychological distress, social support, and quality of life among middle-aged men and to identify factors influencing their quality of life.

Methods : This descriptive correlational study included 138 middle-aged men aged 40–59 years residing in J and C provinces, South Korea, between July 26 and September 20, 2025. Data on general characteristics, andropause symptoms, psychological distress, social support, and quality of life were collected using structured self-report questionnaires. Data were analyzed using descriptive statistics, independent t-tests, one-way analysis of variance, Pearson correlation coefficients, and multiple regression analysis.

Results : Quality of life differed significantly according to educational level ($F=5.19$, $p=.007$) and regular exercise ($F=4.34$, $p<.001$). Quality of life was negatively correlated with andropause symptoms ($r=-.36$, $p<.001$) and psychological distress ($r=-.58$, $p<.001$), whereas it was positively correlated with social support ($r=.57$, $p<.001$). Multiple regression analysis showed that psychological distress ($\beta=-.43$, $p<.001$), social support ($\beta=.39$, $p<.001$), and regular exercise ($\beta=.23$, $p<.001$) were significant predictors of quality of life, explaining 55.8% of the variance.

Conclusions : Psychological distress, social support, and regular exercise were identified as significant factors influencing quality of life among middle-aged men. Interventions aimed at reducing psychological distress, enhancing social support, and promoting regular exercise may improve quality of life in this population. These findings support the development and evaluation of comprehensive intervention programs targeting these modifiable factors to improve quality of life among middle-aged men.

Keywords : Andropause, Psychological distress, Quality of life, Social support



Does couple-level health literacy buffer out-of-pocket medical expenditure in aging couples?

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Purpose : Health literacy has been studied extensively at the individual level, yet empirical evidence on couple-level health literacy—particularly on how it relates to medical expenditure—remains limited. Given that medical spending rises with age, this study examined whether couple-level health literacy moderates the association between age and out-of-pocket outpatient medical expenditure among older Korean couples.

Methods : We analyzed 761 couples from the 2021–2022 Korea Health Panel Survey with both partners aged 65 or older. Couple-level health literacy was the mean of both partners' scores on the 16-item European Health Literacy Survey Questionnaire (range 0–16), measured in 2021. Outcomes were annual out-of-pocket outpatient visit expenditure and outpatient medication expenditure in 2022, each summed across partners; the two outcomes were modeled separately. Survey-weighted gamma generalized linear models with a log link estimated main effects and the age $\times$ health literacy interaction, adjusting for sociodemographic and health covariates. The significant interaction was probed with the Johnson–Neyman technique.

Results : The age $\times$ health literacy interaction was significant only for medication expenditure ($\beta = -0.003$, $p = 0.032$; visit expenditure, $p = 0.274$), with each additional point of health literacy weakening the age-related annual rise by 0.3 percentage points. Johnson–Neyman analysis showed that the marginal effect of age on medication expenditure was confined to health literacy scores of 0 through 8, and within this range each additional point of health literacy corresponded to a smaller age effect, from US\$16.9 per one-year increase in couple mean age at a score of 0 ($p = 0.002$) to US\$6.5 at a score of 8 ($p = 0.043$).

Conclusions : Couple-level health literacy attenuated the age-related increase in outpatient medication expenditure, suggesting that medication cost burdens in later life are not fixed but vary with couples' shared health literacy. Older couples with low health literacy may be a priority target for couple-based interventions to mitigate these burdens.

Keywords : Health literacy, moderation, older couples, out-of-pocket medical expenditure.



Relationships Among Job Autonomy, Job Satisfaction, Organizational Commitment, and Retention Intention in Visiting Nurses at Public Health Centers

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Purpose : This study aimed to examine relationships among job autonomy, job satisfaction, organizational commitment, and retention intention in visiting nurses at public health centers, and to identify the mediating effects of job satisfaction and organizational commitment.

Methods : A cross-sectional survey was conducted from April 13 to May 29, 2026. Participants were 251 visiting nurses working at 50 public health centers in the Republic of Korea. Data were collected using structured questionnaires measuring job autonomy, job satisfaction, organizational commitment, and retention intention. Obtained data were analyzed using structural equation modeling with Analysis of Moment Structures software.

Results : The structural model showed acceptable fit, with standardized root mean square residual of .019, root mean square error of approximation of .064, comparative fit index of .991, and Tucker-Lewis index of .980. Job autonomy had a significant direct effect on job satisfaction, but not on organizational commitment or retention intention. Job satisfaction had significant direct effects on organizational commitment and retention intention, and organizational commitment had a significant direct effect on retention intention. The total indirect effect of job autonomy on retention intention was significant. Specific indirect effects through job satisfaction and through job satisfaction followed by organizational commitment were significant, whereas the indirect effect through organizational commitment alone was not significant. The indirect effect through job satisfaction was significantly greater than the serial indirect effect.

Conclusions : Retention intention among visiting nurses at public health centers was better explained through job attitude processes involving job satisfaction and organizational commitment than through job autonomy alone. Creating work environments that support professional discretion, communication, recognition, and job satisfaction may help strengthen stable retention.

Keywords : job autonomy, job satisfaction, organizational commitment, retention intention



Determinants of Sarcopenia Risk Among Community-Dwelling Adults: Differences Across Risk Levels and Residential Area Types

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Purpose : This study examined determinants of sarcopenia risk among community-dwelling adults and investigated whether these associations differed according to risk level and residential area type.

Methods : This cross-sectional study analyzed data from a community-based survey of 2,500 residents across 25 administrative districts in Wonju, South Korea (January 2026). The analytic sample included 526 community-dwelling adults (mean age 54.1 years). Sarcopenia risk was measured using a score derived from the SARC-F questionnaire. Three analyses were conducted: multiple linear regression, quantile regression (50th, 75th, and 90th percentiles), and area-stratified multiple linear regression across four residential area types (rural, old urban, general urban, and newly developed).

Results : In the overall multiple regression model, age ($\beta = .227$), number of chronic diseases ($\beta = .141$), and nutritional status ($\beta = -.288$) were significant factors ($R^2 = .278$, $p < .001$). Quantile regression revealed that the protective effect of nutritional status progressively strengthened across higher quantiles ($\tau = 0.50$: $B = -0.114$; $\tau = 0.75$: $B = -0.215$; $\tau = 0.90$: $B = -0.323$), while sleep duration emerged as a significant factor only at the 75th percentile and the effect of chronic disease burden attenuated at the 90th percentile. Area-stratified analyses confirmed nutritional status as a significant predictor across all four residential area types ($\beta = -.235$ to $-.303$, all $p \leq .003$); in old urban areas, lower household income ($\beta = -.194$) and poorer self-rated health ($\beta = -.225$) were additionally significant.

Conclusions : Sarcopenia risk determinants differed across both risk levels and residential area types. Nutritional status was consistently associated with sarcopenia risk and showed progressively stronger effects at higher risk levels, while the associations between determinants and sarcopenia risk varied by residential area type. These findings support risk-level-stratified and area-specific prevention strategies in community nursing practice.

Keywords : community-dwelling adults, nutritional status, quantile regression, sarcopenia



The Mediating Effects of Social Support on the Relationship between Caregiving Burden and Depression among Primary Family Caregivers of Home-Dwelling Patients with Parkinson's Disease

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Purpose : Primary family caregivers of home-dwelling patients with Parkinson's disease are vulnerable to depression due to prolonged caregiving demands, highlighting the importance of identifying protective factors that may mitigate psychological distress. This study aimed to examine mediating effects of social support on the relationship between caregiving burden and depression among primary family caregivers of home-dwelling patients with Parkinson's disease.

Methods : A cross-sectional descriptive study was conducted with 163 primary family caregivers recruited through online survey conducted in Parkinson's disease communities in Korea. Data were collected using structured self-report questionnaires and analyzed using descriptive statistics, Pearson's correlation coefficients, hierarchical multiple regression, and mediation analyses using the PROCESS Macro with bootstrapping in SPSS.

Results : Caregiving burden showed a significant positive correlation with depression ($r=.19$, $p=.017$) and social support ($r=.31$, $p<.001$), whereas social support was negatively correlated with depression ($r=-.35$, $p<.001$). Hierarchical regression showed that caregiving burden significantly increased depression ($\beta=.27$, $p<.001$), while social support significantly decreased depression ($\beta=-.21$, $p=.001$). Social support partially mediated the relationship between caregiving burden and depression. Caregiving burden positively affected social support ($\beta=.31$, $p<.001$), whereas social support negatively affected depression ($\beta=-.45$, $p<.001$). The indirect effect was statistically significant (Boot CI=-.24 to -.04).

Conclusions : The findings suggest that social support functions as an important psychosocial protective resource that reduces depression and partially buffers the negative effect of caregiving burden on depression. Therefore, social support-focused nursing interventions and community-level systems should be developed to promote caregivers' mental health and psychological adaptation.

Keywords : Caregiver burden, Depression, Parkinson disease, Social support



The growing mismatch between accelerated physical aging and standardized health care that lags behind: A qualitative study of adults aging with cerebral palsy

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Purpose : As life expectancy among individuals with cerebral palsy increases, a growing number of adults are aging with this condition, facing the combined challenges of long-term disability and age-related health changes. However, research on their health problems and health management experiences remains limited. This qualitative study aimed to explore perceived health problems and health management experiences among adults aging with cerebral palsy.

Methods : Ten adults aged 50 years or older with cerebral palsy participated in two focus group interviews (FGIs). The interviews were audio-recorded, transcribed verbatim, and analyzed using conventional content analysis.

Results : The analysis identified 332 meaning units and generated 37 codes, which were organized into 15 subcategories and five categories. These led to the overarching theme, "the growing mismatch between accelerated physical aging and standardized health care that lags behind." Participants described experiences of accelerated aging, including worsening pain and declining mobility, and reported prioritizing concerns about functional decline over pain relief when considering surgery. Health screening was identified as the most difficult aspect of health management because of structural barriers to accessible services. Standardized health management approaches were often perceived as difficult to apply, whereas individualized strategies were considered meaningful but challenging to maintain.

Conclusions : These findings suggest the importance of aligning health care approaches with the priorities and functional realities of adults aging with cerebral palsy. Improving access to disability-inclusive health screening, strengthening provider education, and expanding individualized exercise support may contribute to more responsive care for this population.

Keywords : Aging; Cerebral palsy, Focus groups, Health management, Qualitative research



Characteristics of Individuals at High Risk for Undiagnosed Diabetes: Findings from KNHANES 2019–2023

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Purpose : Despite advances in diabetes screening, a considerable proportion of adults remain unaware of their diabetic status, delaying treatment and increasing the risk of complications. This study aimed to identify the sociodemographic, clinical, and behavioral characteristics of adults with undiagnosed diabetes using KNHANES 2019–2023 data.

Methods : This cross-sectional study analyzed data from the Korea National Health and Nutrition Examination Survey (KNHANES), 2019–2023. Among 25,055 adults without a prior diabetes diagnosis, participants were classified into an undiagnosed diabetes group (fasting plasma glucose [FPG] ≥ 126 mg/dL or glycated hemoglobin [HbA1c] $\geq 6.5\%$; $n=1,307$, 5.2%) and a normal group ($n=23,748$, 94.8%). Sociodemographic factors, clinical indicators, health behaviors, and comorbidities were compared using chi-square tests and independent samples t-tests.

Results : Compared with the normal group, adults with undiagnosed diabetes were significantly older, more likely to be male, and had lower educational attainment and household income ($p<.001$). They also exhibited significantly higher BMI, waist circumference, systolic and diastolic blood pressure, a higher proportion of participants with impaired renal function ($\text{eGFR} < 60 \text{ mL/min/1.73 m}^2$), lower participation in health screening and aerobic physical activity, and higher smoking rates. Furthermore, cardiovascular comorbidities, including dyslipidemia, stroke, myocardial infarction, and angina, were significantly more prevalent in the undiagnosed diabetes group ($p<.001$).

Conclusions : Adults with undiagnosed diabetes represent a high-risk population characterized by older age, male sex, socioeconomic disadvantage, unhealthy lifestyle behaviors, and a substantial cardiovascular comorbidity burden. These findings underscore the need for targeted screening strategies to improve early detection and reduce the burden of diabetes-related complications.

Keywords : cardiovascular comorbidity; diabetes; KNHANES; undiagnosed diabetes



Factors Associated with Sarcopenia among Community-Dwelling Older Adults in Wonju, South Korea

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Purpose : This study aims to identify the prevalence of factors associated with sarcopenia among older adults in a community.

Methods : This cross-sectional study analyzed data from a community-based survey conducted among older adults in Wonju, South Korea, in January 2026. This research was supported by the ANCHOR program through the Gangwon ANCHOR Center. A total of 2,500 adults aged 18 years and older were recruited through age- and gender-stratified quota sampling across 25 administrative districts, with an equal allocation of 100 participants per district, and interviewed face-to-face. Of these, 530 adults aged 65 years and older were included in the analysis. Participants were classified into sarcopenia and non-sarcopenia groups based on SARC-F scores. Group differences in sociodemographic, health-related, and behavioral characteristics were examined, and factors associated with sarcopenia were identified using binary logistic regression analysis.

Results : Among the 530 participants, 21 (4.0%) were identified as having sarcopenia. Multivariable logistic regression analysis revealed that poor self-rated health and lower nutritional status were significantly associated with sarcopenia. Participants with poor self-rated health had 8.21-fold higher odds of sarcopenia than those with good self-rated health, while each one-point increase in the MNA-SF score was associated with a 41% decrease in the odds of sarcopenia. The final model explained 37.5% of the variance in sarcopenia and demonstrated good calibration (Hosmer–Lemeshow test, $p = .178$).

Conclusions : Self-rated health and nutritional status were identified as key factors associated with sarcopenia among older adults. Therefore, community-based interventions for the prevention and management of sarcopenia should prioritize health promotion strategies to improve overall health status, while also incorporating nutritional support.

Keywords : Aged, health status, nutritional status, sarcopenia



Network Structure of Successful Aging by Living Arrangement Among Community-Dwelling Older Adults

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Purpose : Successful aging is shaped by complex interactions among physical, psychological, social, and behavioral factors. However, little is known about how these factors interact within a network or whether their relationships differ according to living arrangements. This study aimed to identify the network structure of successful aging among community-dwelling older adults and compare network characteristics according to living arrangements.

Methods : This cross-sectional study analyzed data from the 2024 Korea National Health and Nutrition Examination Survey. A Mixed Graphical Model was used to construct a successful aging network incorporating physical health, psychological health, social health, and health behaviors. Network centrality was evaluated using strength, betweenness, and expected influence (EI), while bridge expected influence identified variables connecting different health domains. Stratified network analyses were conducted for older adults living alone and those living with others.

Results : In the overall network, living arrangement was the most central variable (strength = 1.563; EI = 1.563), functional status served as the primary connector across health domains (betweenness = 65.000), and sedentary time showed the highest bridge expected influence (bridge EI = 0.584). Network structures differed by living arrangement. Among older adults living alone, sedentary time emerged as the most influential variable, whereas perceived health and multimorbidity were the central variables among those living with others.

Conclusions : The successful aging network differed according to living arrangements, indicating distinct intervention priorities for different subgroups. These findings suggest that reducing sedentary behavior may be particularly important for older adults living alone, whereas improving perceived health and managing multimorbidity may be more relevant for those living with others. Network analysis may help identify tailored intervention targets to promote successful aging.

Keywords : Healthy aging, Living arrangement, Multimorbidity, Network analysis, Sedentary behavior



Community-Based Support Systems for Older Adults with Dementia: A Literature Review Comparing Japan and Thailand

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Purpose : As the number of older adults living with dementia increases across Asia, strengthening community-based support systems has become an urgent challenge. Although Japan and Thailand are both experiencing rapid population aging, they have developed different models of community dementia care. Comparing these models may provide insights into sustainable community support for older adults with dementia. This study aimed to compare community-based support systems in Japan and Thailand through a literature review.

Methods : A literature review was conducted using PubMed and Ichushi-Web. Studies describing community-based support for older adults with dementia in Japan and Thailand were reviewed. Data regarding support systems, key care providers, community resources, multidisciplinary collaboration, and challenges were extracted and compared.

Results : The review identified distinct approaches to community-based dementia care. In Japan, community support was organized through the long-term care insurance system, with Regional Comprehensive Support Centers and Initial Intensive Support Teams for Dementia coordinating multidisciplinary collaboration among healthcare professionals, long-term care providers, and community organizations. In Thailand, Community Health Nurses played a central role in coordinating care with family caregivers and Village Health Volunteers through community-based networks. Despite these differences, both countries emphasized community collaboration to support older adults with dementia living in their communities. Common challenges included population aging, workforce shortages, caregiver burden, and the need for sustainable community support systems.

Conclusions : Japan and Thailand have developed different but complementary community-based support models. Japan's strength lies in multidisciplinary collaboration within a structured care system, whereas Thailand's strength lies in community networks led by Community Health Nurses. These findings may contribute to developing sustainable community dementia care by integrating professional care with community engagement and digital support in the AI era.

Keywords : Community-based care, Dementia, Japan, Thailand



Evolution of Research on Heated Tobacco Products, Electronic Cigarettes, and Waterpipes in Japan: A Text Mining Study

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Purpose : Research on heated tobacco products (HTPs), electronic cigarettes (e-cigarettes), and waterpipes has increased worldwide. In Japan, the introduction of HTPs and enforcement of the revised Japanese Health Promotion Act in 2020 may have influenced research trends. This study aimed to clarify changes in research trends related to these tobacco products in Japan.

Methods : Publications related to HTPs, e-cigarettes, and waterpipes were retrieved from the Ichushi-Web (Japan Medical Abstracts Society database). Publications were divided into two periods: 2013–2019 (after the introduction of HTPs and before enforcement of the revised Japanese Health Promotion Act) and 2020–2025 (after enforcement of the Act). Titles and abstracts were analyzed using KH Coder through word frequency and co-occurrence network analyses.

Results : A total of 123 publications were analyzed, including 22 published during 2013–2019 and 101 during 2020–2025, representing a 4.6-fold increase. Early studies mainly focused on product characteristics, harmful constituents, and smoking cessation support, with eight research clusters identified. In contrast, later publications emphasized health effects, nicotine dependence, youth education, risk perception, secondhand smoke exposure, and vascular function, yielding seven research clusters. The increased frequency and diversity of keywords indicated a shift from product characterization to broader public health issues. Only a few studies focused on waterpipes, whereas research in Japan primarily centered on HTPs.

Conclusions : Research on HTPs, e-cigarettes, and waterpipes in Japan has evolved from focusing on product characteristics and smoking cessation support to addressing broader public health issues, including health effects, nicotine dependence, youth prevention, and secondhand smoke exposure. Publications after enforcement of the revised Japanese Health Promotion Act reflected this shift in research focus. These findings provide evidence to support nursing education, smoking cessation interventions, and public health strategies for tobacco control.

Keywords : Electronic cigarettes, Heated tobacco products, Public health, Text mining



Mediating Effect of Hand Hygiene Between Influenza Vaccination and Self-Rated Health in Older Korean Adults: A Complex Survey Analysis

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Purpose : This study examined whether hand hygiene practice mediates the association between influenza vaccination and self-rated health among community-dwelling older Korean adults.

Methods : A secondary analysis was conducted using the 2023 Korea Community Health Survey. Participants were 74,243 adults aged 65 years or older. Influenza vaccination within the previous year was the independent variable; hand hygiene practice, defined as performing hand hygiene before meals, after toilet use, and after returning home, was the mediator; and self-rated health was dichotomized as good or poor. Complex survey weights, strata, and clusters were applied. Rao–Scott chi-square tests, complex-sample logistic regression, and complex-sample structural equation modeling with bootstrap estimation were performed, adjusting for covariates including age, sex, residential area, housing type, household size, education level, economic activity, marital status, receipt of public assistance, smoking, alcohol drinking, hypertension, diabetes mellitus, and body mass index.

Results : The weighted rates of influenza vaccination, hand hygiene practice, and good self-rated health were 90.0%, 78.0%, and 24.8%, respectively. Vaccinated participants reported more hand hygiene practice than unvaccinated participants (78.5% vs. 73.2%, $p<.001$), and hand hygiene practitioners reported better self-rated health than non-practitioners (26.4% vs. 18.9%, $p<.001$). In the mediation model, influenza vaccination showed a negative direct association with good self-rated health ($\beta=-0.138$, $p=.001$) and a negative total association ($\beta=-0.116$, $p=.006$). In contrast, the indirect pathway through hand hygiene was positive and significant ($\beta=0.138$, $p<.001$), because vaccination was positively associated with hand hygiene ($\beta=0.351$, $p<.001$), which was positively associated with good self-rated health ($\beta=0.393$, $p<.001$).

Conclusions : Hand hygiene practice partially mediated the association between influenza vaccination and self-rated health, while the direct and indirect pathways operated in opposite directions. These findings suggest that vaccination status alone may reflect underlying vulnerability among older adults, whereas hand hygiene represents a positive behavioral pathway linking vaccination-related preventive behavior to better perceived health.

Keywords : Community health; Hand hygiene; Influenza vaccination; Older adults



The Impact of Home-Visit Nursing on Aging in Place Among Long-Term Care Insurance Beneficiaries: A National Elderly Cohort Study

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Purpose : Home-visit nursing under the Korean Long-Term Care Insurance system is expected to support aging in place by preventing health deterioration and reducing the need for institutional care. However, utilization remains low, and evidence regarding its effectiveness is limited. This study examined the impact of home-visit nursing on aging in place among beneficiaries receiving home-based long-term care services.

Methods : This longitudinal cohort study used the National Health Insurance Service Senior Cohort Database (2008–2023). The study included 49,086 beneficiaries who first received home-based long-term care services between 2015 and 2020, including 1,037 home-visit nursing users and 48,049 non-users. Individuals with prior long-term care service use or stays exceeding 90 days in nursing facilities or long-term care hospitals were excluded. Follow-up continued until discontinuation of aging in place (admission to a nursing facility or long-term care hospital), death, or study end. Home-visit nursing use, sociodemographic characteristics, and health-related factors were treated as time-varying covariates. A time-dependent Cox proportional hazards model assessed the association between home-visit nursing use and discontinuation of aging in place.

Results : The incidence of discontinuation of aging in place was lower during periods of home-visit nursing use than during periods of non-use (97.09 versus 116.57 per 1,000 person-years). Home-visit nursing use was significantly associated with a reduced risk of discontinuation in unadjusted analysis (hazard ratio 0.79, 95% confidence interval 0.68–0.93, $p = .003$). The association remained significant after adjustment for covariates (hazard ratio 0.80, 95% confidence interval 0.69–0.93, $p = .005$).

Conclusions : Home-visit nursing was associated with a lower risk of discontinuation of aging in place among older adults receiving home-based long-term care services. Expanding home-visit nursing services may strengthen community-based long-term care and support older adults to remain in their communities. Policy efforts to improve workforce capacity and service accessibility are needed.

Keywords : Aging in Place, Cohort Study, Home-Visit Nursing, Long-Term Care Insurance



Associations Between Work Ability-Related Profiles and Expected Age of Labor Market Exit Among Older Workers

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Purpose : This study aimed to identify latent work ability-related profiles among older workers and examine their associations with the expected age of labor market exit.

Methods : A secondary analysis was conducted using cross-sectional data from 819 older workers. Guided by the Work Ability House Model, eight indicators representing health, competence, values, and the work environment were selected. Latent profile analysis was performed to identify distinct work ability-related profiles, followed by a general linear model to examine factors associated with the expected age of labor market exit.

Results : Four profiles were identified: the health–psychosocial risk profile (22.3%), ergonomic risk profile (7.0%), moderate profile (49.6%), and good work environment profile (21.1%). Older age, living with a spouse, and membership in the health–psychosocial risk profile were associated with a later expected age of labor market exit. In contrast, higher monthly income, more frequent hospital visits, and membership in the ergonomic risk profile were associated with an earlier expected exit age. Membership in the good work environment profile was not significantly associated with the expected age of labor market exit compared with the moderate profile.

Conclusions : Older workers exhibited heterogeneous work ability-related profiles reflecting different combinations of health, psychosocial, and ergonomic characteristics. The earlier expected labor market exit observed in the ergonomic risk profile highlights the importance of reducing physical and ergonomic work demands. Conversely, the later expected exit age among workers in the health–psychosocial risk profile suggests that expectations of prolonged employment do not necessarily indicate favorable work ability and may reflect constrained or need-based work continuation. Tailored interventions addressing physical work environments, psychosocial vulnerability, and socioeconomic circumstances are needed to support healthy and sustainable working lives among older workers.

Keywords : aging in work, labor market exit, older worker, work ability



Age-Dependent Association Between Sleep Duration and Fasting Plasma Glucose in Adults with Type 2 Diabetes

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Purpose : Sleep duration has been associated with glycemic control, but whether this association differs by age among adults with type 2 diabetes remains unclear. This study examined whether age moderates the association between sleep duration and fasting plasma glucose.

Methods : Data from 2,992 adults with type 2 diabetes were obtained from the Korea National Health and Nutrition Examination Survey conducted between 2019 and 2023. Moderation analysis was performed to examine whether age moderated the association between weighted average nightly sleep duration and fasting plasma glucose after adjustment for sex, body mass index, and diabetes duration. Simple slope analyses were conducted at the 16th, 50th, and 84th percentiles of age.

Results : The interaction between sleep duration and age significantly predicted fasting plasma glucose ($B = 0.15$, $SE = 0.04$, $p = .001$), accounting for an additional 0.4% of the variance in fasting plasma glucose ($\Delta R^2 = .004$, $p = .001$). Among younger adults (approximately 55 years of age), longer sleep duration was associated with lower fasting plasma glucose ($B = -1.47$, $p = .041$), whereas among older adults (approximately 77 years of age), longer sleep duration was associated with higher fasting plasma glucose ($B = 1.82$, $p = .004$). Johnson–Neyman analysis indicated a significant negative association below 56 years of age and a significant positive association above 71 years of age.

Conclusions : Age significantly moderated the association between sleep duration and fasting plasma glucose in adults with type 2 diabetes. Longer sleep duration was associated with lower fasting plasma glucose among younger adults but higher fasting plasma glucose among older adults. These findings highlight the importance of individualized sleep assessment and age-tailored diabetes self-management education.

Keywords : Age, Fasting plasma glucose, Sleep duration, Type 2 diabetes



Educational Programmes for Healthcare Personnel during the Disaster Recovery Phase: A Scoping Review

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Purpose : The disaster recovery phase entails complex, long-term demands, including health service restoration, mental health support, and community resilience-building, yet education for healthcare personnel has concentrated predominantly on preparedness and response phases, leaving recovery-phase competencies underexplored. This scoping review aimed to map the scope and characteristics of educational programs targeting the disaster recovery phase for healthcare personnel, synthesize program content, delivery methods, and outcome measures, and identify evidence gaps.

Methods : Following JBI scoping review methodology and PRISMA-ScR reporting guidelines, eight international and Korean databases were searched for studies published between 2000 and 2026. Eligible studies described educational or training interventions explicitly addressing recovery-phase competencies for healthcare personnel. Two independent reviewers conducted study screening and data extraction, and findings were synthesized narratively.

Results : Thirty-seven studies were included, predominantly from the United States and Japan, spanning natural, biological, and conflict-related disasters. Target populations included nurses, physicians, community health workers, and multidisciplinary teams. Educational methods ranged from single brief workshops to multi-month blended curricula, with mental health support, psychological first aid, cultural competency, and community resilience building identified as dominant content areas. Most studies employed single-group pre-post designs with limited use of validated instruments, and few examined behavioral transfer or system-level outcomes.

Conclusions : Recovery-phase education for healthcare personnel remains heterogeneous and methodologically underdeveloped despite escalating global disaster recovery demands. Standardized competency frameworks, validated outcome measures, and rigorous evaluation designs are needed to strengthen recovery-phase preparedness across the healthcare workforce.

Keywords : Disaster Nursing, Disaster Recovery, Education, Healthcare Personnel



Cross-cultural adaptation and psychometric evaluation of the Turkish version of the Self-Efficacy for Heart-Healthy Lifestyle Behaviors (SE-HeartLife) Scale

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Purpose : Self-efficacy for heart-healthy lifestyle behaviors (SE-HeartLife) is a key determinant of adopting and maintaining behaviors that reduce cardiovascular disease risk, yet culturally validated instruments remain limited across populations. This study aimed to adapt the SE-HeartLife into Turkish and evaluate its psychometric properties.

Methods : This methodological study included 652 adults aged 19–64 years residing in eastern Türkiye. Following forward–backward translation and content validation, participants were randomly assigned to two independent split samples for exploratory factor analysis (EFA; n=326) and confirmatory factor analysis (CFA; n=326). Construct validity was examined through known-groups, convergent, and discriminant validity. Reliability was assessed using internal consistency and test–retest reliability.

Results : EFA supported a five-factor structure explaining 60.0% of the total variance. CFA confirmed the model with excellent fit ($\chi^2/df=2.18$, GFI=0.98, AGFI=0.98, CFI=0.99, RMSEA=0.043, SRMR=0.055). Participants with greater cardiovascular risk factor knowledge reported significantly higher SE-HeartLife scores than those with lower knowledge levels ($p<.001$), supporting known-groups validity. Convergent validity was supported by significant standardized factor loadings (0.58–0.87) and construct reliability values (0.82–0.92), with average variance extracted values ranging from 0.48 to 0.62, while discriminant validity was supported by heterotrait–monotrait ratios below 0.90. Cronbach's alpha and McDonald's omega coefficients indicated excellent internal consistency, and test–retest reliability demonstrated satisfactory temporal stability ($r = 0.82$).

Conclusions : The Turkish SE-HeartLife Scale demonstrated robust validity and reliability and may be used to assess self-efficacy for heart-healthy lifestyle behaviors among Turkish adults.

Keywords : self-efficacy, healthy lifestyle, cardiovascular diseases, primary prevention



Hidden by Composition: An Educational Gradient in Complex Health Burden Masked by Urban–Rural Equivalence Among Community-Dwelling Korean Older Adults

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Purpose : Health vulnerability in older adults is multidimensional and frequently co-occurs, yet equity analyses often rely on average urban–rural comparisons that can mask socioeconomic structure. This study examined how complex health burden, the co-occurrence of multiple health deficits, is socially patterned among community-dwelling older adults, and tested whether an apparent urban–rural equivalence reflects genuine equality or compositional masking.

Methods : This cross-sectional study analyzed 464 community-dwelling adults aged 65 and older from urban and rural districts of Gyeongnam Province, South Korea (urban $n=268$; rural $n=196$). Six health domains (frailty, depression, nutrition, intrinsic capacity, physical performance, and loneliness/social isolation) were each dichotomized at externally validated confirmed-disorder thresholds. Complex health burden was defined a priori as three or more co-occurring deficits and modeled by multivariable logistic regression on residence, sex, education, income, and living arrangement, adjusting for age and chronic-condition count. Pre-specified analyses included region-by-income and region-by-sex interactions and a nested-model socioeconomic decomposition. Analyses used R.

Results : Of 464 participants, 124 (26.7%) had complex health burden. The crude urban–rural difference was negligible (25.4% vs 28.6%). In adjusted models, low education was the dominant correlate (adjusted odds ratio 6.89, 95% CI 2.69–17.67), followed by lowest income (1.77, 1.02–3.06), age, and chronic conditions; the educational gradient was stable across cutoffs and estimands. Rural residence carried lower adjusted odds (0.49, 0.29–0.84), emerging only after socioeconomic adjustment (odds ratio 0.69 to 0.55), indicating that the rural sample's disadvantaged composition had masked an underlying structure. No region-by-social-position interaction was significant.

Conclusions : A strong, residence-independent educational gradient organized the co-occurrence of health deficits, while an apparent urban–rural equivalence proved to be a compositional artifact rather than evidence of equity. Equity-oriented nursing and policy should target socioeconomic vulnerability, particularly low education, rather than residence alone.

Keywords : Health equity; social determinants of health; multimorbidity; older adults; community health nursing



Relationship between Frailty and Cognitive Function in Elderly Cancer Survivors

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Purpose : The purpose of this study was to investigate the relationship between frailty and cognitive decline in elderly cancer survivors.

Methods : A secondary analysis was conducted using data from the 7th to 10th waves of the Korean Longitudinal Study of Aging (KLoSA). A total of 322 older Korean cancer survivors were included in our analysis. Frailty was assessed using the multi-domain frailty index. Cognitive decline is whether the doctor diagnosed dementia or mild cognitive impairment. Cox models were conducted to estimate the hazard ratios (HRs) of cognitive decline in relation to frailty adjusting for covariates.

Results : Among cancer survivors over 65 years old, each 1-unit increase in frailty score was associated with a 13% higher hazard of cognitive decline over a follow-up of up to 6 years (HR=1.13, 95% CI=1.01–1.27).

Conclusions : The results of this study imply that in order to prevent cognitive decline in elderly cancer survivors, periodic evaluation and timely management of frailty are necessary. In addition, it is necessary to consider multiple domains of the their life when preparing a plan to manage frailty for elderly cancer survivors.

Keywords : Cancer survivors, Cognitive function, Frailty, Older adults



Feedback Structure Analysis of Policy Diffusion in Community-Based Integrated Care: A Exploratory Study Based on System Dynamics

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Purpose : This study aimed to develop a System Dynamics model to simulate the diffusion of community-based integrated care in Korea and examine how policy investment levels influence the realization of Aging in Place through reinforcing feedback loops.

Methods : A System Dynamics model was constructed using Vensim software, incorporating the Bass Diffusion Model to represent two diffusion pathways: policy-driven adoption and social contagion. The model comprised four stock variables—potential care recipients, actual service users, service satisfaction, and accumulated medical cost savings—and one outcome variable, the Aging in Place population. Service satisfaction was modeled as a goal-gap stock that converges toward a target determined by local infrastructure level. Medical cost savings were reinvested into local infrastructure through a delayed outflow, creating a reinforcing feedback loop. Three diffusion scenarios were simulated over 700 days: rapid diffusion (active investment), standard diffusion (current policy level), and slow diffusion (constrained budget). Key parameters were calibrated based on Korean National Health Insurance statistics and prior empirical studies.

Results : All three scenarios demonstrated a sustained increase in the Aging in Place population over the simulation period. At day 700, the rapid diffusion scenario yielded approximately 5,000 individuals, compared with approximately 3,500 in the standard and 2,000 in the slow diffusion scenario, representing a 2.5-fold difference between extremes. The reinforcing feedback loop—whereby medical cost savings were reinvested into local infrastructure, thereby elevating service satisfaction and accelerating social diffusion—was identified as the primary driver of scenario divergence.

Conclusions : Policy investment level is a decisive determinant of Aging in Place realization in community-based integrated care. Early and sustained investment activates a compounding reinforcing loop, generating substantially greater long-term outcomes. These findings provide quantitative evidence to support proactive policy decisions for integrated community care in an aging society.

Keywords : aging in place; community-based integrated care; scenario analysis; system dynamics



Moderation Effect of Influenza Vaccination on the Sex Difference in Forced Expiratory Volume in 1 Second: A Population-Based Cross-Sectional Study

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Purpose : Biological sex is a well-established determinant of forced expiratory volume in 1 s (FEV1); however, whether modifiable factors contribute to this disparity remains unclear. This study aimed to examine the moderating role of influenza vaccination on sex-based differences in FEV1 among Korean adults.

Methods : Data from 2,373 adults aged 40 years and older were drawn from the Korea National Health and Nutrition Examination Survey (KNHANES) 2024. Multivariate complex-sample linear regression analyses were performed after adjusting for sociodemographic characteristics, health behaviors, comorbidities, height, and body mass index. A sex $\times$ influenza vaccination interaction term was included to examine the moderating effect, and subgroup analyses stratified by vaccination status were conducted to further explore the interaction.

Results : Men were significantly higher FEV1 than women. The sex $\times$ vaccination interaction term was statistically significant, indicating that the sex-based difference in FEV1 was attenuated among vaccinated participants. Subgroup analyses showed that the magnitude of the sex difference was smaller in the vaccinated group than in the unvaccinated group. The interaction term also improved the explanatory power of the regression model.

Conclusions : Influenza vaccination significantly moderated sex-based differences in FEV1, suggesting that vaccination may represent a modifiable factor associated with lung function disparities between sexes. These findings highlight the potential role of influenza vaccination in reducing sex-related inequalities in respiratory health and support the need for longitudinal studies to clarify causal relationships and underlying biological mechanisms.

Keywords : Forced Expiratory Volume, Influenza Vaccines, Respiratory Function Tests, Sex Factors



Network structure of frailty, intrinsic capacity, resilience, and health-related quality of life among community-dwelling older adults: An exploratory cross-sectional study

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Purpose : Frailty, intrinsic capacity (IC), resilience, and health-related quality of life (HRQoL) are key constructs in healthy aging, but their simultaneous conditional relationships are not well understood. This study mapped the network structure linking these four domains among community-dwelling older adults.

Methods : This secondary analysis used cross-sectional data from 235 community-dwelling older adults in Sacheon, Republic of Korea, recruited between May and August 2024. Participants had a mean age of 73.3 ± 8.3 years, and 71.5% were female. A regularized partial correlation network was estimated using EBICglasso ($\gamma = 0.5$). The network included 19 nodes representing frailty, five IC subdomains, eight SF-36 subdomains, and five CD-RISC subdomains. Node strength, expected influence, bridge strength, and predictability (R^2) were computed. Stability was assessed using 2,500 case-dropping bootstrap iterations. Sensitivity analyses included covariate-adjusted residualized networks and Spearman rank correlation networks.

Results : Social Functioning and Persistence were the most central nodes, with standardized strengths of 1.56 and 1.50, respectively. Mental Health, Social Functioning, and Vitality were the leading cross-community connectors, with bridge strengths of 0.815, 0.654, and 0.631. Frailty was peripheral, showing standardized strength of -0.63 and bridge strength of 0, with retained edges only to Physical Functioning and General Health. Predictability was high for several HRQoL and resilience nodes, including Social Functioning ($R^2 = .65$), Mental Health (.73), Persistence (.81), and Hardiness (.79), whereas IC-Cognition, IC-Psychological, and IC-Sensory showed $R^2 = .00$. Strength and expected influence were stable, with CS-coefficients of 0.596 and 0.672. Edge weights were highly consistent between Pearson and Spearman networks ($\rho = 0.83$).

Conclusions : Social functioning and resilience indicators were central, while mental health, social functioning, and vitality bridged domains. Frailty was peripheral under regularization. These cross-sectional findings are hypothesis-generating and require longitudinal replication. Overall, the network approach identified centrality, bridge roles, and explained variance across healthy aging domains.

Keywords : frailty, intrinsic capacity, resilience, health-related quality of life, Network analysis, community-dwelling, older adults



Sarcopenia Intersects Intrinsic Capacity Through Locomotion: A Community Study of Older Adults in a Korean Rural–Urban Region

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Purpose : Sarcopenia is common in later life and contributes to functional decline, yet its burden in Korean rural–urban regions remains poorly characterized. Intrinsic capacity (IC), proposed by the World Health Organization, provides a function-centred framework for healthy ageing, but its relationship with objectively defined sarcopenia is not fully understood. This study aimed to estimate sarcopenia prevalence, identify associated factors, and determine whether the sarcopenia–IC relationship is system-wide or domain-specific.

Methods : This cross-sectional study included 166 community-dwelling adults aged 65 years or older in a Korean rural–urban region. Body composition was measured by bioelectrical impedance using InBody 470, and sarcopenia was classified according to the 2019 Asian Working Group for Sarcopenia algorithm. IC was assessed using eight screening indicators representing six ICOPE domains. Group comparisons and multivariable logistic regression were performed to identify correlates of sarcopenia.

Results : Possible, confirmed, and severe sarcopenia affected 85.5%, 34.9%, and 21.1% of participants, respectively. Participants with sarcopenia were older and had lower body mass index, lower muscle mass index, weaker grip strength, poorer physical performance, and lower nutritional and cognitive scores. Impaired locomotion was more frequent in participants with sarcopenia than in those without sarcopenia (74.1% vs. 40.7%). In multivariable analysis, lower body mass index, lower cognitive score, and impaired locomotion remained independently associated with sarcopenia. Impaired locomotion conferred more than threefold higher odds of sarcopenia (adjusted odds ratio 3.16, 95% confidence interval 1.30–7.68), whereas the composite IC impairment count showed no independent association.

Conclusions : Sarcopenia was highly prevalent in this community sample. Its relationship with IC was domain-specific, operating mainly through locomotion rather than across the construct as a whole. Integrating sarcopenia screening with the ICOPE locomotion assessment may support function-centred healthy ageing care in community settings.

Keywords : community-dwelling older adults, intrinsic capacity, locomotion, sarcopenia



Self-management Experiences of Active-duty Military Personnel with Type 2 Diabetes: A Phenomenological Study

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Purpose : Active-duty military personnel with type 2 diabetes may face unique self-management challenges due to mission-oriented schedules, hierarchical organizational culture, and limited flexibility in diet, exercise, and healthcare access. This study explored the lived experiences and essential meaning of self-management among active-duty military personnel with type 2 diabetes in the military context.

Methods : A phenomenological qualitative design was used. Seven active-duty commissioned and non-commissioned officers who had lived with type 2 diabetes for at least five years participated in in-depth interviews. Data were analyzed using Colaizzi's seven-step method.

Results : The analysis yielded 44 themes, 16 theme clusters, and five categories: reconstructing military officer identity through illness acceptance; self-management adjusted in everyday life; self-management shaped by military organizational structures; intersecting support and burden in interpersonal relationships; and constructing long-term management meaning through bodily experiences. Participants experienced diabetes not only as a health condition but also as a challenge to their identity as military officers. Self-management was continuously adjusted within rigid work schedules, organizational norms, and interpersonal expectations rather than maintained as a stable routine. The essential structure of this experience revealed a dynamic process of ongoing negotiation — continuously reconciling the tension between military identity and the reality of living with a chronic illness, while integrating illness acceptance, bodily change, and long-term management demands into daily life and mission performance. Self-management was not accomplished through individual effort alone, but was continuously shaped and adjusted through interaction with military organizational structures, the healthcare system, and the demands of occupational roles.

Conclusions : Self-management among active-duty military personnel with type 2 diabetes is a dynamic, context-dependent process shaped by occupational demands, organizational structures, and social relationships. Diabetes care for military personnel should include integrated, context-sensitive support strategies tailored to military settings.

Keywords : Diabetes Mellitus, Military Personnel, Phenomenology, Self-Management



How Does Emotional Labor Lead to Turnover Intention in Home Visit Care Workers?

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Purpose : Based on the Conservation of Resources framework, this study explored whether burnout subdimensions (exhaustion, cynicism, and reduced professional efficacy) serve as intermediary pathways linking emotional labor to turnover intention among home visit care workers in South Korea's long-term care system.

Methods : A cross-sectional secondary data analysis was conducted using the 2020 Survey on the Service Environment of Home-Visit Care Workers, collected across Seoul and Chungcheongnam-do. After applying eligibility criteria and addressing incomplete responses, 806 cases were retained. Emotional labor, three burnout subdimensions, and turnover intention were assessed using validated instruments. Indirect pathways were tested using Jamovi with bootstrap resampling (10,000 iterations).

Results : Emotional labor showed moderate associations with exhaustion ($r = .47$) and cynicism ($r = .40$), and a meaningful link to turnover intention ($r = .34$). Path analyses revealed that exhaustion and cynicism each carried a significant portion of the effect from emotional labor to turnover intention, while the direct pathway also remained significant, indicating partial mediation. In contrast, reduced professional efficacy did not function as a significant mediator. Additionally, care workers assigned to a single client reported greater emotional labor and stronger turnover intention than those serving multiple clients.

Conclusions : Among home visit care workers, the impact of emotional labor on turnover intention is channeled primarily through exhaustion and cynicism rather than reduced professional efficacy. Retention strategies should prioritize replenishing depleted emotional resources via structured peer networks, supervisory mechanisms, and caseload diversification to interrupt cascading resource losses in this essential care sector.

Keywords : Burnout, Emotional Labor, Home Care Services, Turnover Intention



Barriers to Non-Communicable Disease Prevention and Management Among Cambodian Adults: A Best-Worst Scaling and Latent Profile Analysis

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Purpose : This study aimed to identify and prioritize perceived barriers to non-communicable disease prevention and management among Cambodian adults and to examine preference heterogeneity across population subgroups using Best-Worst Scaling and Latent Profile Analysis.

Methods : A cross-sectional survey was conducted among 625 adults aged 30 years or older in Phnom Penh and Siem Reap, Cambodia. Respondents evaluated 11 candidate barriers across four ecological domains using a Best-Worst Scaling Case 1 design. Data were analyzed using counting analysis, conditional logit modeling with cluster-robust standard errors, and Gaussian mixture model-based Latent Profile Analysis. Class-stratified and diagnosis-stratified analyses were conducted to compare barrier priorities across subgroups.

Results : Financial burden was the most influential barrier, followed by limited access to self-monitoring tools and work-related barriers. The latent profile analysis identified three groups: a work-barrier-dominant group, a cost-barrier-dominant group, and a trust-barrier-dominant group. All groups consistently prioritized financial burden and self-monitoring access as the two leading barriers. However, they differed in the relative importance assigned to low trust in healthcare, work-related barriers, and service capacity. Sensitivity analyses supported the three-group solution, and barrier rankings were highly similar between adults with and without a diagnosis of non-communicable disease.

Conclusions : Financial burden and limited access to self-monitoring tools are broadly prioritized barriers to non-communicable disease management in Cambodia. However, meaningful heterogeneity exists across population groups. Strategies should combine broad financial and self-monitoring support with targeted approaches for trust-related concerns among urban diagnosed adults and workplace-based support for working populations.

Keywords : barriers; Best-Worst Scaling; Cambodia; non-communicable diseases



Concept analysis of well-dying among older adults living alone in the community: A hybrid model approach

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Purpose : With the increasing trends of an aging population and the rise in single-person households, understanding the concept of well-dying among older adults living alone has become increasingly important. This study aimed to systematically identify the concept of well-dying among older adults living alone.

Methods : Schwartz-Barcott and Kim's hybrid model for concept analysis was employed. In the theoretical phase, a literature review of 1,020 publications was conducted, and 13 relevant articles were selected. In the fieldwork phase, in-depth interviews were conducted with 12 older adults living alone, and the data were analyzed using qualitative content analysis. In the final analytical phase, findings from the theoretical and fieldwork phases were synthesized to define the concept and identify its attributes.

Results : The concept of well-dying, as perceived by older adults living alone, is a comprehensive construct encompassing both preparation for death and the dying experience itself. Participants defined well-dying as 'living independently with health and meaning until the end of life, positively accepting death as a natural process, proactively preparing for death in concrete ways, and ultimately experiencing a dignified and comfortable death without loneliness.'

Conclusions : The findings of this study provide meaningful insights for gerontological nursing practice and health policy development to support older adults living alone. These results offer a foundation for designing individualized nursing interventions and community-based programs that promote well-dying and suggest the need for future validation research in diverse cultural contexts.

Keywords : Aged, Proof of concept study, Social isolation



Resilience and Health Behaviors in Cancer Survivor–Family Caregiver Dyads: An Actor–Partner Interdependence Model

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Purpose : The cancer experience is an interdependent process in which survivors and family caregivers adapt together, highlighting the importance of understanding resilience and health behaviors within a relational context. Therefore, this study examined the actor and partner effects of resilience on health behaviors among cancer survivor–family caregiver dyads.

Methods : A cross-sectional dyadic survey was conducted among 150 Korean community-dwelling cancer survivor–family caregiver dyads. Participants completed standardized self-report measures of resilience and health behaviors. Actor–Partner Interdependence Models (APIM) were estimated using structural equation modeling in R, adjusting for age and employment status of both dyad members.

Results : Significant actor effects indicated that higher resilience was associated with better health behaviors in both cancer survivors and family caregivers ($\beta=.624$ and $\beta=.623$, respectively; both $p<.001$). A significant partner effect was identified from family caregivers' resilience to cancer survivors' health behaviors ($\beta=.126$, $p=.034$), whereas the reverse partner effect was not significant. The model demonstrated an excellent fit to the data (CFI=.991, TLI=.983, RMSEA=.030, SRMR=.049).

Conclusions : Cancer survivors' health behaviors are influenced not only by their own resilience but also by the resilience of their family caregivers. These findings underscore the interdependent nature of health behaviors within survivor–family caregiver dyads and suggest that strengthening family caregivers' resilience may be an effective strategy for promoting cancer survivors' health behaviors. The findings support the development of family-centered resilience interventions to improve health behaviors among cancer survivors.

Keywords : Cancer Survivors, Family Caregivers, Health Behaviors, Resilience



Exploring Unmet Home Care Nursing Service Needs among Older Adults with Severe Multimorbidity: A Qualitative Study Using Stakeholder Focus Group and In-depth Interviews

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Purpose : This study aimed to explore unmet home nursing care needs among community-dwelling older adults with severe multimorbidity, defined as cancer survivors with coexisting cardiovascular diseases, and to identify key considerations for developing an integrated home nursing service model and reimbursement system.

Methods : This study employed an exploratory qualitative design. A total of 14 participants, including eight community-dwelling older adults with severe multimorbidity and six home care nurses with experience caring for this population, were purposively recruited. Face-to-face semi-structured interviews were conducted with older adults, while an online focus group interview was conducted with home care nurses. Interview data were analyzed using inductive content analysis.

Results : Analysis of the interview data revealed three overarching themes: 1) Managing complex health needs at home; 2) Addressing gaps in continuity and coordination of transition care through expanding home care nurses' services; and 3) Building supportive care systems within the healthcare system for sustainable home care nursing. Participants described functional decline, treatment-related symptoms, polypharmacy, self-management burden, fragmented care transitions, limited access to integrated education and emergency support, financial burden, an insufficient reimbursement system for transitional and supportive care, and the need for caregiver support, care coordinators, and multidisciplinary collaboration.

Conclusions : Older adults with severe multimorbidity experienced multidimensional unmet needs that extend beyond disease management to care coordination and system-level support. Findings suggest that an integrated and reimbursed home care nursing model, including multidisciplinary collaboration, transitional care coordination, and caregiver support, is needed to improve continuity and quality of home care and to facilitate the implementation of aging in place.

Keywords : Home Care Nurses, Multimorbidity, Older adults, Unmet needs, Community care



Daily Glycemic Variability Assessed by a Novel Daily Coefficient of Variation (dCV) and Its Association with Lifestyle Factors in Type 2 Diabetes: A Machine Learning and Explainable AI Approach

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Purpose : This study aimed to develop and validate a daily coefficient of variation for assessing day-level glycemic variability in adults with type 2 diabetes and to identify lifestyle-related phenotypes using continuous glucose monitoring and explainable machine learning.

Methods : A prospective observational study was conducted with 102 adults with type 2 diabetes at a tertiary hospital in South Korea. Participants wore a continuous glucose monitoring sensor and a wrist-worn activity and sleep device for 14 days and completed a dietary self-report questionnaire. The daily coefficient of variation was calculated from each day's glucose standard deviation divided by the daily mean glucose. Deming regression was used to derive a day-level stability threshold corresponding to the conventional 14-day coefficient of variation criterion. Eight machine learning classifiers were compared using stratified tenfold cross-validation. The final model was interpreted using Shapley additive explanations, and patient-day phenotypes were identified through embedding-based clustering.

Results : The daily coefficient of variation showed strong agreement with the 14-day coefficient of variation. The derived daily stability threshold was 32.61%, classifying 75.4% of 3,868 patient-day observations as stable. Random Forest showed the best overall performance, with an accuracy of 0.790 and an area under the receiver operating characteristic curve of 0.842. Step count, protein and fat intake, waist circumference, rapid eye movement sleep, body mass index, and total sleep time were key contributors. Three interpretable phenotypes were identified: multifactor regulators, activity-dominant, and body-composition-buffered.

Conclusions : The daily coefficient of variation provides a clinically interpretable day-level indicator of glycemic stability. Explainable machine learning revealed distinct lifestyle-related phenotypes, supporting phenotype-based precision nursing strategies for diabetes self-management.

Keywords : continuous glucose monitoring; glycemic variability; machine learning; type 2 diabetes



Recruitment and Screening Outcomes of a Culturally and Linguistically Adapted Stress Management Intervention for Korean American Dementia Family Caregivers

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Purpose : Culturally responsive stress management interventions can benefit Korean American (KA) family caregivers of individuals with dementia. However, recruitment remains challenging because engaging ethnic minority populations often requires culturally tailored approaches and trusted community partnerships. This study describes the recruitment and screening outcomes of the Korean version of iCare (K-iCare), an ongoing pilot culturally adapted stress management intervention for KA dementia family caregivers.

Methods : Participant recruitment began in August 2025. Strategies emphasized culturally and linguistically matched research staff and partnerships with the KA community organizations and networks. Eligible individuals are: (1) ≥ 18 years old; (2) Korean or KA; (3) the primary family caregiver of a KA individual with dementia ($\geq$ six months of caregiving); (4) provide home-based care ($\geq$ eight hours/week); and (5) able to access the internet via a computer, tablet, or smartphone.

Results : As of June 2026, 31 individuals expressed interest in study participation. More than half ($n=17$, 54.8%) were referred through KA community organizations, Korean clinicians, or other research studies. Approximately one-third ($n=9$, 29%) learned about the study through informational sessions at KA community centers and churches. Additional individuals were referred through word-of-mouth ($n=3$, 9.7%) or learned about the study through study flyers ($n=2$; 6.5%). Of the 31 individuals who expressed interest, 18 (58%) were eligible. Of those eligible, 9 (50%) enrolled in the study. Among eligible individuals who did not enroll ($n=9$), five declined participation, and four were lost to follow-up.

Conclusions : Recruitment required substantial community engagement and trust-building efforts. KA community organizations, clinicians, and existing research networks were the primary sources of participant referrals. Future research should explore factors influencing participation and non-participation to inform recruitment strategies for culturally responsive interventions among KA dementia family caregivers.

Keywords : Caregiving, Dementia, Family, Korean American, Recruitment



Factors Associated with Healthy Aging among Community-Dwelling Older Adults

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Purpose : The purpose of this study was to examine the relationships among aging attitude, social capital, access to medical services, and healthy aging, and to identify factors associated with healthy aging among community-dwelling older adults.

Methods : Data were collected from 202 community-dwelling older adults aged 65 years and older between October 14 and November 21, 2025. at senior welfare centers, senior centers, and religious facilities located in Jeonbuk Special Self-Governing Province. Data were analyzed using descriptive statistics, independent t-test, one-way ANOVA, Pearson's correlation coefficients, and multiple regression analysis.

Results : The mean aging attitude score was 3.16 ± 0.46 out of 5, and the mean social capital score was 3.13 ± 0.54 . The average scores for hospital accessibility and convenience were 7.02 ± 2.79 and 6.72 ± 2.82 , respectively. The mean healthy aging score was 3.41 ± 0.57 out of 5. Social capital ($\beta = .341$, $p < .001$), access to medical services ($\beta = .288$, $p < .001$), and not engaging in regular exercise ($\beta = -.407$, $p = .004$) were identified as significant factors associated with healthy aging. The regression model was statistically significant ($F = 10.469$, $p < .001$) and explained 52.0% of the variance in healthy aging (Adj. $R^2 = .520$).

Conclusions : The findings suggest that healthy aging is shaped by both individual health behaviors and broader social and environmental resources. Efforts to promote healthy aging among community-dwelling older adults should therefore adopt a multidimensional approach that enhances opportunities for social participation and improves access to healthcare services.

Keywords : Attitude toward Aging, Social Capital, Access to Medical Services, Healthy Aging



Health Trajectories of Korean Adolescents Through the COVID-19 Pandemic: Evidence from School Closure, Reopening, and Recovery Phases

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Purpose : The COVID-19 pandemic substantially altered adolescents' daily lives through prolonged school closures and subsequent reopening. Although numerous studies have documented the immediate impact of the pandemic, less is known about how adolescent health evolved during the transition back to normal schooling. This study examined phase-specific changes in health behaviors and mental health among Korean adolescents across the pandemic and recovery periods.

Methods : This study analyzed nationally representative data from the Korea Youth Risk Behavior Survey collected between 2018 and 2024 (N = 376,066). Four phases were defined: pre-pandemic (2018–2019), pandemic (2020–2021), transition (2022), and post-pandemic (2023–2024). Outcomes included substance use, dietary behaviors, physical activity, obesity, mental health, violence-related injury, and sexual experience. Weighted prevalence estimates and multivariable logistic regression analyses were conducted.

Results : Several health indicators changed substantially across pandemic phases. Current smoking decreased from 6.4% before the pandemic to 3.8% in the post-pandemic period, while alcohol use declined from 15.6% to 10.2%. In contrast, unhealthy dietary patterns worsened, with breakfast skipping increasing from 34.5% to 41.6% and daily fruit consumption declining from 20.7% to 17.4%. Obesity prevalence increased from 10.9% to 12.2%, despite improvements in physical activity following school reopening. Mental health indicators showed a distinctive pattern, improving during school closure periods but deteriorating during the transition back to in-person schooling. Suicidal ideation increased from 11.6% to 14.0%, and both violence-related injury and sexual experience became more prevalent after reopening.

Conclusions : Recovery from the COVID-19 pandemic was uneven across health domains. While substance use remained below pre-pandemic levels, unfavorable dietary behaviors, obesity, and mental health concerns persisted or worsened after school reopening. These findings suggest that the transition period following major societal disruptions represents a critical opportunity for school-based prevention efforts and underscores the need for sustained, multidimensional health promotion strategies for adolescents.

Keywords : Adolescents, School health, COVID-19, Mental health, Health behaviors, School reopening



Social Inequalities Across the Hypertension Care Cascade in Korean Adults

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Purpose : Hypertension remains a major contributor to cardiovascular morbidity and mortality worldwide. While socioeconomic disparities in hypertension are well documented, less is known about how age, sex, and income jointly shape inequalities across different stages of hypertension management. This study investigated intersectional disparities in hypertension prevalence, awareness, treatment, and blood pressure control among Korean adults.

Methods : This cross-sectional study analyzed data from 11,762 adults aged 19 years and older who participated in the 2023–2024 Korea National Health and Nutrition Examination Survey. Weighted estimates of hypertension prevalence, awareness, treatment, and control were calculated. Differences according to age group, sex, and household income were assessed using Rao–Scott chi-square tests and survey-weighted logistic regression models. Interaction effects among sociodemographic factors were also examined.

Results : The weighted prevalence of hypertension was 30.6%. Among individuals with hypertension, 77.5% were aware of their condition, 93.5% received treatment, and 77.8% achieved blood pressure control. Hypertension was more prevalent among older adults, men, and those with lower household income (all $p < .001$). Awareness was primarily influenced by age, whereas treatment differed according to age and sex. No significant independent association between income and treatment was observed. However, a significant interaction between sex and income emerged for blood pressure control ($p = .002$). Women with lower income levels exhibited substantially lower control rates than their higher-income counterparts, while income-related differences among men were relatively modest.

Conclusions : Although disparities diminished at the awareness and treatment stages, inequalities persisted in blood pressure control, particularly among socioeconomically disadvantaged women. Targeted and equity-oriented interventions are needed to improve long-term hypertension management and reduce persistent gaps in cardiovascular health outcomes.

Keywords : hypertension, continuum of care, health inequity, Adults



Gender sensitivity and sexual assertiveness as moderators of the relationship between depression and cyber dating violence among college students

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Purpose : This study examined the impact of depression on the victimization and perpetration of cyber dating violence (CDV) among college students as well as the moderating effects of gender sensitivity and sexual assertiveness on this relationship.

Methods : This cross-sectional, descriptive correlational study involved an online survey of 208 university students aged 19 years or older. The instruments used for measurement were the Center for Epidemiologic Studies Depression Scale (CES-D), Electronic Violence in a Partner Alliance (e-VPA), Gender Sensitivity Scale, and Sexual Assertiveness Scale. Data were analyzed using SPSS 23.0 and the Hayes PROCESS macro (version 4.0), employing descriptive statistics, correlation analysis, t-tests, ANOVA, and moderated regression analysis.

Results : Depression was significantly and positively correlated with both CDV victimization ($r=.508$, $p<.001$) and perpetration ($r=.485$, $p<.001$). In the gender sensitivity model, depression significantly predicted victimization ($B=0.54$, $p<.001$) and perpetration ($B=0.50$, $p<.001$), and the depression $\times$ gender sensitivity interaction was significant for both victimization ($B=-0.01$, $p<.001$) and perpetration ($p<.001$). In the sexual assertiveness model, depression also significantly predicted victimization ($B=0.41$, $p<.001$) and perpetration ($B=0.54$, $p<.001$), and the depression $\times$ sexual assertiveness interaction was significant for victimization ($B=-0.01$, $p=.004$). The Johnson–Neyman analysis identified protective threshold levels for both moderators.

Conclusions : This study empirically demonstrated that an individual's gender identity and relationship competence function as pivotal protective factors in the process by which depression, a mental health risk factor, leads to CDV. Strategies to prevent CDV should not be confined to mental health interventions but should require an integrated approach incorporating the enhancement of gender sensitivity and sexual assertiveness. These findings offer practical evidence for the development of CDV prevention and intervention programs targeting college students.

Keywords : cyber dating violence, depression, gender sensitivity, moderation, sexual assertiveness



Differential Associations of Self-Reported Health Literacy with Glycemic, Lipid, and Psychological Outcomes in Korean Adults with Diabetes: Using KNHANES 2023–2024

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Purpose : Health literacy is an important determinant of self-management and health outcomes in chronic disease. However, population-based evidence is limited regarding its independent associations with glycemic, lipid, and psychological outcomes among Korean adults with diabetes, and whether these associations differ by measurement approach. This study examined the differential associations of self-reported health literacy with multidimensional health outcomes using KNHANES 2023-2024 data.

Methods : Data were obtained from the Korea National Health and Nutrition Examination Survey 2023-2024. The study included 1,876 adults aged 19 years or older with physician-diagnosed diabetes. Health literacy was measured using a self-reported 10-item scale and analyzed as both a continuous score and a categorical variable based on a cut-off score of 30. Four-step hierarchical complex-sample logistic regression analyses were conducted for 10 outcomes: HbA1c, fasting blood glucose, total cholesterol, high-density lipoprotein cholesterol, low-density lipoprotein cholesterol, triglycerides, waist circumference, self-rated health, stress, and anxiety. Sociodemographic, disease-related, and health behavior factors were sequentially adjusted.

Results : In the fully adjusted model, abnormal low-density lipoprotein cholesterol showed a consistent protective association in both measurement forms (categorical aOR=1.45, 95% CI=1.04-2.02; continuous aOR=0.96, 95% CI=0.94-0.99). Abnormal high-density lipoprotein cholesterol was significant only in the categorical model (aOR=1.37, 95% CI=1.01-1.84), suggesting a threshold effect. High-risk anxiety symptoms were significant only in the continuous model (aOR=0.93, 95% CI=0.88-0.98), suggesting a dose-response effect. Neither HbA1c nor fasting blood glucose was significantly associated with health literacy.

Conclusions : Among Korean adults with diabetes, health literacy was more strongly associated with lipid profiles and anxiety than with glycemic indicators. Reporting both continuous and categorical health literacy measures may improve interpretation of health literacy effects.

Keywords : anxiety, complex sample analysis, health literacy, LDL-cholesterol, type 2 diabetes mellitus



Dementia versus mild cognitive impairment: text mining evidence for separating two populations in AI-nursing research

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Purpose : In artificial intelligence-based nursing research, the scarcity and imbalance of dementia data have driven a common practice of merging dementia and mild cognitive impairment into a single group. Yet the two share only a superficial similarity in cognitive decline, differing fundamentally in pathophysiology and prognosis. This study applied text mining to artificial intelligence-related literature to examine whether the two conditions are treated as distinct knowledge structures in scholarly discourse.

Methods : Titles and abstracts of 349 studies retrieved from seven databases (CINAHL, PubMed, Web of Science, Cochrane Library, RISS, KISS, and KMBASE) between January 2021 and December 2025 were analyzed using Python. After frequency and term frequency-inverse document frequency analysis, Word2Vec semantic embedding separated clusters by cosine similarity, followed by Latent Dirichlet Allocation topic modeling. Cluster validity was assessed using the Silhouette Coefficient and an independent samples t-test.

Results : The two domains were statistically significantly separated (t equals 4.967, p less than .001), with a Silhouette Coefficient of 0.1369. Mean within-cluster similarity was positive for dementia (0.1554) but negative for mild cognitive impairment (negative 0.0500). The dementia cluster centered on multidisciplinary care management and safety (collaboration, agitation, sensor), whereas the mild cognitive impairment cluster focused on neurological screening and functional assessment (surgery, gait, transformer).

Conclusions : Dementia and mild cognitive impairment form statistically distinguishable knowledge structures with fundamentally different thematic orientations. Whether to pool or separate populations should follow the clinical question, not data-collection convenience. Pooling suits shared vascular risk or broad screening, but separation is essential for precise early detection, intervention assessment, or condition-specific artificial intelligence models.

Keywords : Artificial intelligence, Dementia, Mild cognitive impairment, Text mining



The Semantic Position of Caregivers in AI-Based Dementia Nursing Research: A Word2Vec Embedding and Hierarchical Clustering Analysis

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Purpose : Dementia is incurable and progressive, leaving patients unable to manage daily life on their own, so caregivers play a clinically essential role in the patient's care. Yet how caregivers are positioned within artificial intelligence-based dementia nursing research remains unexamined. Using 'caregiver' as a semantic anchor, this study mapped the keywords most closely associated with it and the dimensions these keywords form.

Methods : Titles and abstracts of 349 artificial intelligence-based dementia nursing studies from seven databases (CINAHL, PubMed, Web of Science, Cochrane Library, RISS, KISS, and KMBASE) (January 2021 to December 2025) were analyzed. A Skip-gram Word2Vec model was trained, and the 20 keywords closest to 'caregiver' by cosine similarity were extracted. Two researchers then traced each keyword back to its source studies, and Ward hierarchical clustering yielded the research dimensions.

Results : The mean cosine similarity of random word pairs was 0.1492, whereas the top 20 keywords ranged from 0.3114 to 0.5204. The keywords most strongly associated with 'caregiver' were transition (0.4493) and burden (0.4402). Hierarchical clustering then grouped these keywords into three dimensions, centered respectively on psychosocial burden, clinical care transition and safety, and technology-driven intervention.

Conclusions : The strongest associations with 'caregiver' were transition and burden, suggesting that caregivers may be elements affecting the clinical course of patients with dementia. Furthermore, the caregiver-related keywords were structured into three dimensions, namely psychosocial burden measurement, clinical care transition and safety, and technology-driven intervention, indicating that caregivers are addressed across multiple aspects rather than in a single position. Because dementia is difficult to cure and hard for patients to manage on their own, caregivers may be a variable that should be considered together with the patient in artificial intelligence-based dementia research, and researchers need to account for the influence of caregiver-related variables at the model design stage.

Keywords : Artificial intelligence, Caregivers, Dementia, Text mining



Multidimensional Factors Associated with Prefrailty Among Older Korean Women Living Alone

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Purpose : This study aimed to examine the multidimensional and hierarchical contributions of factor domains associated with prefrailty among community-dwelling older Korean women living alone. The study focused on which dimensions of factors contributed to the explanation of prefrailty.

Methods : A cross-sectional secondary analysis was conducted using data from the 2023 National Survey of Older Koreans. The analytic sample included 2,198 women aged 65 years or older who lived alone and were classified as either robust or prefrail according to the Korean version of the FRAIL scale. Candidate factors were organized into four conceptual domains: sociodemographic, health-related, health behavioral, and psychosocial and environmental factors. Hierarchical logistic regression analyses were performed by sequentially entering these domains across four models. Changes in model discrimination and model fit were compared at each step to assess the incremental contribution of each domain.

Results : Model discrimination, assessed using the concordance statistic, increased from 0.61 in the sociodemographic model to 0.73 after the addition of health-related factors. The subsequent inclusion of health behavioral factors produced only a modest improvement in discrimination, whereas the addition of psychosocial and environmental factors yielded negligible further gain and worsened overall model fit. In the fully adjusted model, prefrailty was independently associated with older age, cognitive impairment, fall experience, poorer self-rated health, dependency in instrumental activities of daily living, nutritional risk, poor sleep quality, physical inactivity, and depressive symptoms. In contrast, most sociodemographic and psychosocial and environmental factors were not independently retained after adjustment.

Conclusions : Among community-dwelling older Korean women living alone, prefrailty was explained primarily by health-related and behavioral factors, while psychosocial and environmental factors added limited independent explanatory value after adjustment. These findings suggest that health-related and behavioral characteristics should be prioritized when assessing and understanding prefrailty in this population.

Keywords : Frailty, Prefrailty, Older women, Living alone, Health-related factors, Korea



A Qualitative Study of Healthcare Utilization Among Individuals with Developmental Disabilities in South Korea Using the Concept of Candidacy

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Purpose : Despite policy efforts to improve healthcare accessibility for individuals with disabilities in South Korea, those with developmental disabilities continue to face substantial difficulties in routine healthcare use. This study applied the concept of candidacy to examine how healthcare access is constructed in practice for this population, attending to the relational and institutional processes through which access is enabled or denied.

Methods : Three focus group interviews were conducted with physicians (n=4), registered nurses and dental hygienists (n=4), and informal carers (n=3). Data were analyzed using a hybrid deductive-inductive approach organized around the seven domains of the candidacy framework.

Results : Analysis across the seven candidacy domains yielded the following themes: carer-mediated symptom interpretation (identification); anticipatory navigation in the absence of reliable information (navigation); repeated institutional refusal and service ambiguity (permeability); displaced voice of individuals with developmental disabilities in carer-mediated encounters (appearances); experiencedependent assessment without standardized protocol (adjudications); carer-facilitated negotiation of clinical cooperation (offers and resistance); and compounding structural constraints including time pressure, fragmented records, and sensory-hostile environments (operating conditions). Across all domains, a single overarching pattern was evident: the institutional work of enabling access had been systematically delegated to informal carers.

Conclusions : We term this configuration delegated candidacy. In contrast to Lavery et al.'s (2025) mediated candidacy, in which formal intermediaries absorb the burden of access, delegated candidacy describes what occurs in their absence: access becomes contingent on individual carers' capacity, itself shaped by social capital rather than clinical need. Improving healthcare access for this population requires coordinated attention to clinical practice, professional training, communication support, and community-level infrastructure.

Keywords : Concept of candidacy, Healthcare-access, Intellectual disabilities, Qualitative



Cancer Screening and Suicidal Behavior Among Korean Adults: An Overlap-Weighted Analysis of Health-Related Predictors and Effect Heterogeneity

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Purpose : This study examined the association between cancer screening participation and suicidal behavior among Korean adults, compared health-related predictors by screening status, and assessed effect heterogeneity using the ratio of odds ratios (ROR).

Methods : Data were obtained from the 2017 and 2021 Korea Community Health Survey. A total of 202,369 adults without missing key variables were included. Analyses accounted for the complex survey design. Propensity scores for cancer screening were estimated using sociodemographic covariates, including age, sex, marital status, working status, income, and education. Average Treatment Effect in the Overlap population (ATO) weights were combined with survey weights; extreme weights were trimmed and normalized. Covariate balance was assessed using standardized mean differences. Survey-weighted logistic regression examined the association between screening and suicidal behavior. Group-specific models and interaction terms were used to identify predictors and test effect heterogeneity, with FDR adjustment.

Results : After overlap weighting, all covariates achieved adequate balance (standardized mean difference <0.1), with an effective sample size of 91,151. The screened and non-screened groups included 128,208 and 74,161 individuals, respectively. Cancer screening was inversely associated with suicidal behavior (OR=0.82, 95% CI=0.78–0.87, $p<0.001$). In group-specific analyses, depression (screened OR=10.03; non-screened OR=9.04) and stress (screened OR=2.20; non-screened OR=1.98) were strong risk factors in both groups, whereas better subjective health was protective (screened OR=0.54; non-screened OR=0.56). Effect heterogeneity was significant only for stress after FDR correction (ROR=1.13, 95% CI=1.05–1.22, $p=0.001$, FDR=0.020), indicating a stronger stress–suicidality association among screened individuals.

Conclusions : Cancer screening participation was associated with lower odds of suicidal behavior. Screening encounters may provide opportunities for brief stress screening, suicide risk assessment, and stepped referral to mental health services.

Keywords : Early Detection of Cancer, Health Behavior, Preventive health services, Suicidal ideation, Suicide attempt



Association between Sedentary Time and Mental Health among Korean Adult Workers: Data from the 2024 Korea National Health and Nutrition Examination Survey

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Purpose : Sedentary behavior, defined as low-energy activities performed while sitting or reclining during waking hours, adversely affects adult health along with physical inactivity. As sedentary time increases with changing work environments, prolonged sitting may reduce social interaction and physical activity, contributing to depressive symptoms, anxiety symptoms, and perceived stress. Workers are particularly vulnerable due to prolonged occupational sitting. This study examined the associations between sedentary time and depressive symptoms, anxiety symptoms, and perceived stress among Korean adult workers.

Methods : This secondary analysis used data from the 2024 Korea National Health and Nutrition Examination Survey. Participants were 2,729 employed adults aged 19–64 years. Daily sedentary time was categorized as less than 8 hours, 8 to less than 11 hours, and 11 hours or more, based on previous studies. Mental health indicators included depressive symptoms (PHQ-9), anxiety symptoms (GAD-7), and high perceived stress. Complex-sample logistic regression was performed, applying sampling weights, stratification, and clustering.

Results : After adjusting for sociodemographic characteristics, workers with sedentary time of 11 hours or more had significantly higher odds of anxiety symptoms than those with sedentary time of less than 8 hours (AOR = 1.377, 95% CI = 1.045–1.814, $p = 0.023$). They also had significantly higher odds of high perceived stress (AOR = 1.328, 95% CI = 1.053–1.674, $p = 0.017$). Although the odds of depressive symptoms tended to increase with longer sedentary time, the association was not statistically significant (AOR = 1.408, 95% CI = 0.854–2.322).

Conclusions : Among Korean adult workers, prolonged sedentary behavior was associated with anxiety symptoms and high perceived stress. These findings suggest that reducing sedentary time during work, along with promoting physical activity, may help improve workers' mental health. Workplace-based programs encouraging regular movement and breaks are needed for those who sit for long hours. However, the cross-sectional design limits causal interpretation.

Keywords : anxiety, mental health, sedentary time, stress, workers



Factors Associated with Health Literacy among Family Members of People with Dementia Based on Andersen's Behavioral Model : Analysis of the 2025 Community Health Survey

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Purpose : As the aging population and the number of patients with dementia have increased in Korea, family members of patients with dementia are required to understand and utilize various types of health information during the caregiving process. Therefore, this study was conducted to identify the predisposing, enabling, and need factors affecting health literacy among family members of patients with dementia based on Andersen's Behavioral Model using data from the 2025 Community Health Survey.

Methods : Design and data : Secondary analysis of the 2025 Korea Community Health Survey, Participants : 24,743 adults who reported having a family member diagnosed with dementia Outcome : Health literacy, Explanatory variables : Predisposing, enabling, and need factors based on Andersen's behavioral model, Analysis : Survey-weighted frequencies, Rao-Scott chi-square tests, and multivariable logistic regression were conducted. The regression analysis included 20,024 participants with complete data. SAS version 9.4 was used to account for the complex sampling design.

Results : Among 24,743 participants, 7,348 had limited health literacy (weighted prevalence: 25.6%). Significant factors were age 65-74 years (aOR=1.16), age ≥ 75 years (aOR=2.80), middle school education or lower (aOR=2.77), low household income (aOR=1.28), poor self-rated health (aOR=1.42), mobility limitation (aOR=1.39), usual activity limitation (aOR=1.59), pain or discomfort (aOR=1.17), fall experience (aOR=1.23), no moderate-intensity physical activity (aOR=1.11), and high stress (aOR=1.27).

Conclusions : Limited health literacy among family members of people with dementia reflected both social vulnerability and health-related needs. Older age, lower educational level, and lower household income remained significantly associated with limited health literacy after adjustment. Poor self-rated health and functional limitations were also associated with an increased likelihood of limited health literacy. Nurses should provide information in language and formats appropriate for family members' age and educational level. Tailored interventions should also address financial difficulties and functional health problems.

Keywords : family members of people with dementia, health literacy, Andersen's behavioral model, Korea Community Health Survey



Predictors of Cultural Nursing Competence among Nursing Students

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Purpose : This study aimed to examine the levels of cultural nursing competence, multicultural experience, multicultural acceptance, and multicultural awareness among nursing students, and to identify factors influencing cultural nursing competence.

Methods : A descriptive correlational study design was used. Participants were 325 nursing students recruited by convenience sampling from one university in D City. Data were collected from September 2 to September 27, 2025, using structured self-report questionnaires. Data were analyzed using descriptive statistics, t-tests, ANOVA, Pearson's correlation coefficients, and stepwise multiple regression analysis with SPSS/WIN 21.0.

Results : Cultural nursing competence differed significantly according to gender ($t=2.276$, $p=.023$), academic year ($F=12.454$, $p<.001$), having foreign friends ($t=-2.204$, $p=.028$), overseas residence experience ($t=-1.966$, $p=.049$), foreign language communication ability ($t=-3.152$, $p=.002$), foreign language proficiency ($F=6.486$, $p<.001$), completion of multicultural-related courses ($t=-2.402$, $p=.017$), perceived need for multicultural education ($t=-4.575$, $p<.001$), and interest in multicultural populations ($F=8.834$, $p<.001$). The mean score for cultural nursing competence was 3.16 ± 0.55 . Cultural nursing competence was positively correlated with multicultural experience ($r=.278$, $p<.001$), multicultural acceptance ($r=.412$, $p<.001$), and multicultural awareness ($r=.353$, $p<.001$). Significant predictors of cultural nursing competence were multicultural acceptance ($\beta=.345$, $p<.001$), academic year ($\beta=.269$, $p<.001$), foreign language proficiency ($\beta=.158$, $p=.001$), multicultural experience ($\beta=.156$, $p=.002$), and interest in multicultural populations ($\beta=.123$, $p=.015$). Multicultural acceptance was the strongest predictor. The regression model explained 32.5% of the variance in cultural nursing competence ($F=32.146$, $p<.001$).

Conclusions : Promoting multicultural acceptance, expanding multicultural experiences, and improving foreign language proficiency may be important strategies for enhancing cultural nursing competence among nursing students. Nursing colleges should develop educational programs that enhance openness toward diverse cultures, provide multicultural experiences, and strengthen foreign language and communication competencies. These efforts may help nursing students provide culturally competent care in increasingly diverse healthcare settings.

Keywords : Cultural nursing competence, multicultural acceptance, multicultural awareness, multicultural experience



Core Tasks of Home-Visit Nursing for People with Disabilities

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Purpose : This study aimed to identify and define the core professional duties and nursing tasks required in home-visit nursing for people with disabilities (PWD). By developing a standardized task model, the study sought to provide an empirical foundation for competency development, clinical guidelines, and policy refinement within South Korea's Primary Care Plan for People with Disabilities (PCPPD).

Methods : A qualitative-led, multi-stage exploratory design was employed. First, semi-structured in-depth interviews were conducted with experienced home-visit nurses to identify preliminary task elements. Interview data were analyzed using inductive thematic analysis. Second, a panel of five nursing and policy experts evaluated the relevance and clarity of the tasks using the Content Validity Index (CVI). Finally, field feasibility was assessed through feedback from 73 practicing nurses regarding the frequency, importance, and difficulty of each task within disability-focused home-visit nursing practice.

Results : The final model consisted of three core duties and fourteen specific tasks. The identified duties were: (1) establishing the environment and relationship foundation, (2) disability-centered professional home care, and (3) gatekeeping for comprehensive health systems. Environmental assessment and therapeutic relationship-building were identified as essential clinical competencies rather than preliminary activities. While routine nursing procedures were performed most frequently, disability-specific tailored interventions and individualized health education were perceived as more important and difficult. Coordination and referral activities were less frequently performed but were considered critical for continuity of care and integration between healthcare and community welfare systems. The findings demonstrated that the complexity of disability-focused home nursing lies primarily in contextual clinical judgment, adaptive intervention, and interorganizational coordination.

Conclusions : Home-visit nursing for PWD represents a multidimensional professional practice extending beyond routine clinical care to include ecological assessment, adaptive care, and system-level coordination. These findings provide a practical basis for standardizing nursing roles, developing specialized educational programs, and refining reimbursement and policy systems to strengthen community-based disability healthcare services.

Keywords : Home Care Services; Disabled Persons; Community Health Nursing; Case Management; Chronic Disease; Health Services Accessibility



Aging-in-Place Service Needs Profiles and Fall Risk in Community-Dwelling Older Adults with Chronic Conditions: A Latent Class Analysis

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Purpose : Falls are a leading cause of injury and functional decline among older adults, yet conventional variable-centered approaches may obscure how heterogeneous configurations of care needs relate to fall risk. The aim of this study was to apply latent class analysis (LCA) to identify distinct subgroups of community-dwelling older adults with chronic conditions based on their aging in place (AIP) service needs, and to examine the association between subgroup membership and fall experience.

Methods : Data were drawn from the 2023 National Survey of Older Koreans, a nationally representative cross-sectional survey (N = 6,764). Six home care service need items reflecting AIP domains were included as LCA indicators. Determination of the best number of latent classes was based on standard comparison of fit statistics (AIC, BIC, saBIC, Entropy, AvgPost). Unadjusted and covariate-adjusted binary logistic regression models were used to examine associations between the latent class model and past-year fall experience, adjusting for sociodemographic and health-related covariates, including ADL/IADL dependency, polypharmacy, nutritional risk, and cognitive decline.

Results : A four-class model fit best: service-independent (19.5%), multiple-domain service needs (32.1%), intensive medical–physical care needs (8.4%), and comprehensive care-dependent (39.9%). Fall risk did not increase monotonically with need intensity. After full adjustment, only the intensive medical–physical care needs class showed significantly higher odds of falls than the service-independent class (adjusted odds ratio = 1.68; 95% confidence interval: 1.12–2.53), whereas associations for the remaining classes were attenuated to non-significance.

Conclusions : A small subgroup had an independently increased risk of falls that was not fully identified by composite dependency measures. Systematic assessment of home care service needs may help guide tailored fall-prevention strategies within integrated community care systems supporting AIP.

Keywords : Accidental falls, Aged, Aging in place, Latent class analysis



Association between Allergic Diseases and Frailty among Middle-aged and Older Korean Adults: Evidence from the Korea National Health and Nutrition Examination Survey

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Purpose : Allergic diseases are chronic inflammatory disorders characterized by persistent type 2 inflammation, which may contribute to frailty through systemic inflammation and immune dysregulation. This study aimed to explore the association between allergic diseases and frailty among middle-aged and older Korean adults using nationally representative survey data.

Methods : This cross-sectional secondary analysis used data from the Korea National Health and Nutrition Examination Survey (KNHANES) VI–IX (2014–2024). Adults aged 45+ years were included. Allergic diseases were defined as physician-diagnosed asthma, allergic rhinitis, or atopic dermatitis. Frailty was assessed using a modified 32-item Frailty Index based on the deficit accumulation model proposed by Rockwood and Mitnitski. Participants were classified as robust ($FI \leq 0.15$), pre-frail (0.15–0.25). For the regression analyses, pre-frail and frail participants were combined into a single group and compared with the robust group. Binary multivariable logistic regression analyses were performed to examine the association between allergic diseases and frailty after adjusting for potential confounders.

Results : Among the 5,284 participants included in the final analysis, 1,053 (19.9%) were classified as frail, 1,656 (31.3%) as pre-frail, and 2,575 (48.7%) as robust. In the final adjusted model, allergic diseases were significantly associated with frailty ($OR=1.51$, 95% $CI=1.32-1.74$, $p<0.001$). In disease-specific analyses, asthma ($OR=1.84$, 95% $CI=1.49-2.28$), allergic rhinitis ($OR=1.38$, 95% $CI=1.17-1.63$), and atopic dermatitis ($OR=2.03$, 95% $CI=1.37-2.99$) remained significantly associated with frailty (all $p<0.001$).

Conclusions : Findings from this study show that allergic diseases are independently associated with frailty among middle-aged and older Korean adults. These findings highlight the importance of frailty assessment in individuals with allergic diseases.

Keywords : Allergic diseases, Frailty, Middle-aged and older adults



Trends in Health Disparities among North Korean Defectors: A Repeated Cross-Sectional Analysis of the Social Integration Survey, 2018–2024

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Purpose : Despite persistent health disparities among North Korean defectors (NKDs) in South Korea, longitudinal multi-domain analyses using nationally representative data remain absent. This study analyzed trends in subjective health status, morbidity, healthcare utilization, unmet needs, stress, and suicidal ideation across four biennial time points (2018–2024), and assessed health inequality relative to the general population.

Methods : A repeated cross-sectional secondary data analysis was conducted using the Health and Healthcare section of the Social Integration Survey of North Korean Defectors (Korea Hana Foundation; 2018: n = 2,710; 2020: n = 2,462; 2022: n = 2,198; 2024: n = 2,068; total N = 9,438). Data were extracted across six domains: subjective health status, health behaviors, morbidity, healthcare utilization, unmet healthcare needs, and mental health. Health inequality was assessed by comparing NKD estimates with concurrent Statistics Korea Social Survey benchmarks.

Results : The proportion of NKDs reporting poor health increased from 30.5% (2018) to 35.0% (2024), widening the gap with the general population from 15.4 to 23.8 percentage points. Morbidity rose from 34.0% to 40.6%, particularly among women (44.6%) and adults ≥60 years (66.8%), despite a 15.4 percentage-point improvement in health screening uptake. Unmet healthcare needs declined overall (18.5% to 14.2%); however, economic barriers followed a U-shaped trajectory (48.4% 32.4% 39.2%), coinciding with COVID-19 cost-support policy changes. Daily life stress declined from 62.2% to 56.8% yet remained 18.4 percentage points above general population levels. Suicidal ideation among male NKDs increased from 7.3% to 10.0%, and the NKD–general population gap re-widened to 8.0 percentage points.

Conclusions : Health inequalities among NKDs persist and worsen despite prolonged resettlement. The paradox of improving screening alongside rising morbidity, U-shaped economic barriers to healthcare, and pronounced increase in male suicidal ideation underscore the need for chronic disease management continuity, gender-sensitive mental health interventions, sustained support for older adults, and evidence-based nursing education tailored to this population.

Keywords : North Korean Defectors, Health Disparities, Repeated Cross-Sectional Study, Unmet Healthcare Needs, Suicidal Ideation, Mental Health



Factors Associated with Self-Management Behaviours in Adults with Pre-Dialysis Chronic Kidney Disease: An Information–Motivation–Behavioural Skills Model-Based Approach

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Purpose : This study aimed to examine Information–Motivation–Behavioural Skills model-related factors associated with self-management behaviours among adults with pre-dialysis chronic kidney disease (CKD) and to identify modifiable targets for nurse-led outpatient self-management support.

Methods : A cross-sectional, descriptive correlational study was conducted using self-reported questionnaires from a convenience sample of 234 patients with pre-dialysis CKD, stages three to five, attending an outpatient nephrology clinic at a university hospital in South Korea. The questionnaires evaluated kidney-related knowledge (Information), health attitudes and perceived social support (Motivation), self-efficacy (Behavioural Skills), and self-management behaviours. Hierarchical multiple regression analysis was conducted to identify factors associated with self-management behaviours.

Results : In the final hierarchical regression model, being a former smoker ($\beta = .315$, $p < .001$), self-efficacy ($\beta = .291$, $p < .001$), absence of kidney-related symptoms ($\beta = .283$, $p < .001$), perceived social support ($\beta = .264$, $p < .001$), never having smoked ($\beta = .232$, $p = .014$), and having a college education or higher ($\beta = .185$, $p = .001$) were significantly associated with self-management behaviours. Kidney-related knowledge and health attitudes were not independently associated with self-management behaviours. The model explained 42.7% of the variance in self-management behaviours ($R^2 = .427$, adjusted $R^2 = .398$).

Conclusions : These findings suggest that knowledge-focused education should be complemented by outpatient nursing strategies that enhance self-efficacy, mobilise social support, and provide tailored support for patients who smoke, experience kidney-related symptoms, or have lower educational attainment. Self-efficacy and perceived social support are clinically relevant targets for nurse-led outpatient self-management support for adults with pre-dialysis CKD.

Keywords : Chronic kidney disease; Pre-dialysis; Self-efficacy; Self-management



An integrated program with robot-assisted, peer-led health promotion, and parental engagement to promote anti-cannabis messages in parents and children

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Purpose : Youngsters are found to have misconceptions about cannabis. Evidence shows that involving parents, robots, and peers may effectively facilitate health promotion in youngsters. The effect of an integrated program with robot-assisted, peer-led health promotion, and parental engagement, in parents, children, and peers, remains scarce.

This study aimed to examine the effectiveness of such integrated program in promoting cannabis-related knowledge and reducing permissive attitudes toward cannabis use among parents, children, and peers (nursing students).

Methods : The study adopted a pre-post design and was implemented in Hong Kong from 2023 to 2025. The integrated program included 2 phases. In phase 1, nursing students were trained as Anti-Cannabis Nursing Ambassadors to deliver robot-assisted educational workshops to parent-child dyads. In phase 2, trained dyads from phase 1 were invited to join a video competition to promote anti-cannabis messages by co-producing anti-cannabis videos. The numbers of workshops, videos, and trained parent-child dyads, and video hit rates, were calculated using descriptive statistics. Knowledge of and attitudes toward cannabis abuse were evaluated in parents, children, and nursing students using pre- and post-intervention questionnaires and analyzed using paired t-tests.

Results : A total of 52 nursing students were trained as Anti-Cannabis Nursing Ambassadors. Fifteen educational workshops were delivered to 185 parent-child dyads. Additionally, 105 anti-cannabis videos were produced and collectively received 10,787 online views. Significant improvements in cannabis-related knowledge and reductions in permissive attitudes toward cannabis use following the intervention were observed among parents, children, and nursing students ($p < 0.001$).

Conclusions : The integration of robot-assisted, peer-led health promotion, and parental engagement represents a promising strategy for anti-cannabis promotion. This innovative approach effectively improved cannabis-related knowledge and reduced permissive attitudes toward cannabis use in parents, children, and nursing students. Future studies should explore the long-term sustainability and scalability of the integrated programs.

Keywords : Robot, children, adolescents, cannabis, substance abuse, health promotion, parental engagement, peer-led, nursing



Concurrent Vision and Hearing Impairment as a Predictor of Possible Sarcopenia: Evidence from the Korean Longitudinal Study of Ageing

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Purpose : Sensory impairment may contribute to declining physical function in later life, yet longitudinal evidence on the combined effect of vision and hearing impairment on sarcopenia risk remains limited. This study examined whether concurrent vision and hearing impairment predicted incident possible sarcopenia among community-dwelling older adults.

Methods : Data were obtained from Waves 6 to 9 of the Korean Longitudinal Study of Ageing, collected between 2016 and 2022. The study included 2,862 adults aged 60 years or older who had normal handgrip strength at baseline. Concurrent vision and hearing impairment was defined as the presence of both self-reported visual and hearing impairment. Incident possible sarcopenia was defined as newly identified low handgrip strength during follow-up according to the Asian Working Group for Sarcopenia 2019 cutoffs. Cumulative incidence patterns were illustrated using unweighted Kaplan–Meier curves, and adjusted hazard ratios were estimated using complex-sample Cox proportional hazards models.

Results : During the 6-year follow-up, 33.8% of participants developed possible sarcopenia. The cumulative incidence was highest among those with concurrent vision and hearing impairment, reaching 59.9% by 2022. After adjustment for sociodemographic and health-related characteristics, vision impairment alone and hearing impairment alone were not significantly associated with possible sarcopenia. In contrast, concurrent vision and hearing impairment was associated with a higher hazard of developing possible sarcopenia compared with normal sensory function (HR = 1.57, 95% CI = 1.05–2.35).

Conclusions : Concurrent vision and hearing impairment may be an important predictor of incident possible sarcopenia in older adults. Community-based sarcopenia prevention strategies may be strengthened by integrating vision and hearing screening, referral, and sensory management into existing exercise- and nutrition-focused approaches.

Keywords : Aged, Hearing loss, Sarcopenia, Vision disorders



The Mediating Role of Health Self-Efficacy in Health-Promoting Behaviors among Married Immigrant Women: An Information-Motivation-Behavioral Skills Model Approach

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Purpose : Guided by the Information-Motivation-Behavioral Skills model, this study examined factors associated with health-promoting behaviors among married immigrant women and tested whether health self-efficacy mediated the relationships of health literacy, health attitude, and social support with health-promoting behaviors.

Methods : A descriptive cross-sectional study was conducted with 189 married immigrant women recruited from four multicultural family support centers in Jeju, Korea. Data were collected using structured questionnaires between December 2024 and April 2025. Descriptive statistics, independent-samples t-tests, one-way analysis of variance with Scheffé post hoc tests, Pearson's correlation coefficients, hierarchical multiple regression, and bootstrapped mediation analyses were performed.

Results : Health-promoting behaviors were positively correlated with health literacy ($r = .29, p < .001$), health attitude ($r = .38, p < .001$), social support ($r = .38, p < .001$), and health self-efficacy ($r = .62, p < .001$). Adding health self-efficacy to the regression model significantly increased the explained variance ($\Delta R^2 = .085$), yielding an adjusted R^2 of .307. In the final model, health self-efficacy was the only significant predictor of health-promoting behaviors ($\beta = .54, p < .001$). Bootstrapped mediation analyses showed significant indirect associations of health literacy, health attitude, and social support with health-promoting behaviors through health self-efficacy. The indirect effects were 0.144, 0.128, and 0.133, respectively, and all 95% bootstrap confidence intervals excluded zero.

Conclusions : Health self-efficacy appears to be a key behavioral mechanism linking health literacy, health attitude, and social support to health-promoting behaviors among married immigrant women. Community-based nursing interventions should integrate accessible health information and supportive resources with practical strategies that strengthen women's confidence and skills for sustained health behavior change.

Keywords : Emigrants and immigrants, Health behavior, Health literacy, Self efficacy



Effectiveness of Strategies to Improve Lung Cancer Screening Rates

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Purpose : Lung cancer has been the leading cause of cancer death in Taiwan for ten consecutive years. Low-dose CT scan (LDCT) is currently the only internationally validated early lung cancer screening tool, capable of reducing lung cancer mortality. From July to August 2024, our hospital conducted a questionnaire survey of 129 participants, but only 45 actually completed the screening, resulting in a participation rate of only 34.88%. Our aim is to improve the screening rate through process improvements, thereby achieving early diagnosis and increasing the chances of a cure.

Methods : A questionnaire survey was conducted in October 2024 to analyze the reasons for the low participation rate in low-dose CT screening: 1. Inability to promptly identify patients meeting the screening criteria; 2. Restricted examination time slots hindering patient cooperation; 3. Insufficient willingness of medical staff to refer patients. Implementation Strategies: 1. Utilize cross-team information sharing mechanisms to promptly identify eligible patients. 2. Establish green channels and increase examination time slots to reduce the need for patients to make multiple trips to the hospital. 3. Establish individual referral rewards and competition systems to enhance colleagues' motivation to refer patients.

Results : From January to February 2025, 362 eligible cases were identified and referred through information identification, of which 125 met the screening criteria. Ultimately, 109 individuals completed low-dose CT scans, increasing the screening rate from 34.88% to 87.2%. This demonstrates that the information-based early warning and referral mechanism and convenient screening process effectively improved the lung cancer screening rate.

Conclusions : Accurate information identification and simplified processes can accurately screen high-risk groups and quickly complete screening. Reward and competition systems increase referral willingness, thereby achieving the goals of prevention, early detection and early treatment.

Keywords : prevention and health care, lung cancer screening, process simplification



Trajectories of Insomnia Symptoms and Their Association with Depressive Symptoms among Older Adults: A Latent Class Growth Analysis

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Purpose : Insomnia symptoms are an important indicator of health and well-being in older adults. Although previous studies have often focused on insomnia symptoms at a single time point, older adults may experience heterogeneous patterns of insomnia symptoms over time. Therefore, identifying distinct longitudinal trajectories is needed to better understand their association with depressive symptoms. This study aimed to identify distinct trajectories of insomnia symptoms among older adults and examine differences in depressive symptoms across these trajectories.

Methods : This secondary data analysis used data from the 2014–2022 waves of the Health and Retirement Study (HRS), a nationally representative longitudinal study of older adults in the United States. A total of 3,923 adults aged 65 years or older who completed all four sleep items in at least three of the five survey waves were included. Latent class growth analysis (LCGA) was performed to identify insomnia symptom trajectories. Depressive symptom levels were then compared across trajectory classes using one-way analysis of variance (ANOVA), followed by Scheffé post-hoc tests.

Results : Four distinct trajectories of insomnia symptoms were identified: severe (8.3%), high (23.2%), moderate worsening (36.1%), and low worsening (32.4%). Depressive symptom levels differed significantly across the trajectory classes ($F = 256.13, p < .001$). The severe insomnia symptom trajectory class showed the highest levels of depressive symptoms, followed by the high, moderate worsening, and low worsening classes.

Conclusions : These findings highlight the importance of early identification of insomnia symptom trajectories and timely interventions to reduce the risk of depressive symptoms in older adults. Longitudinal screening of sleep patterns may help clinicians develop targeted strategies to mitigate psychological distress in this population.

Keywords : Depression, Insomnia, Latent class analysis, Older adults



Promoting Palliative Care in Rural Areas: A Case Study of a Regional Hospital in Southern Taiwan

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Purpose : Addressing limited healthcare access, information gaps, and rapid population aging in rural areas is critical to ensuring dignified end-of-life and holistic care. This study evaluates the outcomes of a 2025 multidisciplinary initiative promoting palliative care and legal frameworks for dignified, autonomous death (specifically Taiwan's "Three Laws of Dignified Death") at a regional hospital in southern Taiwan. To overcome geographical and informational barriers, the project integrated healthcare teams with local long-term care networks. The goal was to enhance clinical staff's awareness of dignified death and Advance Directives (AD), while deeply rooting these concepts among rural residents and institutionalized older adults to achieve the holistic vision of "aging and passing away with dignity in place."

Methods : From January to December 2025, palliative and home care nurses served as case managers, connecting social work and community health teams. To overcome rural barriers, the nursing team proactively visited senior centers, nursing homes, and clinics, utilizing innovative life-education board games and spiritual relaxation. Professional training on dying symptom assessment and Advance Care Planning (ACP) was provided to hospital staff. Nurses also coordinated with long-term care facilities to establish a seamless transition to home hospice care.

Results : Community outreach (6 sessions, 252 participants) led by nurses resulted in 185 Do Not Resuscitate (DNR) sign-ups, achieving a 73.4% signing rate. Professional training (5 sessions, 241 staff) enhanced ethical clinical judgment. Community and facility sessions reached 102 residents/families and 73 staff, respectively. Crucially, Advance Medical Consulting Team consultations successfully guided 92 individuals to complete and sign their ADs, securing patients' autonomy.

Conclusions : Integrating professional teams and long-term care expands rural hospice networks, raising awareness and bridging information gaps. This heightens providers' sensitivity to terminal patients' needs, fulfilling the holistic care vision of allowing patients to pass away with dignity at home.

Keywords : Palliative Care, Advance Decision, Rural Healthcare.



Factors Affecting Health-Related Quality of Life in Older Adults Aged 65 and Over Based on the Stress-Coping Exchange Model

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Purpose : With rapid population aging worldwide, improving health-related quality of life (HRQoL) among older adults has become a public health priority. Guided by the Transactional Model of Stress and Coping, which posits that cognitive appraisal, coping resources, and emotional responses jointly influence HRQoL, this study examined the independent associations of subjective health perception (a form of cognitive appraisal), health literacy (a coping resource), and anxiety (an emotional response) with HRQoL among community-dwelling Korean older adults.

Methods : This cross-sectional study analyzed data from the 2024 Korea National Health and Nutrition Examination Survey (KNHANES), including 1,662 adults aged ≥ 65 years. HRQoL was assessed using the EQ-5D index, anxiety using the Generalized Anxiety Disorder-7 (GAD-7), health literacy using a validated 10-item KNHANES measure, and subjective health perception using a single-item scale. Hierarchical multiple regression with bootstrapping (5,000 iterations) was conducted.

Results : The mean EQ-5D score was 0.88 ± 0.13 . After adjustment for sociodemographic variables, subjective health perception ($\beta = .31, p < .001$), anxiety ($\beta = -.26, p < .001$), and health literacy ($\beta = .06, p = .015$) were significant predictors, explaining an additional 18% of variance ($\Delta R^2 = .18$; total adjusted $R^2 = .28$).

Conclusions : Subjective health perception, health literacy, and anxiety are key modifiable factors associated with HRQoL, operating through theoretically distinct pathways consistent with the Transactional Model of Stress and Coping. Nursing interventions targeting these domains may effectively improve HRQoL in older adults without requiring additional medical resources.

Keywords : Older adults, Health-related quality of life, Anxiety, Health literacy, EQ-5D



Instruments Measuring Ageism Toward Older Adults: A Systematic Review Based on the COSMIN Guideline

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Purpose : With global population aging, accurately assessing and addressing ageism toward older adults has become increasingly critical. Based on COSMIN guidelines, this systematic review aimed to identify instruments designed to measure non-older adults' attitudes toward older adults and systematically evaluate the methodological quality of their development and psychometric properties to recommend optimal measurement tools for research and clinical practice.

Methods : To locate relevant instruments, a comprehensive search was conducted across eight electronic databases (PubMed, CINAHL, Embase, Web of Science, Scopus, PsycArticles, PQDT, and RISS) up to July 2026. Methodological quality, measurement properties, and overall certainty of evidence were systematically evaluated using the COSMIN risk of bias checklist and updated criteria, followed by a best-evidence synthesis.

Results : Out of 21,605 initial records, 11 studies evaluating 11 unique instruments were ultimately included. Psychometric evaluation successfully established strong empirical support across existing tools: most evaluated instruments demonstrated acceptable internal consistency (8 tools with Moderate certainty) alongside robust construct validity, with convergent and known-groups validity showing Moderate-to-High evidence certainty in tools such as MSASA, SIC, and AAS. Structural validity was confirmed with High certainty for CENVE-R, SIC, and AATOAS, and Moderate certainty for PESS and RAAS. Most notably, CENVE-R demonstrated the highest overall psychometric quality, uniquely achieving positive ratings for both content validity (+, Low certainty) and structural validity (+, High certainty), thereby providing the most comprehensively supported evidence base among all evaluated measures.

Conclusions : Existing ageism instruments offer a valuable and reliable foundation, demonstrating solid construct validity and internal consistency. In particular, CENVE-R is highlighted as the most well-validated instrument and is strongly recommended as the primary option for future research and clinical applications, establishing a promising baseline for future refinements in target populations.

Keywords : Ageism, COSMIN, Measurement properties, Systematic review

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Determinants Influencing the digital technology implementation of nurses in charge of Integrated Health Promotion Programs in metropolitan public health centers in South Korea: Application of Technology Acceptance Model (TAM)

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Purpose : Public health nurses (PHNs) are the backbone of community-based integrated health promotion programs, which are undergoing rapid digital transformation. This study identified the determinants of digital technology implementation among PHNs in South Korea, using the Technology Acceptance Model (TAM) as a theoretical framework.

Methods : A cross-sectional survey was analyzed using a subset of 500 PHNs dedicated to Integrated Community Health Promotion Programs. Demographics, facilitating conditions (FC), perceived usefulness (PU), perceived ease of use (PEU), behavioral intention (BI), and actual digital technology implementation (IM) were assessed. Hierarchical multiple regression was applied in four sequential steps to analyze incremental changes in variance.

Results : The final regression model explained 50.1% of the total variance in PHNs' digital technology implementation ($F=70.517$, $p<.001$). Demographics (age, gender, and career tenure) had no significant effect on implementation (Model 1). However, introducing facilitating conditions (Model 2) explained an additional 28.2% of the variance ($p<.001$). Incorporating TAM core variables (PU and PEU, Model 3) further increased the explained variance by 20.5% ($p<.001$). In the final model (Model 4), perceived usefulness was the strongest predictor ($p<.001$), closely followed by facilitating conditions ($p<.001$), perceived ease of use ($p=.004$), and behavioral intention ($p=.015$).

Conclusions : For PHNs, actual digital implementation is not hindered by age or career length, but is heavily driven by cognitive beliefs about technological utility and organizational support. Public health administrations should prioritize developing nurse-centric, highly useful digital tools and establishing robust technical and educational support infrastructures (facilitating conditions) to maximize digital health integration in community settings.

Keywords : Public health nurse, digital technology implementation, integrated health promotion program, Technology Acceptance Model (TAM)



Social and physical environmental factors associated with antihypertensive medication non-adherence among older adults in South Korea: Based on the 2023 Community Health Survey

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Purpose : This study investigated whether social and physical environmental factors are associated with antihypertensive medication non-adherence among adults aged ≥ 65 years treated for hypertension.

Methods : This cross-sectional study used data from the 2023 Korea Community Health Survey. Among 231,752 participants, 44,822 adults aged ≥ 65 years who reported a hypertension diagnosis and current use of antihypertensive medication were analyzed. Medication non-adherence was defined as taking antihypertensive medication on fewer than 25 days during the past month. Environmental factors included satisfaction with the social and physical environment, social participation, social contact, and unmet healthcare needs. Complex-sample descriptive statistics and multivariable logistic regression were conducted using IBM SPSS Statistics, version 29.0.

Results : The mean age of the participants was 75.45 ± 6.99 years, and 57.0% were women. The weighted prevalence of non-adherence was 0.4%; 15.0% reported unmet healthcare needs and 6.0% had moderate or more severe depressive symptoms. Multivariable logistic regression analysis showed that higher satisfaction with the social and physical environment was associated with a lower odds of medication non-adherence (odds ratio [OR]=0.84, 95% confidence interval [CI]=0.72-0.97), whereas higher levels of social participation were associated with higher odds (OR=1.38, CI=1.08-1.76). These associations were independent of depression, sex, age, household type, economic activity, education, residential area, and unmet healthcare needs. No other variable was significantly associated with non-adherence.

Conclusions : These findings suggest that the social and physical environment in which older adults live may play a more important role than individual sociodemographic, socioeconomic, and emotional characteristics in explaining antihypertensive medication non-adherence. Improving medication adherence among older adults may therefore require community-based support and improvement of the residential environment rather than approaches that target individual behaviour alone.

Keywords : Aged, hypertension, medication adherence, social environment



Equal disease burden, unequal health experience: the social network, not the disease, distinguishes socially isolated older adults

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Purpose : Social isolation affects later-life health, but it is unclear whether isolation increases disease itself or worsens how older adults experience the same disease. This study examined whether social isolation is associated with disease burden or with health experience (self-rated health, depressive mood, and loneliness), whether this association differs by disease burden, and whether walking moderates the relationship between social networks and loneliness.

Methods : This cross-sectional study analyzed 224 community-dwelling adults aged ≥ 65 in Seodaemun-gu, Seoul. Social isolation was defined as a Korean Lubben Social Network Scale-6 (LSNS-6) score below 12. Disease burden was measured as the number of chronic disease categories, and health experience as self-rated health, depressive mood, and loneliness (R-UCLA). Walking was assessed with the Korean Physical Activity Scale for the Elderly. Welch t-tests, chi-square tests, and linear and logistic regression analyses with disease $\times$ isolation and walking $\times$ network interaction terms were performed, adjusting for age, sex, and education.

Results : Overall, 25.9% were socially isolated. The isolated and non-isolated groups did not differ in the number of chronic diseases (2.63 vs. 2.51, $p = .586$). However, after adjustment, social isolation was independently associated with poorer self-rated health ($\beta = .217$, $p < .001$), higher odds of depressive mood (OR = 3.54, 95% CI 1.73–7.24), and greater loneliness ($\beta = .475$, $p < .001$). No disease $\times$ isolation interaction was significant, indicating a main-effect rather than a buffering pattern. Walking was correlated with loneliness, but not after controlling for social networks, and it did not moderate the network–loneliness relationship.

Conclusions : Isolated older adults carried a similar disease burden but reported a poorer health experience, and this disadvantage was additive regardless of disease burden. Community nurses should assess social networks alongside chronic disease management and reach isolated older adults through home visits and relational programs, not walking volume alone.

Keywords : Social Isolation, Loneliness, Depression, Chronic Disease, Walking



Combined Impairment of Muscle, Bone, and Pulmonary Function and Life Functioning among Community-Dwelling Older Adults: The 2024 Korea National Health and Nutrition Examination Survey

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Purpose : This study examined the association between combined impairment of muscle, bone, and pulmonary function and life functioning among community-dwelling older adults.

Methods : This cross-sectional study analyzed data from 864 adults aged ≥ 65 years who participated in the 2024 Korea National Health and Nutrition Examination Survey. Muscle, bone, and pulmonary impairments were defined using low handgrip strength, a T-score < -1.0 , and obstructive or suspected restrictive ventilatory impairment, respectively. Each impaired domain was assigned one point, yielding a combined impairment score of 0–3. Life functioning was assessed using the Life Functioning Scale-10 (LF-10), transformed to a 0–100 scale; poor life functioning was defined as the lowest quartile. Complex-sample general linear and logistic regression analyses were conducted.

Results : Mean LF-10 scores decreased progressively as the number of impaired domains increased (89.4, 83.5, 75.8, and 67.2 for zero to three domains; p for trend $< .001$). Compared with no impairment, the adjusted odds ratios for poor life functioning were 1.48 (95% CI, 0.94–2.33), 2.63 (95% CI, 1.61–4.29), and 4.71 (95% CI, 2.39–9.29) for one, two, and three impaired domains, respectively. Each one-point increase in the combined impairment score increased the odds of poor life functioning by 79% (95% CI, 1.43–2.24). Concurrent muscle and pulmonary impairment showed the strongest association (adjusted odds ratio, 3.58; 95% CI, 1.91–6.71).

Conclusions : Accumulation of muscle, bone, and pulmonary impairments was associated with a graded decline in life functioning among community-dwelling older adults. Older adults with concurrent muscle and pulmonary impairment were particularly likely to have poor life functioning. An integrated assessment of muscle strength, bone health, and pulmonary function may facilitate early identification of older adults at risk of functional decline.

Keywords : aged, handgrip strength, bone mineral density, pulmonary function, functional status, KNHANES



Exploring Factors Associated with Home Nursing Service Utilization and Unmet Needs among People with Disabilities in Korea: A Machine Learning Approach

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Purpose : This study aimed to identify and interpret factors associated with home nursing service experience and unmet need among people with disabilities in Korea using an interpretable machine learning approach.

Methods : This cross-sectional study analyzed data from the 18th Korea Welfare Panel Study (2023). Analysis 1 included 1,149 community-dwelling adults with registered disabilities to examine home nursing service experience, and Analysis 2 included 275 participants reporting a need for home nursing services to examine unmet need. Four tree-based machine learning algorithms (Random Forest, AdaBoost, LightGBM, and XGBoost) were compared. Random Forest was selected based on overall performance and optimized using nested repeated stratified 5-fold cross-validation with 10 repetitions. Class imbalance was addressed using balanced class weights, and SHAP (Shapley Additive Explanations) values were used to interpret predictor importance.

Results : The optimized Random Forest achieved mean areas under the receiver operating characteristic curves (AUROCs) of 0.808 (SD = 0.056) for service experience and 0.737 (SD = 0.099) for unmet need. SHAP analysis identified ADL limitations in bathing, IADL limitations in going out, and IADL limitations in meal preparation as the strongest predictors of service experience. Public care or personal assistant service use, Medical Aid eligibility, and long-term care service use were also important contributors. For unmet need, ADL limitations in bathing, IADL limitations in going out, and public care or personal assistant service use were the most influential predictors.

Conclusions : Functional limitations and access to formal support services were the primary factors associated with home nursing service utilization and unmet need among people with disabilities. These findings may support targeted outreach and screening strategies to improve equitable access to home nursing services. Further research is needed to validate the findings and evaluate their applicability in practice.

Keywords : Home nursing service, machine learning, people with disabilities, unmet need



Health literacy among cancer survivors: A secondary analysis from a national cross-sectional survey in Korea

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Purpose : Health literacy is a key determinant of health outcomes among cancer survivors, yet national evidence on health literacy and its associations with health outcomes remains limited in Korea. This study described health literacy among Korean adult cancer survivors and examined factors associated with health literacy and its relationships with health behaviors, healthcare utilization, self-rated health, and mental health.

Methods : This secondary analysis used data from the 2024 Korea National Health and Nutrition Examination Survey, a cross-sectional national survey. Participants included 380 adults aged 19 years and older with a physician-diagnosed history of cancer. Health literacy was measured using the Health Literacy Instrument for Community (score range, 0–40). Weighted descriptive statistics, complex sample linear regression, and multiple logistic regression analyses were used to identify factors associated with health literacy and examine its associations with health behaviors, healthcare utilization, preventive service use, self-rated health, and mental health, adjusting for potential confounders.

Results : The mean health literacy score was 29.37 (SE, 0.30), and 27.3% of participants had low health literacy, which was independently associated with older age, lower educational attainment, colorectal cancer, and longer time since diagnosis. Compared with high health literacy, low health literacy was associated with higher odds of alcohol consumption (OR, 2.23; 95% CI, 1.24–4.03) and anxiety (OR, 5.02; 95% CI, 1.71–14.70), and lower odds of national health screening (OR, 0.46; 95% CI, 0.22–0.96) and cancer screening (OR, 0.36; 95% CI, 0.20–0.67), with no significant associations for healthcare utilization, self-rated health, or depression.

Conclusions : More than one-quarter of Korean adult cancer survivors had low health literacy, which was associated with higher alcohol consumption, anxiety, and lower use of preventive health services. These findings support incorporating health literacy assessment into survivorship care and developing tailored interventions for cancer survivors with limited health literacy.

Keywords : health literacy, cancer survivors, health behavior, mental health, cross-sectional studies



Factors Influencing Intention to Engage in HPV Infection Prevention Behaviors among College Students: Gender Differences

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Purpose : This study aimed to identify gender differences in the characteristics of and factors influencing intention to engage in HPV infection prevention behaviors among college students.

Methods : This study used a descriptive cross-sectional design. A convenience sample of 324 students was recruited from three universities located in Jeollanam-do. Data collection was conducted via an online survey from November 4 to December 11, 2025, assessing HPV knowledge, HPV-related health beliefs, and intention to engage in HPV infection prevention behaviors. The collected data were analyzed using SPSS 27.0 through descriptive statistics, independent t-tests, one-way ANOVA with Scheffé post hoc tests, Pearson correlation coefficients, and stepwise multiple regression analysis.

Results : Female college students showed significantly higher levels of HPV knowledge, HPV-related health beliefs, and intention to engage in HPV infection prevention behaviors than male college students (all $p < .05$). The results of the regression analysis showed that for female college students, perceived benefits ($\beta = 0.39$, $p < .001$), perceived susceptibility ($\beta = -0.20$, $p = .004$), and the perceived need for HPV prevention education ($\beta = 0.34$, $p < .001$) were significant predictors of intention to engage in HPV infection prevention behaviors (adjusted $R^2 = 0.27$). In contrast, for male college students, HPV knowledge ($\beta = 0.25$, $p = .002$) and perceived need for HPV prevention education ($\beta = 0.19$, $p = .023$) were identified as significant predictors (adjusted $R^2 = 0.12$).

Conclusions : Because the factors influencing intention to engage in HPV infection prevention behaviors differed by gender, gender-specific educational strategies are needed. HPV prevention education for female college students needs to focus on health beliefs, particularly perceived benefits and perceived susceptibility. In contrast, educational programs for male college students should place greater emphasis on improving HPV-related knowledge.

Keywords : College Students; Gender Differences; Health Beliefs; HPV Knowledge; Human Papillomavirus Infections; HPV Infection Prevention Behavior Intention



Association between Living Alone and Dementia-Related Service Use among Persons with Dementia Registered at Dementia Care Centers

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Purpose : This study examined the association between living alone and dementia-related service use among persons with dementia registered at Dementia Care Centers in South Korea.

Methods : This retrospective cross-sectional study analyzed national dementia registry data from 9,998 persons with dementia registered at 18 Dementia Care Centers in Gangwon Province, South Korea, as of December 2024. Five services were examined: fingerprint pre-registration, identification tag issuance, dementia treatment cost support, hygiene supplies support, and day-care shelter use. Multiple linear and binary logistic regressions were performed for total service count and individual services, respectively. All models were adjusted for sex, age, education, insurance type, long-term care grade status, and total score of the Korean version of the Consortium to Establish a Registry for Alzheimer's Disease Assessment Battery (CERAD-K).

Results : Of 9,998 participants, 3,720 (37.2%) lived alone and 6,278 (62.8%) lived with others. The living alone group had a higher proportion of women (82.2% vs. 63.2%), higher age, lower education levels, more medical aid recipients (21.7% vs. 8.0%), and lower CERAD-K total scores. The mean number of services used was lower in the living alone group (1.72 ± 1.10 vs. 1.82 ± 1.09). After adjusting for covariates, living alone remained significantly associated with fewer total services used ($B = -0.057$, $p = .014$). In individual service analyses, persons living alone had lower odds of using fingerprint registration, dementia treatment cost support, and hygiene supplies support, but higher odds of using day-care shelter services.

Conclusions : Despite greater sociodemographic and clinical vulnerability, persons with dementia living alone used fewer dementia-related services overall, except for day-care shelter services. These findings highlight the need to prioritize persons living alone in service linkage, providing comprehensive guidance from registration, and identifying eligible non-users for proactive case management.

This research was supported by the National Research Foundation of Korea (NRF) grant funded by the Korea government (MSIT) (Grant number: RS-2024-00345763).

Keywords : dementia; dementia care center; living alone; service utilization



Research themes in community-based obesity interventions for adults: A topic modeling analysis of PubMed abstracts

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Purpose : This study aims to identify the major research themes in community-based non-pharmacological and non-surgical obesity interventions for adults using latent Dirichlet allocation (LDA) topic modeling, and to provide evidence to inform the development of community obesity prevention and weight management programs and policies.

Methods : A total of 1,575 PubMed-indexed studies on community-based, non-pharmacological, and non-surgical obesity interventions for adults, published between 2000 and 2025, were included in the analysis. Latent Dirichlet Allocation (LDA) topic modeling was conducted to identify the underlying thematic structure. The optimal number of topics was determined using perplexity, the elbow method, and coherence scores.

Results: From the early 2000s to the mid 2010s, the number of publications on community-based obesity interventions increased steadily and reached a peak, after which it decreased slightly; however, in recent years, the number of publications has shown a renewed increasing trend. LDA topic modeling identified six distinct research themes, with the most prominent topic being "Lifestyle Interventions for Chronic Disease Management" (22.14%). This was followed by "Implementation and Determinants of Obesity-Related Health Behavior Interventions" (19.33%), "Barriers and Facilitators to Obesity Management and Service Implementation" (17.75%), "Participation, Adherence, and Long-Term Maintenance in Weight Management" (15.20%), "Implementation of Obesity Interventions in Workplace and Community Settings" (14.24%), and "Management of Knee Osteoarthritis and Physical Function in Older Adults with Obesity" (11.34%).

Conclusions: In recent years, research interest in community-level obesity prevention has re-emerged. This study identified six major research topics in community-based obesity intervention research, highlighting the current thematic landscape of the field. These findings provide a comprehensive understanding of the thematic structure of the research field and may help inform future research directions.

Keywords : community health services, Latent Dirichlet Allocation, obesity, topic modeling



Explainable Machine Learning for Identifying Risk Factors of Suicidal Ideation in Korean Older Adults

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Purpose : To develop an explainable machine learning model for predicting suicidal ideation among Korean older adults and identify the most influential risk factors using explainable artificial intelligence.

Methods : This secondary analysis used data from the 2021–2023 Korean National Health and Nutrition Examination Survey (KNHANES). Of the 20,284 survey respondents, 5,340 were aged 65 years or older, and 5,136 who completed the suicidal ideation questionnaire were included in the analysis. A Random Forest model was developed using demographic characteristics, health status, health behaviors, psychological factors, preventive healthcare utilization, and laboratory measurements. Model performance was evaluated using the area under the Area Under the Receiver Operating Characteristic (AUC-ROC). Variable importance and SHapley Additive exPlanations (SHAP) analyses were performed to improve model interpretability.

Results : The Random Forest model demonstrated good discrimination (AUC-ROC = 0.836). Anxiety was the strongest predictor of suicidal ideation, followed by stress, hemoglobin, hematocrit, red blood cell count, total cholesterol, direct low-density lipoprotein cholesterol, glucose, creatinine, and glycated hemoglobin. SHAP analysis confirmed that anxiety and stress contributed most substantially to the prediction of suicidal ideation, with higher levels of both variables associated with greater predicted risk. Laboratory biomarkers contributed additional predictive information but had smaller effects than psychological factors.

Conclusions : The explainable machine learning model demonstrated good predictive performance for identifying suicidal ideation among Korean older adults. Psychological factors, particularly anxiety and stress, were the dominant predictors, while routine laboratory measures provided complementary information. Explainable artificial intelligence may support early identification of high-risk older adults and facilitate targeted suicide prevention strategies in community and clinical settings.

Keywords : Anxiety, Explainable artificial intelligence, Older adults, Suicidal ideation



Latent Class Analysis of Health-Risk Lifestyle Behaviors and Associated Factors among Korean Middle-aged Adults: Evidence from the 2023-2024 Korea National Health and Nutrition Examination Survey Data

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Purpose : This study aimed to identify latent classes of health-risk lifestyle behaviors among Korean middle-aged adults using nationally representative data and to examine socio-demographic, health-related, physiological factors associated with each latent class. By applying a person-centered approach, this study sought to provide evidence.

Methods : Data were extracted from the 2023–2024 Korea National Health and Nutrition Examination Survey. The final sample included 4,365 middle-aged adults. Health-risk lifestyle behaviors included aerobic activity, alcohol use, breakfast frequency, daily walking, muscle-strengthening activity, sedentary behavior, sleep duration, lifetime smoking experience, and perceived stress. Latent class analysis and complex-sample multi nominal logistic regression were conducted using R software 4.5.0 and SPSS WIN statistics version 29.0.

Results : Three latent classes were identified: the stable but less active lifestyle class (50.2%), the physical inactivity class (36.7%), and multiple health-risk lifestyle class (13.1%). Complex-sample multinomial logistic regression analysis showed that the model was significant ($F[66, 283]=8.43$, $p=.001$). Compared with the stable lifestyle–low activity class, membership in the physical inactivity class was more likely among adults with low income ($OR=1.33$), low health literacy ($OR=1.35$), and abnormal systolic blood pressure ($OR=1.39$), but less likely among urban residents ($OR=0.58$), those with good self-rated health ($OR=0.52$), and those who underwent health screening ($OR=0.78$). Membership in the multiple health-risk lifestyle class was strongly associated with male sex ($OR=10.03$), and was also more likely among adults aged 40–49 years ($OR=1.91$), employed adults ($OR=2.01$), those with low income ($OR=1.64$), low health literacy ($OR=1.37$), and obesity ($OR=1.70$).

Conclusions : Health-risk lifestyle behaviors among Korean middle-aged adults clustered into distinct latent classes. These findings suggest that lifestyle behaviors should be considered as complex behavioral patterns and that tailored health promotion strategies are needed according to class-specific characteristics. In particular, interventions should address physical inactivity, sedentary behavior, smoking, high-risk drinking, and cardio-metabolic risk factors among middle-aged adults.

Keywords : Middle aged, Life Style, Health Risk Behaviors, Latent Class Analysis



Frailty Levels and Associated Factors Among Community-Dwelling Older Adults with Multimorbidity

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Purpose : This study aimed to describe the distribution of frailty status across robust, prefrail, and frail groups and to examine factors associated with prefrailty and frailty among community-dwelling older adults with multimorbidity.

Methods : This cross-sectional secondary data analysis used data from the 2023 National Survey of Older Koreans. The study included 6,425 adults aged 65 years or older with at least two physician-diagnosed chronic conditions. Frailty status was derived from five survey items assessing fatigue, resistance, ambulation, illnesses, and weight loss and was categorized as robust, prefrail, or frail. Sociodemographic, physical, functional, social, psychological, and healthcare access factors were examined using weighted descriptive statistics, Rao–Scott adjusted F tests, and complex-sample multinomial logistic regression, with the robust group as the reference.

Results : Among older adults with multimorbidity, 56.4% were robust, 37.3% were prefrail, and 6.3% were frail. Being aged 75 years or older, female sex, limitations in activities of daily living or instrumental activities of daily living, poor self-rated health, a history of falls in the previous year, lack of financial support, depressive symptoms, and unmet healthcare needs were associated with higher odds of both prefrailty and frailty. Additionally, distinct stage-specific associations were observed. Having an elementary school education or less was significantly associated with higher odds of prefrailty, whereas living alone and vision-related difficulties emerged as significant factors for frailty.

Conclusions : Stage-tailored nursing approaches are needed to address the distinct needs of prefrail and frail older adults. For prefrail older adults, interventions should emphasize early prevention and easy-to-understand self-management support, particularly for those with lower educational attainment. For frail older adults, care should prioritize vision care, daily living support, and community-based services, especially for those living alone. Across both groups, screening should assess functional limitations, falls, depressive symptoms, lack of financial support, and unmet healthcare needs.

Keywords : aged, cross-sectional studies, frailty, multimorbidity



Effects of a health care program based on traditional cultural arts activities on physical condition, depression, self-efficacy, and grit in older adults

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Aim(s) : This study aimed to examine the effects of a health care program based on traditional Korean cultural arts activities on the physical condition, depression, self-efficacy, and grit of community-dwelling older adults.

Methods : A quasi-experimental, one-group pretest–posttest design was used with 15 adults aged 65 years and older recruited from a community center in Korea. Guided by Bandura’s self-efficacy theory, the program applied four efficacy-enhancing resources — mastery experience, vicarious experience, verbal persuasion, and emotional support — through physical activities using a traditional Korean drum and fan dance, together with muscle-strengthening exercises, health education, and individual counseling. The program was provided twice a week for 90 minutes per session, for a total of 15 sessions, from September 4 to October 30, 2023. Physical condition was assessed by body mass index, waist circumference, blood pressure, and handgrip strength. Depression, self-efficacy, and grit were measured with the Short Form Geriatric Depression Scale, the Self-Efficacy Scale, and the Original Grit Scale, respectively. Data were analyzed using descriptive statistics and the Wilcoxon signed-rank test.

Results : After the program, waist circumference decreased significantly ($Z=-2.13$, $p=.033$) and right handgrip strength increased significantly ($Z=-2.19$, $p=.029$), whereas body mass index, blood pressure, and left handgrip strength showed no significant changes. Depression decreased from 6.20 ± 4.41 to 4.20 ± 3.82 , but the change was not statistically significant ($Z=-1.64$, $p=.102$). Self-efficacy ($Z=-2.33$, $p=.020$) and grit ($Z=-2.86$, $p=.004$) improved significantly after the program.

Conclusions : The program partially improved physical condition and significantly enhanced self-efficacy and grit in older adults, with a non-significant decrease in depression. A culturally grounded, arts-based physical activity program applying self-efficacy resources may serve as a feasible nursing intervention for health promotion in older adults. Extending the program duration and frequency is recommended to strengthen its effects on physical condition and depression.

Keywords : Grit; older adults; self-efficacy; traditional cultural arts activities



Characterizing Functional Impairment and Its Determinants Among World Trade Center General Responders

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Purpose : World Trade Center (WTC) general responders are not only of advancing age (mean age=63.12) but also show evidence of premature aging. We identified factors associated with functional impairment in this cohort.

Methods : 429 WTC general responders participated in this cross-sectional study. Functional impairment was assessed as ≥ 1 impairment in Activities of Daily Living (ADL)/ Instrumental ADLs (IADL). WTC-related variables (e.g., exposure level) and geriatric assessments (e.g., frailty) were evaluated. Multivariable logistic regression analyses were performed.

Results : Overall, 12.1% of participants exhibited functional impairment. Frailty, fear of falling, and cognitive impairment were significantly associated with higher odds of functional impairment. When limited to males (71.56% of our sample), fear of falling and WTC-related mental health conditions (e.g., PTSD) had the strongest association with functional impairment.

Conclusions : Identifying these factors may help inform targeted, feasible screening and intervention strategies to prevent or reduce functional impairment among at-risk WTC general responders.

Keywords : Activities of Daily Living, Mental Disorders, Cognitive Dysfunction, Men, September 11 Terrorist Attacks



Combined associations of abdominal obesity and composite glucose-lipid indices with cardiometabolic multimorbidity among older Chinese adults: a community-based cross-sectional study

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Purpose : Abdominal obesity (AO) is a major risk factor for cardiometabolic multimorbidity (CMM) in older adults, yet the combined roles of AO and composite glucose-lipid indices—including the triglyceride-glucose (TyG) index, cholesterol-HDL-glucose (CHG) index, and atherogenic index of plasma (AIP)—remain insufficiently examined. This study aimed to investigate the combined associations of AO with these indices in relation to CMM, and to explore their potential mediating effects among community-dwelling older adults.

Methods : This cross-sectional study included 4,173 Chinese adults aged ≥ 60 years. CMM was defined as the coexistence of ≥ 2 conditions among hypertension, diabetes, coronary artery disease, and stroke. Multivariable logistic regression, restricted cubic spline modeling, and exploratory mediation analyses were performed.

Results : CMM prevalence was 28.06%. The coexistence of AO and elevated composite indices was associated with progressively higher odds of CMM, with the combination of AO and high CHG showing the strongest association (OR = 3.79, 95% CI: 3.05–4.72). TyG and AIP exhibited linear positive associations with CMM, whereas CHG displayed a significant nonlinear relationship with a threshold at 5.36. Below the threshold, elevated CHG was associated with increased odds (OR = 2.92, 95% CI: 1.52–5.67); above the threshold, the association was markedly stronger (OR = 18.63, 95% CI: 11.70–30.14). Mediation analyses revealed that CHG, TyG, and AIP statistically mediated the AO–CMM association, with mediated proportions of 61.6%, 52.1%, and 24.7%, respectively.

Conclusions : The coexistence of AO and adverse glucose-lipid profiles is associated with substantially elevated odds of CMM in older community-dwelling adults. Among the indices examined, CHG demonstrated the strongest combined association, a distinctive threshold effect, and the highest mediated proportion, suggesting its particular utility as a sensitive marker for early risk stratification in community-based geriatric care.

Keywords : Abdominal obesity; Cardiometabolic multimorbidity; Composite glucose-lipid indices; CHG index



The Relationship of Online Health Information and Health-Seeking Behavior of Older Adults Among Selected Communities

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Purpose : The growing accessibility of the internet has made online health information (OHI) a common resource for older adults. This study examined the relationship between OHI use and health-seeking behavior (HSB) among older adults aged 65–74 grounded in Bandura's Social Cognitive Theory.

Methods : Using a descriptive correlational design, 141 purposively selected participants completed a structured survey questionnaire assessing OHI access patterns and HSB across personal, environmental, and behavioral factors. Data were analyzed using Pearson correlation, Chi-square, frequency, and mean at $p \leq 0.05$.

Results : Social media was the most accessed OHI source, primarily via smartphones with video as the preferred format. Slow internet connection was the top barrier. Respondents demonstrated high IT self-efficacy but moderate IT innovativeness. Social and professional support both scored strongly, while behavioral factors showed the strongest overall influence. Social support had the strongest association with perceived OHI credibility, followed by behavioral factors and IT self-efficacy, with all associations statistically significant ($p < .05$).

Conclusions : OHI serves as a supplementary resource rather than a replacement for professional medical advice. Social and professional support systems play a critical role in shaping older adults' trust and engagement with OHI. Enhancing digital literacy and strengthening support networks can promote more informed and proactive health-seeking behavior among older adults.

Keywords : Online Health Information, Health-Seeking Behavior, Self-Efficacy, Digital Literacy, Older Adults



Momentary Affect and Individual Psychosocial Factors Associated with E-cigarette Craving Among Adolescents: An Ecological Momentary Assessment Study

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Purpose : E-cigarette craving is dynamic, yet retrospective surveys may not capture short-term changes in daily life. Using ecological momentary assessment, this study examined within-person, between-person, and psychosocial factors associated with craving occurrence and intensity among adolescents.

Methods : Of 120 enrolled adolescents, 97 who completed at least 80% of assessments three times daily for seven days were analyzed. Craving occurrence was examined using hierarchical binomial generalized linear mixed models across 572 observations, including 133 craving events. Models sequentially included within-person affect, e-cigarette-related event occurrence, between-person differences in average afternoon affect, and psychosocial characteristics. Craving intensity was examined using linear mixed models among 39 adolescents who reported craving at least once, based on 219 observations including zero-craving occasions. Analyses were performed using SPSS 31.0.

Results : At the within-person level, higher-than-usual afternoon positive affect was associated with lower odds of craving occurrence (OR=0.89, 95% CI=0.80–0.99, $p=.034$). Among adolescents who reported craving at least once, craving intensity was lower when afternoon positive affect was higher than usual ($b=-0.10$, $p=.020$) and greater when afternoon negative affect was higher than usual ($b=0.22$, $p<.001$). At the between-person level, higher average afternoon negative affect was associated with greater odds of craving occurrence (OR=1.46, 95% CI=1.24–1.73, $p<.001$) and greater craving intensity ($b=0.26$, $p=.014$). Among psychosocial characteristics, favorable attitudes toward e-cigarette use were associated with greater odds of craving occurrence (OR=9.95, 95% CI=3.15–31.43, $p<.001$), whereas higher positive youth development was associated with lower craving intensity ($b=-1.69$, $p=.024$).

Conclusions : Adolescent e-cigarette craving was associated with momentary affective fluctuations, stable individual differences in negative affect, and favorable attitudes toward e-cigarette use. Prevention efforts should prioritize modifying favorable attitudes, while adolescents with persistently elevated negative affect may require earlier identification and support. Momentary interventions that enhance positive affect and regulate negative affect, combined with positive youth development-based approaches, may reduce craving in daily life.

Keywords : Adolescent, Craving, Ecological Momentary Assessment, Electronic Nicotine Delivery Systems



Urban-Rural Disparities in Health Behaviors and Cardiovascular Disease Awareness Among Older Adults in South Korea: A Cross-Sectional Study

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Purpose : This study aimed to investigate urban–rural disparities in health among older adults in South Korea, focusing specifically on cardiovascular disease (CVD). It examined differences between urban and rural older adults in general characteristics, knowledge related to early recognition of major vascular events, and engagement in CVD-related health behaviors.

Methods : A cross-sectional analysis was conducted using data from the 2024 Korea Community Health Survey. The study included a total of 83,794 older adults, and compared urban and rural groups in terms of sociodemographic characteristics, CVD knowledge, unmet healthcare needs, and engagement in multiple preventive health behaviors.

Results : Rural older adults, despite having higher mean age, more single-person households, and lower levels of education and income than urban older adults, showed greater CVD knowledge and higher engagement in preventive health behaviors. In both urban and rural settings, higher CVD-related knowledge and the absence of unmet healthcare needs were positively associated with engagement in multiple health behaviors. Interestingly, lower education was associated with greater engagement in health behaviors. In urban areas, higher income and living in single-person households were also significantly related to higher engagement in multiple health behaviors.

Conclusions : The findings reveal notable urban–rural disparities in socioeconomic characteristics but paradoxically higher CVD knowledge and preventive behaviors among rural older adults. They underscore the need for tailored, community-level strategies that consider contextual socioeconomic conditions and differences in the healthcare system to effectively promote cardiovascular health behaviors among older adults in both urban and rural areas.

Keywords : aged, cardiovascular disease, knowledge, health behavior, health inequities



Development of a Nurse-Led Frailty Prevention Care Model for Older Adults Attending Senior Centers in Seoul, South Korea

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Aim(s) : South Korea's transition to a super-aged society has made frailty prevention increasingly important for healthy aging and reducing social burdens. Frailty is a multidimensional state of decreased physiological reserve and increased vulnerability to stressors, but may be prevented or improved through intervention. Gyeongrodang, neighborhood-based senior leisure centers unique to Korea, provide accessible for older adults. However, they lack on-site health professionals and systematic health management. This study aimed to develop a nurse-led frailty prevention and management model for gyeongrodang.

Methods : Guided by the Analysis, Design, Development, Implementation, and Evaluation (ADDIE) model, the Seoul Frailty Care Model was developed through literature and policy reviews, a needs assessment with older adults, focus groups with center operators and nurses, and expert consultation.

Results : Reviews revealed insufficiently standardized frailty policies and programs and few community interventions targeting frailty directly. Older adults wanted easy-to-understand health information and preferred participatory activities over lecture-based education. Focus groups identified regional disparities in resources and operations, discontinuity of existing programs, and needs for age-friendly delivery, standardized support, and flexible implementation. Expert consultation emphasized nurses' roles in health assessment, risk screening, and safety monitoring. These findings informed three formats. The basic program integrated assessment, feedback, education, and self-management support. The individualized program provided an initial assessment followed one week later by personalized counseling. The group program provided an initial assessment followed one week later by an intervention targeting vulnerable domains common within each center. A web-based platform provided assessment outputs, individual and center-level profiles, counseling guidance, and intervention materials. Printed and QR-linked resources supported self-management.

Conclusion : The model provides a standardized yet adaptable framework for nurse-led frailty prevention in Korean senior centers. Its delivery formats and digital system accommodate varied local resources while maintaining core components and may support future artificial intelligence-assisted personalization.

Keywords : older adults, nursing, nurse-led interventions, community



Digital literacy level of persons in charge of integrated health promotion projects

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Purpose : The health promotion project of the health center, which had been divided, was converted into an integrated health promotion project in 2013. Along with the development of technology, non-face-to-face methods and ICT(Information and Communication Technology) have become important for health projects after COVID-19. This study aims to confirm the level of digital literacy of people in charge of each field of integrated health promotion projects in the digital era.

Methods : An online survey was conducted with a structured questionnaire after job training of the Seoul Integrated Health Promotion Project Support Group three times in the first half of 2025. The intention and performance of digital technology were divided into 'deep brain project', 'visit health management project', and 'no smoking project' and tested by one-way variance analysis, and the pairwise comparison between groups was confirmed by Welch t-test.

Results : There were a total of 210 people, including 70 people in charge of the deep brain project, 77 people in charge of the visiting health care project, and 63 people in charge of the smoking cessation project. The average of both 'intention to use digital technology' and 'performing digital technology' was 4.11 points ($p=0.066$) and 3.85 points ($p=0.010$), respectively, higher than those in charge of visiting health care projects and smoking cessation. In particular, among the eight items, the question 'willing to use digital technology to develop program and improve efficiency in the future' was the highest at 4.27 sleep ($p=0.029$).

Conclusions : In this study, we identified the intention and practice of using digital technology by the person in charge of the integrated health promotion project to confirm a positive attitude and active utilization ability, but it cannot be concluded that digital literacy is high, so follow-up studies including critical evaluation and safety and ethics are needed in the future.

Keywords : digital technology use intention, digital technology practice, health care center



The Effects of Artificial Intelligence Literacy, Self-Efficacy, and Social Support on Health-Promoting Behaviors among Community-Dwelling Older Adults

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Purpose : As artificial intelligence (AI) becomes increasingly integrated into healthcare, AI literacy has emerged as an essential competency for promoting health among older adults. This study examined the relationships among AI literacy, self-efficacy, social support, and health-promoting behaviors and identified factors influencing health-promoting behaviors in community-dwelling older adults.

Methods : This descriptive cross-sectional study included 184 community-dwelling older adults aged 65 years or older who had experience using AI. Data were collected through face-to-face interviews using structured questionnaires. The study was approved by the Institutional Review Board (IRB No. 2026-1st-007), and written informed consent was obtained from all participants. Data were analyzed using IBM SPSS Statistics version 26.0. Descriptive statistics, Pearson's correlation coefficients, and multiple regression analysis were performed.

Results : AI literacy ($r = .468, p < .001$), self-efficacy ($r = .457, p < .001$), and social support ($r = .367, p < .001$) were significantly and positively correlated with health-promoting behaviors. Multiple regression analysis indicated that AI literacy ($\beta = .296, p < .001$), self-efficacy ($\beta = .283, p < .001$), and social support ($\beta = .140, p = .048$) significantly and positively influenced health-promoting behaviors, with the model explaining 30.9% of the variance (Adjusted $R^2 = .309$). Among these variables, AI literacy demonstrated the strongest predictive effect. Multicollinearity diagnostics indicated no multicollinearity problems (Tolerance = .756–.780; VIF = 1.281–1.323).

Conclusions : AI literacy was the strongest predictor of health-promoting behaviors among community-dwelling older adults. These findings suggest that nursing strategies to enhance AI literacy, strengthen self-efficacy, and expand social support should be incorporated into community-based health promotion interventions. Developing nurse-led AI literacy education and digital health support programs may help older adults effectively utilize AI technologies and improve their health-promoting behaviors.

Keywords : Older adults, AI literacy, Self-efficacy, Social support, Health-promoting behaviors



A Comparative Study of Smartphone Usage behavior among Korean and International Students at a University in Korea

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Purpose : This study compared smartphone use behaviors between Korean and international university students in Korea and identified factors associated with problematic smartphone use.

Methods : A comparative descriptive survey was conducted with 143 first-year university students (100 Korean and 43 international students) enrolled at a university in Seoul, South Korea. Smartphone use, phubbing, fear of missing out (FoMO), nomophobia, self-control, and college adjustment were measured using validated questionnaires. Data were analyzed using descriptive statistics, independent t-tests, Pearson's correlation coefficients, and multiple linear regression.

Results : Korean students demonstrated significantly higher levels of smartphone use, phubbing, and FoMO than international students, whereas international students reported significantly higher self-control. No significant group differences were found in nomophobia or overall college adjustment. Smartphone use was positively correlated with phubbing, FoMO, and nomophobia and negatively correlated with self-control and college adjustment. Multiple regression analysis revealed that phubbing ($\beta = .418, p < .001$), nomophobia ($\beta = .236, p = .002$), daily smartphone use time ($\beta = .135, p = .010$), and sleep duration ($\beta = .118, p = .015$) were significant predictors of smartphone use, explaining 71.2% of the variance.

Conclusions : Korean university students exhibited greater problematic smartphone use than international students, while higher self-control appeared to serve as a protective factor among international students. Nursing-led interventions that address phubbing, nomophobia, and healthy digital habits, while strengthening self-regulation skills, may help reduce problematic smartphone use and promote students' psychological well-being. Future studies should employ longitudinal and multicenter designs to confirm these findings across more diverse student populations.

Keywords : smartphone use; smartphone addiction; phubbing; fear of missing out; nomophobia; self-control; college students; international students



Wearable Health Technology in Mongolia: A Systematic Review of an Emerging Evidence Base

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Purpose : Wearable sensors and consumer health technologies are increasingly used for health monitoring globally, yet their application in Mongolia, a country with a widely dispersed population, extreme climate, and rapidly digitising health system, remains poorly characterised. This scoping review aims to map the extent, range, and nature of evidence on wearable sensors and health technology use in Mongolia, and to identify gaps to inform future research and implementation.

Methods : This review follows the Joanna Briggs Institute (JBI) methodology for scoping reviews and will be reported against the PRISMA-ScR checklist. Using the Population-Concept-Context framework, eligible sources include studies of any design involving people in Mongolia (population), wearable sensors or related health technologies (concept), in any health or community setting (context). Seven databases were systematically searched: MEDLINE, Embase, CINAHL, Scopus, and Web of Science, PsycInfo, and IEEE Xplore with no date restrictions for 343 non-duplicate articles. Two reviewers will independently screen titles, abstracts, and full texts in Covidence, with conflicts resolved by a third reviewer. Data will be charted using a piloted extraction tool and synthesised descriptively.

Results : Preliminary results presented will include the volume and characteristics of identified sources, device types, health conditions and populations studied, settings of use, reported barriers and enablers to adoption, as well as recommendations.

Conclusions : This review will provide the first comprehensive map of wearable sensor and health technology research in Mongolia, identifying evidence gaps and priorities for geographically and culturally appropriate digital health implementation.

Keywords : digital health, Mongolia, IoT, wearable sensors, smart devices



Agreement between Oura Ring- and Sleep Diary-Derived Sleep Parameters across Night and Post-Shift Recovery Sleep in Rotating-Shift Nurses: a prospective observational study

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Purpose : Shift-working nurses experience diverse sleep patterns due to rotating schedules, highlighting the need for appropriate sleep assessment. This study aimed to (1) evaluate agreement between Oura Ring and sleep diary across night sleep and post-shift recovery sleep, and (2) compare associations of sleep parameters from each method with subjective sleep satisfaction among 8-hour fast-rotating shift nurses.

Methods : This prospective observational study included 55 nurses working 8-hour fast-rotating shifts at a tertiary hospital from November 2025 to April 2026. Sleep parameters [time in bed (TIB), total sleep time (TST), sleep onset latency (SOL), wake after sleep onset (WASO) and sleep efficiency (SE)] and subjective sleep satisfaction were collected using Oura Ring and sleep diary during a 10-day study period. Agreement was evaluated using intraclass correlation coefficients (ICC) and Bland-Altman analysis. Linear mixed-effects models and nested model examined associations between sleep parameters.

Results : A total of 550 sleep episodes were analyzed. Linear mixed-effects models included 539 episodes with complete subjective sleep satisfaction data. Agreement was good for TIB (ICC=.774) and TST (ICC=.799), but poor for SOL, WASO, and SE (ICC=.09~.20). By sleep types, agreement for TIB and TST declined from good during night sleep (ICC = .776, .778) to moderate during post-shift recovery sleep (ICC = .585, .697). Oura Ring model showed slightly better fit (marginal R^2 =.171, AIC=2030.2) than sleep diary model (marginal R^2 =.160, AIC=2045.1). TST was associated with sleep satisfaction for both Oura Ring (β =0.233, p =.003) and sleep diary (β =0.249, p <.001), while only Oura Ring-derived WASO was associated (β =-0.216, p <.001).

Conclusions : Although Oura Ring showed slightly better overall model fit, sleep diary-derived TST remained an independent predictor of subjective sleep satisfaction. However, poor agreement for SOL, WASO, and SE indicates limited interchangeability between the two methods. These findings suggest that Oura Ring and sleep diary provide complementary information for assessing sleep in shift-working nurses.

Keywords : Nurses, Oura ring, Shift work schedule, Sleep



Effects of diabetes self-management education program with artificial intelligence phone calls for older adults: A cluster randomized controlled trial

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Purpose : This study evaluated the effects of a diabetes self-management education (DSME) program incorporating artificial intelligence (AI) phone calls on diabetes self-management behaviors, clinical outcomes, and depressive symptoms among older adults with diabetes.

Methods : A cluster randomized controlled trial was conducted in senior welfare centers in South Korea. Forty older adults with diabetes were allocated by center to either an intervention group (n=20) or a control group (n=20). The intervention group participated in an 8-week Diabetes Self-Management Education with Artificial Intelligence Phone Calls (DSME-AIP) program consisting of weekly group education and weekly AI phone call monitoring and feedback. The control group received conventional diabetes education. Outcomes were assessed at baseline, immediately after the intervention, and two months after completion. Repeated-measures analysis of variance and generalized estimating equations were used for data analysis.

Results : Thirty-three participants completed the study (intervention, n=17; control, n=16). A significant group-by-time interaction was observed for HbA1c ($F=3.650$, $p=.032$), with sustained reductions in the intervention group through the two-month follow-up. Among diabetes self-management behaviors, self-monitoring of blood glucose significantly improved in the intervention group compared with the control group ($F=4.837$, $p=.011$). No significant differences were found in overall self-management behaviors, blood glucose, blood pressure, blood lipid profiles, or depressive symptoms.

Conclusions : DSME supported by AI phone calls improved glycemic control and self-monitoring of blood glucose among older adults with diabetes. Integrating AI phone calls into DSME may represent an effective and accessible digital health approach for promoting sustained self-management in older populations.

Keywords : Artificial intelligence, Diabetes mellitus, Older adults, Self-management



Effectiveness of Emerging Digital Health Technology Interventions for Adults with Sarcopenia: A Systematic Review and Meta-Analysis

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Purpose : This study aimed to explore the characteristics of emerging digital health interventions for sarcopenia and synthesize their effects on physical and functional outcomes.

Methods : Following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guideline, a systematic review and meta-analysis was conducted and registered with the international prospective register of systematic reviews (CRD420251229074). Six databases were searched through January 31, 2026. Randomized and non-randomized studies of digital health interventions in adults with, or at risk of, sarcopenia were included. Two reviewers independently performed study selection, data extraction, and risk-of-bias appraisal. Data were synthesized narratively and, where feasible, pooled using a random-effects meta-analysis; certainty of evidence was assessed.

Results : Nine studies (513 participants) from Korea, China, and Taiwan (2017–2025) were included; mean age ranged 69.7–82.2 years. Interventions, delivered over four to twelve weeks, comprised four technology types: extended-reality exercise, artificial intelligence-enabled telerehabilitation with real-time three-dimensional posture feedback, wearable- and sensor-based training, and application- or videoconferencing-based programs; six targeted exercise alone and three combined exercise with nutrition. No pooled estimate reached statistical significance; however, muscle strength (standardized mean difference 0.50, 95% confidence interval –0.94–1.95), muscle mass (0.35, –0.32–1.01), mobility (–0.10, –0.69–0.49), and balance (0.50, –0.86–1.86) consistently favored the intervention group, whereas quality of life, daily activities, and gait speed were comparable between groups. Certainty of evidence was low to very low. Heterogeneity was low for most outcomes but high for the skeletal muscle mass index (heterogeneity 95%).

Conclusions : Digital health interventions consistently favored the intervention group for muscle strength and functional outcomes in adults with sarcopenia, though statistically non-significant. Notably, control groups also received exercise rather than no treatment, these comparable outcomes suggest that digital delivery may match conventional care rather than lack benefit. Nonetheless, this review mapped the characteristics and potential applicability of diverse digital health technologies for sarcopenia.

Keywords : Digital Health, Meta-Analysis, Sarcopenia, Telerehabilitation



Co-Designing a Kiosk-Based AI Virtual Consultant to Enhance Depression Literacy and Emotional Support for Family Caregivers of People with Disabilities

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Purpose : Family caregivers of people with disabilities are a high-risk group for mental health problems such as depression due to the long-term caregiving burden. This study aimed to co-design a kiosk-based AI virtual consultant to enhance depression literacy and emotional support among such caregivers, addressing gaps in knowledge, stigma, and help-seeking that represent caregivers' needs.

Methods : Seven family caregivers and six mental health or long-term care professionals were invited to two co-design workshops via purposive and snowballing sampling to ensure heterogeneity. Co-design techniques, including brainstorming, "how might we" prompts, and sketching, were used to elicit interactive discussions and feedback for a functional prototype of a kiosk-based AI virtual consultant. The discussions addressed the structure and format of multimodal depression literacy materials, the agent interface, and the interaction flow. All sessions were audio-recorded, transcribed, anonymized, and analyzed using thematic analysis.

Results : The 13 participants broadly endorsed the development of an AI agent for depression psychoeducation and highly valued its wide applications in various healthcare settings. Five themes were identified reflecting the caregivers' expectations or needs of the kiosk: (1) balancing the functions of companionship and consultation; (2) easy access with attractive interactions to the knowledge of depression; (3) serving emotional support in a safe and confidential use environment; (4) customizable design of the AI interface, interaction, and resource linkage; and (5) designing depression literacy content to be understandable, actionable, and motivating.

Conclusions : These findings provide caregiver-centered, practice-oriented guidance for further optimizing the kiosk-based AI virtual consultant. Future planning of the feasibility and trial studies to evaluate its effects on depression literacy and emotional support will be needed.

Keywords : Co-design, depression literacy, family caregivers, kiosk-based AI agent



Electronic Health Record–Based Machine Learning Models for Adverse Drug Event Prediction: A Systematic Review of Nursing-Generated Data Integration

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Purpose : To examine how physiological, medication-related, and nursing-generated assessment data have been incorporated into Machine learning (ML) -based adverse drug events (ADEs) prediction models and to explore their potential contribution to ADE risk prediction.

Methods : We conducted a systematic review and exploratory meta-analysis of 17 studies. Prediction models were grouped according to data configuration: (1) physiological data only, (2) physiological plus medication-related data, and (3) models additionally incorporating nursing-generated assessment variables, such as structured risk assessments, functional status measures, acuity classifications, and trigger-based documentation. Sensitivity, specificity, and area under the receiver operating characteristic curve (AUROC) were synthesised using exploratory pooled analyses.

Results : Models using physiological data alone demonstrated moderate diagnostic performance (pooled sensitivity 0.77; specificity 0.87). Models incorporating medication-related variables showed higher pooled sensitivity (0.88) with similar specificity (0.87). Models that included nursing-generated assessment variables demonstrated higher pooled specificity (0.93) and weighted mean AUROC (0.94), although pooled sensitivity was lower (0.74).

Conclusions : Structured nursing-generated electronic health record variables may provide clinically relevant contextual information that remains underrepresented in ML-based ADE prediction research. Across heterogeneous retrospective studies, models incorporating nursing-generated assessment data showed distinct diagnostic performance patterns, including comparatively higher specificity in pooled analyses. However, the current evidence base remains limited because few studies incorporated nursing-generated variables and substantial methodological heterogeneity was present across studies. Further prospective and externally validated research is needed to clarify how nursing-generated data can support clinically applicable decision support systems for medication safety.

Keywords : Electronic health records; Machine learning; Adverse drug events; Medication safety; Clinical decision support; Nursing informatics; Nursing-generated data; Systematic review; Prediction models



eHealth literacy, digital health readiness, and willingness to use mobile health in relation to cardiac health behavior among patients with heart disease

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Purpose : This study aimed to identify the levels of eHealth literacy, digital health readiness, and willingness to use mobile health, and to examine their association with cardiac health behavior among patients with heart disease.

Methods : A cross-sectional descriptive correlational study was conducted with 300 adults diagnosed with a heart disease (e.g., hypertension, myocardial infarction, arrhythmia, heart failure, valvular disease) and receiving follow-up care at a hospital. Participants were recruited through an online panel and completed self-administered questionnaires assessing eHealth literacy, digital health readiness, willingness to use mobile health, and cardiac health behavior. Data were analyzed using descriptive statistics, Pearson's correlation coefficients, and multiple regression analysis.

Results : Participants' mean age was 54.7 years, and 69.0% were male. The mean scores for eHealth literacy, digital health readiness, willingness to use mobile health, and cardiac health behavior were 3.67 out of 5, 3.94 out of 5, 3.58 out of 5, and 2.78 out of 4, respectively. Cardiac health behavior was positively correlated with eHealth literacy ($r=0.23$, $p<.001$), digital health readiness ($r=0.34$, $p<.001$), and willingness to use mobile health ($r=0.45$, $p<.001$). Multiple regression analysis revealed that age ($\beta=0.29$, $p<.001$), employment status ($\beta=-0.10$, $p=.049$), and willingness to use mobile health ($\beta=0.41$, $p<.001$) were significant predictors of cardiac health behavior, explaining 30.0% of the total variance.

Conclusions : Cardiac health behavior was significantly associated with eHealth literacy, digital health readiness, and willingness to use mobile health, with willingness to use mobile health emerging as the strongest predictor. These findings suggest that enhancing patients' willingness to use mobile health technologies may be an effective strategy for promoting cardiac health behavior. Healthcare providers should consider incorporating digital health literacy and mobile health engagement into interventions aimed at improving cardiac self-management among patients with heart disease.

Keywords : Health behavior, health literacy, heart diseases, telemedicine



Influences of Nursing Students' Perceptions, Attitudes, and Abilities on Their Intention to Use Artificial Intelligence (AI) in Healthcare

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Purpose : This study examined nursing students' perceptions, attitudes, and abilities regarding the use of artificial intelligence (AI) in healthcare and identified factors influencing their intention to use AI.

Methods : A cross-sectional survey was conducted among 297 nursing students. Data were collected between January 26 and 30, 2026, and 293 valid responses were included in the final statistical analysis. Data were analyzed using descriptive statistics, independent t-test, one-way ANOVA, Pearson's correlation coefficient, and multiple regression analysis with SPSS/WIN 29.0.

Results : Perception of professional impact ($\beta=.20$, $p=.007$), negative attitudes ($\beta=-.12$, $p=.036$), positive attitudes ($\beta=.49$, $p<.001$) and grade 2 ($\beta=.13$, $p=.010$) were significant predictors of intention to use AI. These variables explained 51.0% of the variance in intention to use AI (Adjusted $R^2=.510$, $p<.001$).

Conclusions : Positive attitudes and perceived professional impact of AI are key factors influencing nursing students' intention to use AI, with positive attitudes showing the strongest effect. Educational strategies should extend beyond technical skill development to foster positive attitudes toward AI and enhance awareness of its professional impact in healthcare. Integrating these components into nursing curricula may enhance students' readiness to effectively adopt and utilize AI technologies in future healthcare settings.

Keywords : Artificial Intelligence, Attitude, Intention to Use, Nursing Student, Perception



Information and Communication Technology Services Across Korea's Integrated Community Care Roadmap: A Scoping Review of National Policy and Implementation Cases

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Purpose : To map how information and communication technology services are positioned across Korea's integrated community care roadmap and to characterize the technologies, target populations, care functions, integration mechanisms, and reported outcomes evidenced in national programs and regional implementation cases, identifying gaps for nursing and policy.

Methods : Following the framework of Arksey and O'Malley with refinements by Levac and colleagues and Joanna Briggs Institute guidance, and reported following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews, five international databases and five Korean databases were searched alongside government and institutional grey literature covering 2019 to 2026. Two reviewers independently screened and charted service type, technology, population, care function, setting, integration mechanism, and outcomes, resolving disagreements by consensus.

Results : From twenty-eight sources, eighteen domestic initiatives were charted: four national policy and roadmap frameworks and fourteen implementation cases. These services clustered into six categories — integrated information and data platforms for care coordination (33%); wearable, location-tracking, and mobile self-management tools (22%); telemonitoring and non-face-to-face health management (22%); artificial-intelligence conversational agents (11%); companion and assistive care robots (6%); and internet-of-things sensing with emergency safety response (6%). Applications concentrated on aging in place, spanning safety surveillance, psychosocial support, and self-management, with reported gains in satisfaction, daily-living function, hospitalization avoidance, and cost. Most evidence derived from program and case reports rather than controlled evaluations; about two-thirds of initiatives were national in scope while super-aged rural areas were sparsely represented, and an explicit nursing role — mainly visiting and integrated home nursing — appeared in only a minority.

Conclusions : Overall, these technologies constitute core infrastructure throughout Korea's integrated community care roadmap but skew toward monitoring over sectoral integration. Advancing rural implementation, digital equity, standardized outcomes, and nursing-led coordination is warranted.

Keywords : Aged; Delivery of Health Care, Integrated; Digital Health; Information and Communication Technology



Feasibility, Fidelity and Quality of a Metaverse-Based Positive Youth Development Program for Adolescent E-cigarette Prevention: A Pilot Study Protocol

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Purpose : This pilot study aims to determine whether a metaverse-based Positive Youth Development (PYD) program for adolescent e-cigarette use prevention is feasible, can be delivered with fidelity, and has sufficient program quality in school settings to inform a future large-scale cluster randomized controlled trial.

Methods : This single-arm mixed-methods pilot study will be conducted over two weeks in four classes from two elementary and two middle schools, targeting students aged 12-16, a core developmental period for PYD. The intervention was developed as a six-session curriculum through Intervention Mapping. For this pilot, two educationally essential sessions were selected to examine technical and operational feasibility in classroom settings. To reflect real-world school implementation, sessions will be delivered by participating schools' health teachers who were involved in the program planning group and voluntarily agreed to join the pilot. After the intervention, post-intervention questionnaires will assess feasibility among both students and health teachers across acceptability, demand, implementation, practicality, adaptation, integration, expansion, and limited efficacy. Fidelity will be assessed across training, delivery, receipt, and enactment, with student questionnaires focusing on receipt and enactment of core learning components and e-cigarette use, and health teacher questionnaires focusing on training, delivery, enactment, and program quality regarding content, structure, and educational alignment. Focus group interviews with students and health teachers will further explore students' participation experiences and health teachers' implementation experiences, including perceived learning, barriers, facilitator needs, and refinements for scale-up.

Results : This study is expected to generate feasibility estimates, fidelity evidence, program quality ratings, and qualitative insights into school-based implementation. It will identify students' perceived learning experiences related to e-cigarette prevention and health teachers' perspectives on practical, technical, and instructional conditions needed for successful delivery.

Conclusions : Findings will inform refinement of the curriculum, teacher preparation, implementation procedures, and outcome assessment strategies for a future cluster randomized controlled trial.

Keywords : Adolescent, Feasibility, Fidelity, Pilot projects



Comparison of Nonverbal Response Delay and Nonverbal Immediacy between Young and Middle-aged Adults

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Purpose : Recent changes in digital communication have highlighted nonverbal response patterns such as silence and eye contact before verbal responses. While previous studies have focused on nonverbal immediacy, nonverbal response delay has received limited attention. Therefore, this study compared nonverbal response delay and nonverbal immediacy between young and middle-aged adults to identify age-related characteristics of nonverbal communication and provide preliminary evidence for future research.

Methods : This descriptive cross-sectional study recruited 99 young and middle-aged adults using purposive sampling. Data were collected using structured online questionnaires, including the Nonverbal Response Delay Scale and the Nonverbal Immediacy Scale, administered through Google Forms. The collected data were analyzed using descriptive statistics and independent t-tests with SPSS version 28.0.

Results : Young adults demonstrated significantly higher levels of nonverbal response delay than middle-aged adults ($p=.002$). Among the subdomains, response delay ($p=.004$), silence response ($p=.029$), and minimal verbal response ($p=.031$) were significantly higher in young adults. Eye-contact response showed the highest mean score among the subdomains of nonverbal response delay in both age groups. No significant difference was found in nonverbal immediacy between young and middle-aged adults. Although no gender difference was observed in overall nonverbal response delay, women showed significantly higher eye-contact responses ($p<.001$) and nonverbal immediacy ($p=.022$) than men.

Conclusions : Nonverbal response delay differed significantly between young and middle-aged adults, whereas nonverbal immediacy remained relatively consistent across age groups. Women demonstrated higher eye-contact responses and nonverbal immediacy than men. These findings provide preliminary evidence for understanding age-related characteristics of nonverbal communication and support the conceptualization of nonverbal response delay. Furthermore, the findings may inform the development of age-sensitive communication education and therapeutic communication strategies in healthcare and educational settings.

Keywords : Middle aged, Nonverbal communication, Young adult



Development of a Korean Mobile Application Based on the World Health Organization iSupport Program for Dementia Caregivers

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Purpose : As the prevalence of dementia and the burden on family caregivers continue to increase, there is a growing need for accessible and sustainable digital care support. This study aimed to describe the process of culturally adapting the World Health Organization's iSupport program for dementia caregivers to the Korean healthcare and cultural context and developing it into a mobile application.

Methods : The application was developed by translating and culturally adapting the original iSupport content using the Ecological Validity Framework to reflect the Korean healthcare system and cultural context. The educational content was subsequently redesigned for mobile delivery. A user-centered design approach was applied to develop the application by incorporating user interface and user experience principles. The application was refined through iterative reviews and feedback from the research team, healthcare professionals, and family caregivers to enhance its clinical accuracy and usability.

Results : The developed iSupport-Korea mobile application transformed text-based educational materials into a mobile platform supporting self-directed learning through short learning modules. The application incorporated culturally relevant examples and Korean dementia support resources, together with audio narration, visual illustrations, and simplified navigation to improve accessibility for users with limited digital literacy. Interactive self-reflection activities with review questions were also integrated to support learner engagement.

Conclusions : This study describes the development of a Korean mobile application based on the World Health Organization iSupport program for dementia caregivers. The application provides a practical foundation for user-centered digital nursing interventions and may support the future development of personalized digital dementia care services and caregiver support systems.

Keywords : Cultural adaptation; Dementia caregivers; Digital health; Mobile application



Converting Platform Information into Decision-Ready Knowledge for Patient Participation in Digital Shared Decision-Making

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Purpose : This study aimed to theorize how information embedded in a digital shared decision-making platform is converted into decision-ready knowledge that enables patients with chronic diseases to move from receiving information to participating in treatment-related deliberation, communication, and action.

Methods : This qualitative secondary analysis drew on interview and open-ended feedback data from patients with chronic diseases who completed beta testing of a digital shared decision-making platform. Data were collected from August to September 2025 through online, face-to-face, and telephone interviews. Two analysts extracted information-related statements and conducted thematic content analysis. The analysis was guided by a key distinction between information as content and information as a resource for decision-making.

Results : The analysis identified five conversion conditions through which platform information became usable for patient participation. Interpretive accessibility enabled patients to translate professional terms, drug names, and procedural steps into meanings connected to their own health situations. Evaluative comparability made treatment options recognizable as choices by organizing benefits, risks, side effects, likelihood of occurrence, and medication compatibility in a form that patients could judge. Epistemic accountability was required because patients approached platform information with uncertainty shaped by inconsistent internet sources and informal advice; visible evidence and sources legitimized its use in decision-making. Interactional mobilization occurred when information helped patients formulate questions for healthcare professionals, shifting information from private comprehension to consultation-based communication. Situate enactability in connection with treatment decisions, including everyday practices such as diet, exercise, medication-taking, and responses to side effects. These conditions revealed that clinically adequate information did not automatically become participatory knowledge unless patients could interpret, compare, trust, discuss, and enact it.

Conclusions : Digital shared decision-making platforms should not treat information delivery as equivalent to decision support. Patient participation requires information architecture that converts clinical content into interpretable, accountable, dialogic, and actionable knowledge before clinical encounters.

Keywords : Chronic disease; Decision support; Digital health; Shared decision-making



Text Embedding-Based Prediction of Anxiety and Depression in Adults with Subjective Cognitive Decline: A Preliminary Analysis

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Purpose : Subjective cognitive decline (SCD) is associated with anxiety and depression, which may worsen perceived cognitive difficulties and reduce quality of life. Emotional diaries can capture cognitive and affective symptom experiences in daily life. This preliminary analysis examined whether emotional diary text could predict anxiety and depressive symptoms among adults with SCD using a pretrained text embedding model.

Methods : This preliminary analysis was conducted as part of an exploratory study designed to develop a large language model (LLM)-based symptom prediction model using emotional diary data. Participants were community-dwelling Korean adults under 60 years of age with a Subjective Cognitive Decline-Questionnaire score of 7 or higher. Day 1 Korean-language diary entries from 66 participants were embedded into numerical vectors using the pretrained multilingual sentence-transformer model paraphrase-multilingual-MiniLM-L12-v2. Outcomes were defined as PROMIS Short Form v1.0 Anxiety 4a and Depression 4a T-scores of 60 or higher. Logistic regression, random forest, XGBoost, and support vector machine models were evaluated using stratified 5-fold cross-validation (internal validation only).

Results : Elevated anxiety and depression were observed in 38 and 35 participants, respectively. Logistic regression showed the most balanced performance. For depression prediction, logistic regression achieved a ROC-AUC of 0.736, balanced accuracy of 0.692, sensitivity of 0.771, and specificity of 0.613, suggesting acceptable discrimination. For anxiety prediction, logistic regression achieved a ROC-AUC of 0.679, balanced accuracy of 0.668, sensitivity of 0.658, and specificity of 0.679, indicating modest but balanced predictive performance.

Conclusions : These preliminary findings suggest that emotional diary text may contain affective and cognitive cues related to anxiety and depressive symptoms in adults with SCD. Although limited by its small sample size and preliminary nature of this analysis, and internal validation only, this analysis supports the feasibility of developing an LLM-based symptom prediction model in a subsequent full-scale study.

Keywords : anxiety, depression, subjective cognitive decline, text embedding



Current Evidence on Machine Learning Models for Predicting Esophageal Variceal Bleeding in Patients with Liver Cirrhosis

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Purpose : This review aimed to summarize current evidence on machine learning models for predicting esophageal variceal bleeding in patients with liver cirrhosis and to identify implications for future electronic medical record-based model development.

Methods : Four databases, including PubMed and the Cumulative Index to Nursing and Allied Health Literature, were searched for studies published from 2010 to 2025 using terms related to esophageal varices, variceal bleeding, cirrhosis, machine learning, artificial intelligence, and prediction models. Studies involving adults with liver cirrhosis that developed prediction or classification models using machine learning algorithms to assess esophageal variceal bleeding risk were included. Studies using conventional regression models alone or exclusively imaging-based data were excluded. Seventy-six records were identified, and six studies were included after duplicate removal, screening, and full-text review. The included studies were analyzed according to study characteristics, predictor variables, machine learning algorithms, predictive performance, and study limitations.

Results : Of the six studies, two directly predicted esophageal variceal bleeding events, whereas four focused on variceal grade classification or identification of high-risk varices. Most studies were conducted in China, India, or Iran. Various machine learning algorithms were applied, with tree-based ensemble methods commonly used. Predictors mainly included demographic, cirrhosis-related, laboratory, and endoscopic variables. Frequently used predictors included age, sex, cirrhosis etiology, liver disease severity scores, platelet count, albumin, total bilirubin, hemoglobin, and endoscopic findings. Reported important predictors included high-risk variceal status, liver stiffness, variceal size, red wale markings, ascites, platelet count, and total bilirubin. Most models showed favorable predictive performance, while external validation and clinical applicability assessments were not consistently conducted.

Conclusions : Machine learning models show potential for assessing esophageal variceal bleeding risk in patients with liver cirrhosis. Future studies should develop and externally validate electronic medical record-based models using a broader range of routinely collected clinical variables, evaluate clinical utility, and include Korean patients.

Keywords : Esophageal variceal bleeding, Liver cirrhosis, Machine learning, Prediction model



Digital Oral Health and Technology-Assisted Nursing Interventions for Decreased Oral Function in Older Adults

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Purpose : Decreased oral function and oral frailty are common geriatric conditions associated with chewing and speaking difficulties, nutritional risk, declining health, and increased care needs. Digital oral health technologies may support oral assessment, education, monitoring, referral, and continuity of care; however, evidence regarding their use in older populations remains fragmented. This integrative review aimed to synthesize evidence on digital oral health and technology-assisted nursing interventions for decreased oral function in older adults.

Methods : This integrative review examined studies published between 2018 and 2026, including cross-sectional research, video-based observational assessment, rural and satellite-supported teledentistry studies, and a randomized controlled trial protocol. Reviewed populations included community-dwelling older adults, long-term care residents, older adults with mild cognitive impairment, and rural or underserved older adults. Data were narratively synthesized by study design, setting, technology type, oral health indicators, intervention components, and implementation barriers.

Results : Digital oral health approaches showed evidence in several areas. Remote oral assessment demonstrated feasibility and clinical consistency, with video-based assessment showing high agreement with face-to-face evaluation using the Oral Health Assessment Tool (intraclass correlation coefficient = 0.788–0.931). Digital service models identified substantial unmet oral care needs, including non-functional dentition in nearly 90% of older adults, periodontal disease in more than 80%, xerostomia in over 60%, and prosthetic needs in more than 80%. eHealth literacy was negatively associated with oral frailty through pathways involving oral health self-efficacy and oral health status (coefficient = –0.161 to –0.105). Technology-assisted strategies may support early detection, triage, referral, self-management, and continuity of oral care, although digital literacy, cognitive impairment, internet connectivity, workflow integration, and lack of standardized protocols remain key barriers.

Conclusions : Digital oral health and technology-assisted nursing interventions may improve early identification and management of decreased oral function in older adults. Future research should validate nurse-inclusive digital oral health models and evaluate long-term clinical outcomes.

Keywords : Digital oral health, nursing intervention, older adults, oral frailty



Development of an electronic medical record–based machine learning model for predicting hypoglycemia surveillance in diabetic patients after abdominal surgery

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Purpose : This study aimed to develop and compare machine learning–based predictive models to identify a hypoglycemia surveillance group among diabetic patients after abdominal surgery using electronic medical record data.

Methods : The study population comprised 1,039 diabetic patients selected from 8,587 patients who underwent abdominal surgery at a tertiary hospital. The hypoglycemia surveillance group was defined as patients with a minimum postoperative blood glucose level below 100 mg/dL within the first three postoperative days. After data preprocessing and feature selection, six machine learning classification algorithms were trained and internally validated using stratified 5-fold cross-validation. Model performance was evaluated using discrimination and calibration metrics. The clinical utility of the models was assessed using decision curve analysis (DCA). In addition, SHapley Additive exPlanations (SHAP) analysis was performed to identify key predictors contributing to the model predictions.

Results : Among 1,039 participants, 317 (30.5%) were in the hypoglycemia surveillance group. All models demonstrated comparable discrimination and calibration, with the area under the receiver operating characteristic curve (AUROC) values ranging from 0.871 to 0.897 (95% CIs, 0.822–0.944). DCA indicated that the models provided a higher net benefit across clinically relevant threshold probabilities. SHAP analysis identified postoperative mean blood glucose and coefficient of variation as the most important predictors of hypoglycemia.

Conclusions : The machine learning–based prediction model may help identify patients requiring hypoglycemia surveillance after abdominal surgery, supporting nursing surveillance and improving glycemic management and patient safety. Using readily available clinical data, the model has the potential to evolve into a practical prediction tool and provide a foundation for nursing-based clinical decision support systems.

Keywords : Diabetes mellitus, hypoglycemia, machine learning, surveillance



Virtual Reality-Based Forest Therapy for Psychological and Rehabilitative Outcomes in Stroke Patients

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Purpose : This study aimed to examine the effects of virtual reality (VR) forest therapy on depression, anxiety, stress, comfort, and rehabilitation adherence among stroke patients.

Methods : A quasi-experimental study with a nonequivalent control group and a pretest-posttest time-lag design was conducted at a rehabilitation hospital in City D from November 2024 to April 2025. A total of 41 stroke patients were included (experimental group, n=20; control group, n=21). The experimental group received VR forest therapy twice weekly for 5 minutes per session over 4 weeks, using actual forest footage filmed in 360-degree 4K resolution combined with natural sounds and olfactory stimuli to enhance immersion. Outcome variables included depression, anxiety, subjective and objective stress, comfort, and rehabilitation adherence. Data were analyzed using descriptive statistics, independent t-test, chi-square test, Mann-Whitney U test, and generalized estimating equations.

Results : Significant group-by-time interaction effects were found for depression, anxiety, subjective stress, objective stress, and comfort (all $p < .05$), indicating greater improvement among participants in the experimental group compared with the control group. However, no significant differences were observed for rehabilitation adherence between groups, over time, or in the group-by-time interaction.

Conclusions : VR forest therapy was effective in reducing depression, anxiety, and stress while enhancing comfort in stroke patients, supporting its potential as an integrated nursing intervention addressing both physical and emotional rehabilitation. Further research is warranted to confirm its long-term effects and applicability across diverse clinical settings.

Keywords : Anxiety, Depression, Stroke, Virtual reality



Development of an Electronic Medical Record–Based Machine Learning Model for Identifying a Postoperative Pulmonary Complication Surveillance Group After Abdominal Surgery

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Purpose : This study aimed to develop and compare machine learning–based predictive models to identify patients requiring postoperative pulmonary complication surveillance after abdominal surgery using electronic medical record data.

Methods : The study population comprised 2,520 patients who underwent abdominal surgery at a single institution. The surveillance group was defined based on radiologic findings of postoperative pneumonia, atelectasis, pleural effusion, pneumothorax, or pulmonary edema on chest imaging. Prediction models were developed using five supervised machine learning algorithms with data preprocessing and feature selection, and internally validated using stratified 5-fold cross-validation. Model performance was evaluated using discrimination and calibration metrics. The clinical utility of the models was assessed using decision curve analysis (DCA). In addition, SHapley Additive exPlanations (SHAP) analysis, including beeswarm and waterfall plots, was performed to identify key predictors and explain individual predictions.

Results : Among 2,520 participants, 548 (21.7%) were in the postoperative pulmonary complication surveillance group. All models demonstrated comparable discrimination and calibration, with the area under the receiver operating characteristic curve (AUROC) values ranging from 0.80 to 0.82 (95% CIs, 0.76–0.86). DCA demonstrated greater net benefit than the treat-all and treat-none strategies across clinically relevant threshold probabilities. SHAP analysis identified anesthesia time and age as the most important predictors of postoperative pulmonary complications.

Conclusions : These findings suggest that machine learning-based models using only preoperative and intraoperative data can effectively identify high-risk patients for postoperative pulmonary complications following abdominal surgery. Because the model relies solely on information available by the end of surgery, risk stratification can be performed immediately postoperatively, facilitating timely postoperative respiratory surveillance. This approach holds promise for integration into clinical nursing practice as a practical decision support tool, ultimately contributing to improved patient safety.

Keywords : Machine learning, Postoperative Pulmonary Complications, Surgery, Surveillance



Enhancing pediatric patient safety through extended reality education for children and parents: A quasi-experimental study

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Purpose : Hospitalized children and their parents face elevated risks of patient safety incidents, particularly falls and medication errors, which conventional print-based education has been limited in addressing. This study aimed to develop and evaluate an extended reality-based patient safety education system, grounded in Kolb's experiential learning theory and the knowledge, attitude, and practice model, consisting of a virtual reality-based fall-prevention program and an augmented reality-based medication-safety storybook for joint use by hospitalized children and parents.

Methods : A quasi-experimental design with a nonequivalent control group and a pretest-posttest comparison was used. One hundred participants, including fifty hospitalized children aged seven to thirteen years and fifty parents, were recruited from a pediatric ward in South Korea and assigned to an experimental or control group. The experimental group received seven sessions of the extended reality program during hospitalization, while the control group received routine education. Outcomes included hospitalization safety knowledge among children, fall-prevention attitude, safe medication-use attitude, and patient safety activity performance among parents; program satisfaction was assessed among children and parents in the experimental group only.

Results : Children in the experimental group showed greater improvement in hospitalization safety knowledge than controls ($z = 5.87, p < .001$). Parents showed significant improvements in fall-prevention attitude ($t = -8.91, p < .001$), safe medication-use attitude ($z = 4.09, p < .001$), and patient safety activity performance ($t = 3.26, p = .002$). Satisfaction was high for both modules, with children favoring virtual reality and parents favoring augmented reality.

Conclusions : A jointly delivered extended reality-based education system improved patient safety outcomes among hospitalized children and parents, supporting its potential as a scalable digital health education platform for family-centered safety interventions in pediatric inpatient care.

Keywords : Extended Reality (XR), Hospitalized Children, Family-Centered Nursing, Patient Safety Education



Digital Competence as a Cross-Domain Connector in the Healthy Aging System: A Network Analysis

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Purpose : The World Health Organization Healthy Ageing Framework conceptualizes healthy aging as the dynamic interaction between intrinsic capacity and the environment. As the healthcare environment becomes increasingly digitalized, digital competence has emerged as a critical factor for healthy aging. However, how it interacts with other key elements of healthy aging remains poorly understood. This study examined the network structure of intrinsic capacity, digital competence, and health behaviors in community-dwelling older adults.

Methods : Secondary data from the 2023 National Survey of Older Koreans were used, analyzing a sample of 5,609 community-dwelling adults aged 65–74 years. Study variables encompassed digital competence, five domains of intrinsic capacity, and six health behaviors. After adjusting for age, sex, education level, and household income, an Extended Bayesian Information Criterion-regularized Gaussian Graphical Model (EBICglasso) was estimated. Network analysis evaluated four centrality indices, node strength, betweenness, closeness, and expected influence, with stability verified via case-dropping bootstrap.

Results : Within the network of 43 significant edges, digital competence ranked second in both node strength (0.668) and expected influence (0.596). Notably, it exhibited a cross-domain connectivity pattern, directly linking to three intrinsic capacity domains, cognitive, psychological, and locomotion, as well as all six health behaviors. Psychological capacity emerged as the primary hub across all centrality indices. Network stability was confirmed with a high case-dropping stability coefficient of 0.75.

Conclusions : This study demonstrated that digital competence functions as a strategic connector within the healthy aging system through its cross-domain structure linking intrinsic capacity and health behaviors. These findings support expanding the World Health Organization Healthy Ageing Framework for the digital age and provide evidence for integrating digital competence as a core component of healthy aging. These insights suggest that assessing and enhancing digital competence should be integrated into nursing interventions to effectively foster healthy aging.

Keywords : digital competence, healthy aging, network analysis, older adults



Self-Management Support Needs and Mobile Health Design Requirements for Ostomy Care in Colorectal Cancer Survivors: A Qualitative Content Analysis

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Purpose : This study explored the self-management support needs jointly recognized by colorectal cancer survivors living with an ostomy and multidisciplinary healthcare professionals. From a user-centered co-design perspective, it aimed to identify the key design requirements and essential functions for an mHealth application to support ostomy self-management.

Methods : A qualitative descriptive study using Graneheim and Lundman's qualitative content analysis was conducted. Six key stakeholders—two colorectal cancer survivors with an ostomy and four multidisciplinary providers (two ostomy nurses, one dietitian, and one colorectal surgeon)—were recruited through purposive sampling. Semi-structured individual interviews were audio-recorded, transcribed verbatim, and analyzed using MAXQDA software. Meaning units were identified, condensed, and abstracted into codes, subcategories, categories, and themes. Trustworthiness was established according to Lincoln and Guba's criteria, and reporting followed the Consolidated Criteria for Reporting Qualitative Research (COREQ).

Results : Four themes and ten subthemes emerged. The findings revealed a gradual process through which patients developed self-management capacity while overcoming initial vulnerability and dependence after ostomy surgery: (1) vulnerability despite striving for independence, (2) the gap between knowing and doing, (3) multilayered support from family, peers, and the healthcare system, and (4) gradual physical, dietary, and emotional adaptation over time. Self-management needs varied across recovery stages, highlighting the importance of timely, stage-specific support. Key design requirements included stage-specific self-management guidance, artificial intelligence (AI)-supported self-monitoring, access to healthcare professionals, symptom and dietary tracking, and psychological support.

Conclusions : Self-management support needs among colorectal cancer survivors with an ostomy extend beyond technical skills to encompass psychosocial adaptation, self-management agency, and sustained multilayered support. Patient-centered digital interventions providing timely, stage-specific support throughout the recovery journey are needed. These findings provide evidence to inform the development of future mHealth interventions for ostomy care.

Keywords : Colorectal neoplasms; Mobile health; Ostomy; Self-management



Application of a Co-Designed Large Language Model–Based Shared Patient Summary System in Interprofessional Cardiovascular Care

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Purpose : This project aimed to develop and implement a co-designed large language model (LLM)-based shared patient summary system and evaluate its perceived utility for information retrieval and interprofessional collaboration in cardiovascular care.

Methods : The project was conducted at a tertiary medical center in Taiwan. System development occurred from March to November 2025, followed by user evaluation from November to December 2025. Cardiologists, heart failure case managers, pharmacists, rehabilitation physicians, and information engineers collaboratively identified clinical needs and developed the system. Clinical information from electronic medical records and other systems was synthesized into structured summaries covering diagnoses, disease progression, clinical findings, treatments, medication changes, and recent events. The system was integrated into heart failure case management and rehabilitation consultation workflows, with clinical verification before use. User evaluation assessed perceived efficiency, interprofessional collaboration, and summary quality.

Results : Among 66 healthcare professionals, 83.9% reported reduced time spent reviewing and organizing patient information. Estimated time savings per patient were 5–10 minutes for 61.8% and over 10 minutes for 22.1%. These estimates were self-reported, without direct measurement. Mean interprofessional collaboration ratings ranged from 3.66 to 3.94 on a five-point scale. Overall impression and alignment with clinical needs scored 4.21 and 4.08, respectively; 95.6% would recommend the system. Perceived summary quality ratings ranged from 3.50 to 3.77.

Conclusions : User feedback suggests that the system may improve information retrieval and support interprofessional communication and collaborative care planning. Nurses contributed to clinical needs identification and system co-design. Clinical verification remains essential. Further studies using objective measures are needed to assess efficiency, summary accuracy, and patient outcomes.

Keywords : cardiovascular care; information sharing; large language model; interprofessional care



Factors Influencing Internet Health-Information Seeking Among Middle-Aged Patients with Type 2 Diabetes: A Cross-Sectional Study

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Purpose : Middle-aged adults with type 2 diabetes encounter considerable challenges in long-term disease management. Although the internet has emerged as a major source of health information, determinants of internet health-information seeking behavior in this population remain insufficiently understood. Drawing on the Technology Acceptance Model, which posits that perceived usefulness and perceived ease of use shape behavioral intentions, this study examined internet health-information seeking behavior among middle-aged patients with type 2 diabetes.

Methods : A cross-sectional survey was conducted among 185 outpatients aged 40 to 64 years with type 2 diabetes at a tertiary hospital in South Korea. Structured questionnaires were used to assess demographic and clinical characteristics, attitudes toward internet health information including perceived usefulness, perceived ease of use, reliability, and information utilization, as conceptualized within the Technology Acceptance Model, as well as diabetes self-care activities measured by the Summary of Diabetes Self-Care Activities instrument. Differences between internet health-information seeking users and non-users were examined, and multivariable logistic regression analysis was performed to identify independent predictors of internet health-information seeking behavior.

Results : The average age of the study participants was 55.60 ± 6.77 years and overall, 39.5% of participants reported seeking health information through the internet. More positive attitudes toward internet health information, greater diabetes self-care activity, and having received diabetes management education, which was associated with lower odds of seeking.

Conclusions : Cognitive attitudes toward internet health information were the strongest determinant of internet health-information seeking among middle-aged patients with type 2 diabetes. Interventions that strengthen digital literacy are needed to help patients critically appraise and effectively use online health information, supporting diabetes self-management and informed decision-making.

Keywords : Diabetes Mellitus, Health Information, Internet, Middle-aged



The iNurse Framework: Developing an Artificial Intelligence–Integrated Nursing Assessment Framework for Smart Wound Care

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Purpose : Chronic wound assessment remains subjective, inconsistent, and documentation-intensive in clinical nursing practice. Although artificial intelligence (AI) has shown promise in wound image recognition, its integration into standardized nursing assessment and clinical workflows remains limited. This study developed the iNurse Framework, an AI-integrated nursing assessment framework to support standardized wound care.

Methods : A methodological development study was conducted using literature review, expert consultation, and clinical workflow analysis. The framework consists of six components: standardized assessment, wound image acquisition, AI-assisted analysis, clinical verification, structured electronic documentation, and clinical decision support with longitudinal monitoring. AI was incorporated as a decision-support tool within, rather than replacing, nurses' clinical judgment.

Results : The iNurse Framework provides a standardized nursing assessment model integrating AI into routine wound care. It supports consistent assessment, structured documentation, objective wound evaluation, and longitudinal monitoring, while maintaining nurses' central role in clinical decision-making.

Conclusions : The iNurse Framework offers a novel methodological approach for integrating AI into nursing assessment beyond algorithm development. It provides a practical foundation for smart wound care and digital nursing transformation by improving assessment consistency, reducing documentation burden, and supporting precision nursing. Future studies will evaluate its clinical usability and effectiveness.

Keywords : Artificial intelligence; Nursing informatics; Wound assessment; Smart wound care; Clinical decision support



Validation of a Multimodal Large Language Model-Based Inhaler Technique Assessment Tool in Patients with Chronic Obstructive Pulmonary Disease

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Purpose : Inhaler technique errors are common among patients with chronic obstructive pulmonary disease (COPD), though proper inhaler use is critical for COPD management. To overcome the challenge of repeated face-to-face education in clinical practice, a multimodal large language model (LLM)-based tool was developed to assess inhaler technique. This study aims to validate the clinical validity of a multimodal LLM-based tool that assesses inhaler technique from patient demonstration videos.

Methods : Forty patients with COPD demonstrated their inhaler technique using placebo inhalers matching their prescribed devices. Their performance was evaluated by the multimodal LLM-based tool and by two experts through on-site and video-based assessments from November 2024 to February 2025. To establish the reference standard, five raters, including the two original raters and three nursing faculty members, reviewed steps with less than 75% agreement through repeated video review and consensus discussion. Correct completion rates for each step were analyzed, and agreement between the tool and experts was evaluated using percentage agreement, Fleiss' kappa, and Cohen's kappa. Confusion metrics—including accuracy, specificity, recall, precision, and F1 score—were calculated with the final consensus rating as the reference standard.

Results : The mean correct completion rate across inhaler steps was 74.0%. The tool demonstrated high agreement with expert ratings, with percentage agreement ranging from 94.9% to 99.2%. Fleiss' kappa values were .93 and .92 for on-site and video-based assessments, respectively, while Cohen's kappa was .98 between the tool and the final expert consensus rating. Most confusion metrics, including F1 scores, were perfect across all steps, except for "Load the dose" (.95), "Inhale deeply" (.98), and "Hold your breath" (.98), which exhibited comparatively lower performance.

Conclusions : The tool showed high performance and strong agreement with expert assessments, supporting its potential as a standardized, scalable approach to support inhaler assessment and patient education in clinical practice.

Keywords : Inhalers; Large Language Models; Pulmonary Disease, Chronic Obstructive; Validation Studies



Development and Evaluation of a Question-and-Answer Chatbot to Support Self-Management Information for Hemodialysis Patients

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Purpose : Patients undergoing maintenance hemodialysis require continuous self-management, yet access to reliable self-management information outside the dialysis unit is limited. This study aimed to develop an evidence-based question-and-answer (Q&A) chatbot for self-management support and evaluate its usability among patients undergoing maintenance hemodialysis.

Methods : This methodological study consisted of chatbot development, expert validation, and usability evaluation. The Q&A chatbot was developed based on the Artificial Intelligence Life Cycle framework using evidence-based clinical practice guidelines (KDIGO and KDOQI), patient education materials provided by the Korean Society of Nephrology, and a review of the relevant literature. Content validity was evaluated by a panel of five clinical experts, while system evaluation was conducted by five experts, including computer science specialists and hemodialysis professionals. The chatbot was refined according to expert feedback. Thirty-two adult patients undergoing maintenance hemodialysis used the chatbot for seven consecutive days. Usability was evaluated using a 20-item questionnaire assessing searchability, usability, reliability, usefulness, attractiveness, value, accessibility, and intention to continue use. Data were analyzed using descriptive statistics.

Results : A total of 32 patients completed the usability evaluation. The questionnaire demonstrated excellent internal consistency (Cronbach's $\alpha = .991$). The overall usability score was 4.24 ± 0.54 out of 5. The highest domain score was observed for usefulness (4.28 ± 0.58), followed by accessibility (4.27 ± 0.60), usability (4.26 ± 0.55), reliability (4.26 ± 0.53), searchability (4.25 ± 0.57), intention to continue use (4.23 ± 0.60), value (4.22 ± 0.61), and attractiveness (4.17 ± 0.55). All usability domains scored above 4.0, indicating high user acceptance.

Conclusions : The evidence-based question-and-answer (Q&A) chatbot demonstrated high usability and user acceptance among patients undergoing maintenance hemodialysis. The findings suggest that the chatbot has the potential to serve as a useful digital intervention for providing reliable self-management information and supporting patient education. Future studies are needed to evaluate its effectiveness in improving

Keywords : Artificial intelligence; Chatbot; Hemodialysis; Self-management



A Pragmatic approach to Precision infant feeding assessment

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Purpose : Safe oral feeding in infants depends on the coordinated maturation of suck-swallow-breathing (SSB). Current feeding assessment relies on clinical observation and standardized feeding scales, which are subjective and provide limited insight into the physiological processes underlying feeding. From a pragmatic perspective, this study aimed to use a precision infant feeding assessment approach that integrates conventional clinical assessment with non-invasive multimodal physiological monitoring to provide a more objective and individualized evaluation of infant feeding performance.

Methods : A narrative review of the literature published over the past two decades was conducted to examine current clinical feeding assessment instruments and advances in non-invasive monitoring technologies for infant sucking, swallowing, and breathing.

Results : Fourteen studies showed that multimodal physiological monitoring provides objectively biomarkers of feeding performance and SSB coordination, including sucking pressure, swallowing events, respiratory patterns, surface electromyography, pulse oximetry, and heart rate variability. When integrated with clinical feeding scales, these physiological biomarkers provide complementary information that may improve the identification of feeding readiness, monitor feeding progression, and support individualized clinical decision-making. However, current evidence remains limited by small sample sizes and insufficient validation in high-risk neonate and infant populations.

Conclusions : A pragmatic approach to precision infant feeding assessment emphasizes selecting assessment methods that best address clinical needs rather than relying solely on subjective observation or technology. Integrating clinical expertise with objective physiological monitoring has the potential to advance precision nursing, improve feeding safety, and facilitate individualized feeding management for infants, particularly those with complex medical conditions. Further clinical validation is required to establish this integrated framework in infants practice.

Keywords : Pragmatism, Precision Nursing, Suck-Swallow-Breathing Coordination



Effectiveness of HIS-Integrated AI Admission Nursing Assessment Analysis in Reducing Nurses' Clinical Workflow Time

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Purpose : Admission nursing assessment is essential for inpatient care planning, care risk identification, and patient safety. Traditionally, nurses complete admission assessments after patient arrival, requiring repeated history taking, medical record review, medication and allergy confirmation, and risk assessment. This process increases workload during peak admission periods and prolongs documentation time. This project aimed to evaluate the effectiveness of artificial intelligence (AI) admission nursing assessment analysis integrated into the Hospital Information System (HIS) in reducing nurses' clinical workflow time.

Methods : A quality improvement design was adopted. The HIS-integrated AI admission nursing assessment process was implemented at the scheduled admission stage. The system automatically retrieved and integrated electronic medical record data, including patient demographics, diagnoses, medical history, laboratory data, medication records, allergy history, and previous nursing care records. AI analysis generated key admission assessment points and potential care risk alerts. Nurses reviewed the AI-generated information before actual admission and confirmed, supplemented, or revised it during admission. The primary outcome was admission nursing assessment time among 30 patients before and 30 patients after implementation. Data were analyzed using paired-samples t-test and Wilcoxon signed-rank test.

Results : After implementation, mean admission nursing assessment time decreased from 41.03 ± 8.43 minutes to 15.40 ± 4.81 minutes. The mean reduction was 25.63 minutes, representing a 62.47% decrease. The paired-samples t-test showed a significant reduction after implementation ($t=17.88$, $p<.001$), with a 95% confidence interval of 22.70–28.57 minutes. The effect size was extremely large (Cohen's $d_z=3.26$). The Wilcoxon signed-rank test also showed statistical significance ($p<.001$).

Conclusions : HIS-integrated AI admission nursing assessment analysis effectively reduced nurses' clinical workflow time and improved admission care efficiency. This model has practical value for clinical workflow optimization and smart nursing applications.

Keywords : Hospital Information System; artificial intelligence; admission nursing assessment; nursing informatics; quality improvement; workflow time



Exploring Needs of The Drug Information Web Service Development for Nurses: Focus Group Interviews

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Purpose : Existing drug information resources do not sufficiently reflect nurses' clinical workflow and practical information needs for safe medication administration. This study aimed to identify clinical nurses' information needs for a web-based adverse drug event information system to establish a nursing practice-centered information provision framework.

Methods : This qualitative study employed focus group interviews (FGIs) to explore clinical nurses' experiences with drug information use and their requirements for a nursing practice-centered web-based information system. Ten nurses with at least four years of clinical experience were recruited using purposive sampling and divided into two groups. Semi-structured interviews explored experiences with drug information access and utilization, limitations of existing information resources, medication safety information needs, adverse drug reaction reporting experiences, and expectations for a nurse-centered web-based system. Data were analyzed using Graneheim and Lundman's qualitative content analysis.

Results : From 175 meaning units, 24 subcategories and five themes emerged: the importance of utilizing drug information for safe administration, responsibility to perform safe medication administration as a nursing professional, structural and environmental constraints hindering safe medication information utilization, need for a nurse-tailored drug information system, and improvements for medication safety information systems. Participants reported difficulties caused by time constraints, fragmented information resources, limited accessibility within nursing interfaces, and reliance on informal information sources. They emphasized the need for an integrated, intuitive information system that provides concise medication safety information, dosage calculation support, DUR alerts, patient education materials, and practical guidance reflecting clinical workflow.

Conclusions : The findings provide empirical evidence for developing a nurse-centered web-based medication safety information system that reflects nurses' workflow and practical information needs. Such a system may facilitate real-time clinical decision-making, improve access to medication safety information, strengthen adverse drug reaction monitoring, reduce medication errors, and ultimately contribute to improving patient safety.

Keywords : Information Services, Medication Errors, Nurses, Patient Safety, Qualitative Research



Mobile Healthcare-Based Lifestyle Interventions for Patients with Prehypertension: A Scoping Review

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Purpose : Prehypertension requires daily self-management due to high cardiovascular risks, but traditional face-to-face interventions suffer from low adherence. While mobile health (mHealth) offers an innovative, real-time customized alternative, integrated analysis of its clinical efficacy remains limited. Therefore, this study comprehensively analyzes mHealth lifestyle intervention trends for prehypertension to identify core techniques and elucidate their clinical effects.

Methods : Adhering to Arksey and O'Malley's scoping review framework, this study searched PubMed, EMBASE, and the Cochrane Library through June 2026. Based on the PCC framework, we included RCTs, dose-response studies, and protocols evaluating mHealth-based lifestyle interventions for prehypertension. From eleven final articles, data regarding participant characteristics, intervention techniques, and outcomes were extracted and analyzed using descriptive frequency analysis and thematic content synthesis

Results : An analysis of the 11 selected articles (1,794 participants, aged 18–90) showed that RCTs predominated (8), with exercise-diet combined interventions being central (6). Modalities mainly featured blended wearable-apps (4) or apps alone (3), organically integrating customized challenges (6), individual consultation (4), and text feedback (4). Education was delivered via provider-led sessions (5), app modules (2), and online platforms (2). Consequently, these programs effectively regulated blood pressure while comprehensively improving physical activity (6), BMI (5), weight (4), and DASH diet compliance (3).

Conclusions : mHealth-based lifestyle interventions effectively regulate blood pressure and improve body composition for prehypertension management. Integrating wearable-app technology with professional provider feedback maximized patient adherence. Future digital interventions should design hybrid models combining comprehensive expert-led counseling frameworks and digital devices, rather than simple automated notifications, to ensure both clinical efficacy and long-term sustainability.

Keywords : Prehypertension, Mobile Health (mHealth), Lifestyle Intervention, Self-Management



Factors Associated with Subsequent Glycemic Control in Type 2 Diabetes in Routine Care: A Prospective Observational Study with Exploratory Analyses by Continuous Glucose Monitoring Use

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Purpose : This prospective observational study aimed to identify general and disease-related characteristics, and psychological and behavioral factors associated with subsequent glycemic control among adults with type 2 diabetes in routine outpatient care and to explore whether psycho-behavioral patterns differed according to continuous glucose monitoring (CGM) use.

Methods : Adults with type 2 diabetes attending the endocrinology outpatient clinic of a university hospital in J Province were recruited between April and October 2025. Baseline surveys assessed patient activation, diabetes distress, health literacy and diabetes self-care behaviours. Clinical variables were obtained from electronic medical records. Glycemic control was defined as HbA1c <7% (controlled) versus ≥7% (uncontrolled) at the first follow-up visit. Multivariable logistic regression identified factors associated with glycemic control. CGM-stratified analyses were exploratory given the small number of CGM users.

Results : Among the 144 participants, the mean age was 60.97±11.56 years, the mean diabetes duration was 10.87±8.35 years, and 70.8% had a baseline HbA1c ≥7%. Twenty participants (13.9%) used CGM. At follow-up, the mean HbA1c was 7.48±1.11%; 50 were controlled and 94 uncontrolled. In multivariable analysis, longer diabetes duration (OR=0.93, p=.047), baseline HbA1c ≥7% (OR=0.18, p<.001) and insulin therapy (OR=0.31, p=.012) were associated with lower odds of achieving glycemic control (Nagelkerke R²=.435). Psycho-behavioral variables were not independently associated. However, exploratory analyses indicated potential differences in psycho-behavioral patterns according to CGM use and glycemic status; among participants not using CGM, baseline diabetes distress was higher in the subsequent uncontrolled group than in the controlled group (p=.027).

Conclusions : In routine outpatient care, diabetes duration, baseline HbA1c, and insulin therapy were the primary factors associated with subsequent glycemic control. Although psycho-behavioral factors measured at a single baseline time point did not independently predict HbA1c outcomes, the exploratory subgroup findings suggest that psycho-behavioral assessment may be more valuable for identifying intervention needs rather than for independently predicting glycemic control.

Keywords : Type 2 diabetes, Glycemic control, Psycho-behavioral factors, Continuous glucose monitoring



Effects of Generative AI Literacy and AI Perception on Clinical Judgment among Clinical Nurses: A Cross-Sectional Study

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Purpose : This study aimed to examine the current status of generative AI use, generative AI literacy, AI perception, and clinical judgment among clinical nurses, to analyze differences in these variables by general characteristics, and to identify the effects of generative AI literacy and AI perception on clinical judgment.

Methods : A descriptive cross-sectional survey was conducted among 151 clinical nurses at a tertiary general hospital in South Korea, recruited via convenience sampling. Data were collected via a structured online survey (Nov 2025–Jan 2026) using the Korean Generative AI Literacy Scale, an AI Perception Scale, and a Clinical Judgment Ability Scale. Data were analyzed with SPSS 29.0 using descriptive statistics, chi-square/Fisher's exact tests, t-tests, one-way ANOVA, Pearson's correlations, and hierarchical multiple regression. IRB approval was obtained.

Results : Among participants, 74.2% had experience using generative AI, whereas only 44.4% reported using it in clinical practice, mainly for medical/nursing information searches. Only 5.3% were aware of institutional generative AI guidelines, and only 2.7% had received AI-related education, although 69.5% expressed a need for it, most commonly to verify information accuracy. Clinical judgment was positively correlated with generative AI literacy ($r=.404$, $p<.001$) and AI perception ($r=.512$, $p<.001$). Hierarchical regression showed female sex ($\beta=.228$, $p<.001$), generative AI literacy ($\beta=.335$, $p<.001$), and AI perception ($\beta=.375$, $p<.001$) were significant predictors of clinical judgment, raising explained variance from 7.1% (Model I) to 37.5% (Model II, $p<.001$).

Conclusions : Although generative AI use was relatively common among clinical nurses, awareness of institutional guidelines and AI-related education remained low despite high demand. Generative AI literacy and AI perception significantly influenced clinical judgment, together explaining over a third of its variance. These findings highlight the need for systematic education—covering information verification and ethical use—and institutional guidelines to support safe, effective generative AI use in nursing practice.

Keywords : Generative Artificial Intelligence; AI Literacy; AI Perception; Clinical Judgment; Clinical Nurses



The influence of AI literacy, communication with health professionals, and innovation-oriented culture on evidence-based practice competency among clinical nurses

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Purpose : This study aimed to identify the influences of artificial intelligence literacy, communication with health professionals, and innovation-oriented culture on evidence-based practice competency among clinical nurses.

Methods : A descriptive correlational study was conducted on 176 clinical nurses working in hospitals in South Korea. Data were collected using an online self-report questionnaire from February 11 to 17, 2026. Evidence-based practice competency, artificial intelligence literacy, communication with health professionals, innovation-oriented culture, and general characteristics were assessed. Data were analyzed using descriptive statistics, independent t-tests, one-way analysis of variance, Pearson's correlation coefficients, and hierarchical regression analysis.

Results : Experience in using artificial intelligence tools in clinical practice ($\beta=.24$, $p < .001$), artificial intelligence literacy ($\beta=.22$, $p = .003$), openness in communication with health professionals ($\beta=.40$, $p < .001$), accuracy in communication with health professionals ($\beta=.21$, $p < .001$), and shift communication ($\beta=.19$, $p = .011$) were identified as significant predictors of evidence-based practice competency. Innovation-oriented culture was not an independent predictor. These factors accounted for 69.0% of the total variance ($F=24.26$, $p < .001$).

Conclusions : Enhancing evidence-based practice competency requires the development of AI education programs, the promotion of an open communication culture among nurses, and the implementation of standardized handover systems to improve shift communication. Furthermore, organizational-level strategies that integrate support for evidence-based practice with AI utilization are needed to strengthen nurses' clinical decision-making and professional competency.

Keywords : Evidence-based practice, Artificial intelligence, Interprofessional relations, Organizational culture



Content Validation of Nursing Activity Definitions and Electronic Health Record Data Mapping for the Korean Pediatric Patient Classification System

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Purpose : This study evaluated the content validity of the operational definitions of nursing activities and their corresponding electronic health record (EHR) data mappings for the Korean Pediatric Patient Classification System (KPPCS) as an initial phase of developing and validating an automated system intended to reduce the burden and variability of manual patient classification.

Methods : Content validity was evaluated in two phases. In Phase 1, eight experts (pediatric nurse managers, pediatric nurses with at least seven years of experience, and pediatric nursing faculty) evaluated the appropriateness of the operational definitions for the 55 [SS2.1][yj2.2]nursing activities of the original KPPCS, referencing the electronic clinical data elements available to represent each activity within the pediatric hospital setting where the study was conducted. In Phase 2, a separate panel of nine experts (pediatric advanced practice nurses, experienced staff nurses, and one nursing informatics specialist) evaluated the appropriateness of mapping the clinical data elements representing the nursing activity definitions refined in Phase 1 to corresponding EHR data sources. Content validity was assessed using the Item-level Content Validity Index (I-CVI) and the Scale-level Content Validity Index using Average method (S-CVI/Ave).

Results : In Phase 1, the S-CVI/Ave was 0.94, and four nursing activities had I-CVI values below 0.80. Based on the I-CVI results and expert feedback, operational definitions of 12 nursing activities were revised. After revision, all revised operational definitions achieved I-CVI values of 0.80 or higher, and the S-CVI/Ave increased to 0.96. In Phase 2, the S-CVI/Ave was 0.97, and all 55 EHR mappings achieved I-CVI values of 0.80 or higher, indicating high content validity.

Conclusions : These findings support the content validity of the operational definitions of KPPCS nursing activities and their EHR data mappings, providing a foundation for subsequent testing of agreement between automated and nurse-assigned classification scores and for clinical validity testing using real-world pediatric data.

Keywords : Content validity; Electronic health record; Korean Pediatric Patient Classification System; Pediatric nursing



Nurses' perceptions, educational needs, and ethical considerations regarding artificial intelligence utilization: a descriptive cross-sectional study

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Aim(s) : Artificial intelligence is increasingly discussed as a means to reduce nurses' workload and secure time for direct patient care, yet its adoption in clinical nursing practice remains limited. This study aimed to examine clinical nurses' perceptions, educational needs, and ethical considerations regarding artificial intelligence utilization and to identify factors influencing each dimension.

Methods : This descriptive cross-sectional study included 222 clinical nurses working at a tertiary hospital in Korea. Data were collected using structured questionnaires measuring perceptions of artificial intelligence, educational needs, and ethical considerations, each rated on a five-point scale. Descriptive statistics, independent t-tests, one-way analysis of variance with Scheffé post-hoc tests, and multiple regression analysis were conducted to identify influencing factors.

Results : Of the 222 participants, 77.9% had no prior education related to artificial intelligence, and 64.4% were unaware of or had never used hospital-based artificial intelligence systems. The mean scores were 3.67 for perceptions, 4.27 for educational needs, and 4.35 for ethical considerations. Perceptions differed significantly by age, marital status, religion, education level, position, work pattern, education experience, system experience, and self-perceived competency. Multiple regression identified self-perceived competency and education experience as significant predictors of perceptions, explaining 25.5% of the variance. Education experience and religion predicted educational needs, while education experience, clinical experience of ten years or more, religion, and position predicted ethical considerations. Education experience related to artificial intelligence was the only factor that consistently predicted all three outcomes.

Conclusions : Although nurses recognized the value and ethical importance of artificial intelligence, most lacked relevant education and practical exposure. Education experience emerged as the common factor influencing perceptions, educational needs, and ethical considerations. Systematic, demand-driven educational programs integrating technological competencies and ethics are needed to bridge the gap between artificial intelligence research and clinical nursing practice.

Keywords : Artificial intelligence; perception; education; ethics; nursing



Validation of the Korean Version of the Mobile Device Proficiency Questionnaire for Middle-Aged and Older Adults

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Purpose : This study aimed to translate the Mobile Device Proficiency Questionnaire-16 (MDPQ-16) into Korean and evaluate the reliability and validity of the Korean version for assessing mobile device proficiency among middle-aged and older adults.

Methods : A methodological study was conducted with 294 Korean adults aged 40 years and older. Exploratory factor analysis (EFA) with parallel analysis was performed to examine the factor structure, followed by exploratory structural equation modeling (ESEM) to evaluate and refine the measurement model. Construct validity was assessed using standardized factor loadings, composite reliability (CR), average variance extracted (AVE), and the Fornell–Larcker criterion for discriminant validity. Internal consistency was evaluated using Cronbach's alpha and corrected item–total correlations. Criterion validity was examined using Pearson correlations between the two subscales and digital familiarity and digital self-efficacy.

Results : EFA and parallel analysis supported a two-factor solution, with EFA explaining 75.4% of the total variance. Following ESEM evaluation and item refinement, three items were removed, resulting in a final 13-item structure comprising Functional Mobile Device Use (8 items) and Mobile Device Settings Management (5 items). The final model demonstrated acceptable fit ($\chi^2=167.349$, $df=53$, CFI=.972, TLI=.959, RMSEA=.086, SRMR=.019). Standardized primary factor loadings ranged from .633 to .968. CR (.938–.945) and AVE (.688–.753) supported convergent validity, and the squared latent factor correlation (.058) was below both AVE values, supporting discriminant validity. Cronbach's alpha was .941–.954 for the subscales and .931 for the total scale. Both subscales were positively correlated with digital familiarity ($r=.410-.644$) and digital self-efficacy ($r=.427-.692$), supporting criterion validity (all $p<.001$).

Conclusions : The final 13-item Korean version of the MDPQ demonstrated satisfactory reliability and validity for assessing mobile device proficiency among middle-aged and older adults. The instrument may help identify mobile device tasks requiring support and inform digital health education and interventions, including those intended to facilitate access to mobile- and AI-enabled health services.

Keywords : Middle Aged, Aged, Mobile device proficiency, Psychometrics, Surveys and Questionnaires



Can Multimorbidity Treatment Burden Mediate the Relationship Between eHealth Literacy and Self-care in Patients with Multimorbidity?

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Purpose : Effective self-care is essential to optimize the health of patients with multimorbidity, but it is often hindered by the multimorbidity treatment burden. Multimorbidity treatment burden can be exacerbated by an imbalance between healthcare demands and patient capacity, which includes eHealth literacy. This study aimed to examine the mediating effect of multimorbidity treatment burden on the relationship between eHealth literacy and self-care in patients with multimorbidity.

Methods : This cross-sectional study included 149 patients with multimorbidity aged over 40 in South Korea. eHealth literacy, multimorbidity treatment burden, and self-care were measured using the eHealth Literacy Scale, Treatment Burden for Multimorbidity Scale, and Partners in Health Scale, respectively. After adjusting for covariates, the mediating effect was examined using PROCESS macro (Model 4).

Results : The mean score of eHealth literacy was 19.23 out of 40, with 59.1% of participants not searching for online health information. eHealth literacy was not correlated with multimorbidity treatment burden and self-care, while multimorbidity treatment burden and self-care were negatively correlated ($r=-0.212$, $p<0.05$). The mediating effect of multimorbidity treatment burden on the relationship between eHealth literacy and self-care was not significant (direct effect=0.1266 [SE 0.0969], indirect effect=-0.0015, 95% Bootstrap confidence interval=-0.03, 0.01). Among the covariates, cognitive function ($B=0.31$, $p=0.046$) and self-efficacy ($B=0.53$, $p<0.001$) were associated with self-care.

Conclusions : Multimorbidity treatment burden did not mediate the relationship between eHealth literacy and self-care. This result may be attributed to the low eHealth literacy level in the sample and the use of a self-report eHealth literacy measure based on self-efficacy theory, which may not objectively assess an individual's actual ability to utilize online health information. Although access to online health information has increased, some individuals may still have limited capacity to use it. Therefore, interventions to reduce treatment burden and promote self-care need to consider both general and eHealth literacy.

Keywords : eHealth literacy, multimorbidity, multimorbidity treatment burden, self-care



Analyzing Online Migraine Discourse and Detecting Scientifically Unverified Management Practices: An Infodemiological Study of Hong Kong Web Forums

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Purpose : While web-based discussion serves as critical platforms for individuals with migraine seeking peer support and health information, they are often fraught with unverified health claims. This study evaluated temporal trends, central thematic domains, topic co-occurrence patterns, and the proportion of scientifically unverified management practices within online migraine communities in Hong Kong.

Methods : A mixed-methods infodemiology approach was utilized to analyze publicly accessible threads extracted from two popular Hong Kong Chinese-language web forums (Baby Kingdom and LIHKG) from inception through July 2025. Relevant posts were identified and categorized using inductive content analysis. Longitudinal patterns, gender-based variations, and topic co-occurrence networks were evaluated quantitatively. Unverified treatment posts were detected and characterized using a hybrid expert-artificial intelligence framework integrated with manual expert verification.

Results : Among 5,202 analyzed migraine-related posts, forum activity increased sharply post-2017, peaking in 2018–2019 and exhibiting a winter seasonality pattern. Core themes centered on migraine management (47.2%) and attack characteristics (44.6%), which network analysis identified as central interaction hubs. Female users showed significantly higher odds than male users of discussing emotional impact (adjusted OR [aOR] 1.75, 95% CI 1.26–2.43), attack features (aOR 1.31, 95% CI 1.03–1.67), and pharmacological treatment (aOR 1.28, 95% CI 1.01–1.62). Notably, 18.3% of management-related discussions were classified as describing scientifically unvalidated practices, which predominantly involved dietary or home remedies (53.7%), non-adherence to prescribed therapies (14.0%), and unmonitored or excessive analgesic ingestion (10.9%).

Conclusions : Online migraine discourse in Hong Kong centers on symptom control and attack features, and a distinct subset of discussions promotes unverified management strategies. These findings highlight the key role of digital communities in health information exchange and the urgent need for targeted interventions and the active correction of misinformation.

Keywords : Migraine, Infodemiology, Online health communities, Digital health



The Effects of AI Platform Utilization on Problem-Solving Ability, Self-Directed Learning Ability, and Self-Efficacy in Nursing Students

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Purpose : This study aimed to empirically examine the effects of nursing students' perceptions of artificial intelligence (AI) platform utilization on their problem-solving ability, self-directed learning ability, and self-efficacy.

Methods : A total of 156 nursing students from a university in South Korea participated in an online survey, and the data were analyzed using SPSS 30.0.

Results : The findings revealed that while the frequency and duration of AI platform use did not significantly correlate with learning competencies, perceived convenience of use had a statistically significant positive correlation with self-efficacy. Furthermore, self-efficacy and self-directed learning ability showed a strong positive correlation ($r = .848, p < .001$). Hierarchical multiple regression analysis identified perceived convenience as the only significant predictor of self-efficacy.

Conclusions : These results suggest that learners' perceptions and experiences of AI tools play a more crucial role in learning outcomes than usage quantity alone. The study provides foundational insights for integrating generative AI platforms into nursing education.

Keywords : Generative AI, Self-Directed Learning, Problem-Solving Ability, Self-Efficacy, Nursing Student



Artificial Intelligence Competency in Nursing: A Hybrid Model of Concept Development

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Purpose : Although artificial intelligence (AI) has become an important tool across diagnosis, treatment planning, and nursing care, the concept of AI competency in nursing remains unclear. To address this gap, this study aimed to clarify the concept of AI competency in nursing.

Methods : This study applied Schwartz-Barcott and Kim's (2000) hybrid model of concept development, conducted in three phases. In the theoretical phase, a literature review was performed across PubMed, CINAHL, RISS, DBpia, and gray literature (search performed May 2025), and 62 studies were selected from 759 records and analyzed to identify preliminary attributes. In the fieldwork phase, focus interviews were conducted with two graduate students and six experts, all with experience in AI research and education. In the final phase, findings from both phases were compared and integrated to establish the definition, attributes, and empirical indicators. IRB approval was obtained.

Results : The three-phase process yielded a conceptual definition of AI competency in nursing as the knowledge, skills, and attitudes that, grounded in nursing knowledge, enable nurses to critically use, design, and orchestrate AI to enhance work efficiency, patient safety, and quality of care while reducing workload, thereby advancing person-centered care. Seven defining attributes were identified across three domains: knowledge (understanding of AI and of data); skills (critical use of AI, and AI design and orchestration through interdisciplinary collaboration with AI experts); and attitudes (person-centered orientation, ethical accountability, and continuous learning). For each attribute, empirical indicators were derived to specify its observable behavioral referents.

Conclusions : This study clarified AI competency as a multidimensional concept and derived its definition, attributes, and empirical indicators, grounded in the purpose of AI use in nursing—ultimately realizing person-centered care. These provide a foundation for developing a measurement instrument and educational programs, which are warranted to strengthen AI competency across nursing education and practice.

Keywords : Nursing, Artificial intelligence, AI competency, Concept development



The Development and Usability of an Artificial Intelligence-Powered Chatbot for Individuals with Nonspecific Acute and Subacute Low Back Pain: A Study Protocol

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Purpose : Effective self-management of low back pain requires individuals to recognize and address problems in daily life. Although artificial intelligence (AI)-powered chatbots may provide accessible and personalized guidance, to our knowledge, no chatbot has been developed to both screen for warning signs and support self-management. This protocol describes the development and usability testing of an AI-powered chatbot for individuals with acute and subacute low back pain.

Methods : This protocol comprises two phases: (1) chatbot development and (2) usability evaluation. The chatbot combines retrieval-augmented generation with a self-hosted open-weight large language model, grounding its responses in a knowledge base derived from clinical guidelines and practice recommendations. Integrated into a mobile application, it includes a two-stage warning sign screening process and six self-management domains: understanding pain, medication, exercise and daily activity including work, psychological and behavioral factors, manual and physical modalities, and warning signs. Six experts will assess conversational heuristics and content validity. Participants will be adults aged 19 to 65 years with nonspecific acute or subacute low back pain: ten will complete laboratory-based usability testing and focus group interviews, and after iterative refinement, an additional ten participants will complete field testing and focus group interviews. In addition to feasibility and performance benchmarks, outcomes will include measures based on the Expectation-Confirmation Model, Chatbot Usability Questionnaire, System Usability Scale, and User Experience Questionnaire. Interview data will undergo qualitative content analysis.

Results : A chatbot prototype has been developed, and ethical approval has been obtained. Expert review has been completed, and usability testing is currently underway. Quantitative usability outcomes and qualitative findings will be reported after data collection.

Conclusions : This protocol will guide the development of a low back pain-specific chatbot with systematically evaluated usability. If usable, the chatbot may serve as an accessible self-management support tool and provide a foundation for future effectiveness evaluation.

Keywords : chatbot, low back pain, self-management, usability



A Narrow Paradigm Ripe for Innovation: A Scoping Review of Digital Sleep Interventions in Patients (2016–2026)

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Purpose : Digital health has been reshaped by artificial intelligence (AI), wearable sensing, and adaptive personalization. This scoping review examines whether patient-directed digital sleep interventions have diversified accordingly, mapping a decade of evidence across four dimensions: intervention type, delivery modality, outcome measurement, and target.

Methods : Following the Arksey and O'Malley framework and PRISMA-ScR, PubMed and CINAHL were searched for experimental studies (2016–2026) in which a sleep-related variable was the primary outcome of a digital technology-based intervention. Studies of device measurement accuracy and pharmacological or non-digital interventions were excluded. After deduplication, PICO screening, and independent coding of intervention type and delivery modality, 150 studies were analyzed.

Results : Publications tripled from 37 (2016–2020) to 113 (2021–2026), yet growth was strikingly homogeneous. The field clustered narrowly on all four dimensions: content was overwhelmingly behavioral-therapeutic (cognitive behavioral therapy for insomnia and variants, 105/150); delivery was chiefly web or app software (~70%); evaluation relied almost entirely on subjective self-report (Insomnia Severity Index, PSQI); and targets were predominantly insomnia disorder (104/150, 69%). Modalities defining contemporary digital health were rare—wearable/sensor-driven (n=9), virtual reality (n=9), telehealth (n=9)—and objective sleep metrics appeared in only 15%. Most notably, AI or conversational agents featured in just two studies (1.3%), with a single trial using a chatbot as the therapeutic agent; otherwise AI was limited to excluded measurement tasks. Most studies reported significant sleep improvement (61%).

Conclusions : Despite rapid growth, digital sleep interventions have consolidated into a narrow paradigm—behavioral content, software delivery, subjective endpoints, one diagnosis—largely bypassing the AI-driven, adaptive, sensor-integrated approaches now standard elsewhere. The next frontier lies in conversational and generative AI that personalize and scale therapy, real-time adaptive interventions using wearable data, objective endpoints, and extension to under-served populations. Nurses can lead this shift through device appraisal and interpretation of sensor-derived sleep metrics.

Keywords : Sleep Quality, Telemedicine, Mobile Applications, Scoping Review



Age, Self-Reported Functioning, and Childhood Violence Exposure as Correlates of Saccadic Eye Movements After Mild Traumatic Brain Injury

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Purpose : This study examined whether age, self-reported health related functioning, and lifetime exposure to early life adversity are associated with saccadic eye movement characteristics among adults recovering from a mild traumatic brain injury, both at an initial visit and across repeated visits over time (<https://clinicaltrials.gov/study/NCT06037603>).

Methods : Participants completed a video based eye tracking task and self-report questionnaires at up to four visits spaced approximately monthly. Saccade count, amplitude, average and peak velocity, duration, and direction were examined in relation to age, a general health survey, a post concussive symptom measure, a neurobehavioral symptom measure, and childhood violence exposure, using correlation and change score analyses across visits.

Results : Better self-reported physical functioning, physical role functioning, and emotional well-being were consistently associated with smaller, slower, and shorter saccades at the initial visit (all p less than .05). Older age was associated with reduced saccade variability at the initial visit and with declining saccade count over time. Higher general health ratings predicted an increase in saccade direction across visits. Greater early life adversity exposure and post concussive symptoms showed weaker, more isolated associations with saccade count, amplitude, velocity, and direction variability.

Conclusions : Saccadic eye movements after mild traumatic brain injury appear more closely linked to age and self-reported functional health than to early life adversity exposure alone. These preliminary findings suggest saccadic metrics may capture broader recovery related processes beyond early life adversity, supporting further study in larger samples to clarify their value as objective markers of functional recovery.

Keywords : age, eye movements, saccades, functional health, early life adversity



Generative AI Literacy and Intention to Use AI-Based Technologies in Integrated Care for Older Adult: Mediating Effects of Information Credibility and AI Self-Efficacy

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Purpose : This study examined the mediating roles of information credibility and AI self-efficacy in the relationship between generative AI literacy and intention to use generative AI-based healthcare technologies among health professions students.

Methods : This descriptive cross-sectional study was conducted among health professions students enrolled at a university in Gyeongsangbuk-do, South Korea. Data were collected through an online survey using a URL-based questionnaire. The data were analyzed using SPSS version 30.0 and Hayes' PROCESS Macro Model 4 with 5,000 bootstrap samples to examine the mediating effects of information credibility and AI self-efficacy.

Results : Generative AI literacy was positively correlated with information credibility ($r=.37, p<.001$), AI self-efficacy ($r=.64, p<.001$), and intention to use generative AI-based healthcare technologies ($r=.35, p<.001$). Information credibility was positively associated with AI self-efficacy ($r=.24, p=.002$) and intention to use ($r=.41, p<.001$). AI self-efficacy showed the strongest correlation with intention to use ($r=.53, p<.001$). Mediation analysis indicated that generative AI literacy significantly predicted information credibility ($B=.285, p<.001$) and AI self-efficacy ($B=.598, p<.001$). Both information credibility ($B=.247, p<.001$) and AI self-efficacy ($B=.304, p<.001$) significantly predicted intention to use. Although the total effect of generative AI literacy on intention to use was significant ($B=.189, p<.001$), the direct effect became non-significant after including the mediators ($B=-.064, p=.246$), indicating full mediation. Bootstrap analysis confirmed significant indirect effects through information credibility (95% CI=.024-.130) and AI self-efficacy (95% CI=.116-.253).

Conclusions : Information credibility and AI self-efficacy fully mediated the relationship between generative AI literacy and intention to use generative AI-based healthcare technologies. Educational strategies that enhance generative AI literacy, strengthen trust in AI-generated information, and improve AI self-efficacy may promote AI adoption among health professions students.

Keywords : Artificial Intelligence; Geriatric Nursing; Health Occupations Students; Self Efficacy



Machine Learning Algorithms for Individualized Recommendation of Meaningful Leisure Activities for Older Adults

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Purpose : Meaningful activities reflecting individual needs and preferences can promote well-being among older adults facing health problems and social isolation. However, older adults may experience difficulty identifying leisure activities that align with their needs and preferences. This study aimed to develop and evaluate machine learning algorithms for recommending meaningful leisure activities to community-dwelling older adults.

Methods : Data were collected from 1,077 community-dwelling older adults and included sociodemographic characteristics, physical, mental, cognitive, and social health indicators, as well as activity preference variables, such as activity goals, preferred time, location, format, cost, and previous activity preferences. Eight models (Decision Tree, Random Forest, KNN, MLP, Logistic Regression, XGBoost, LightGBM, and CatBoost) were compared to generate individualized Top-5 recommendations from 22 leisure activity categories. Stratified five-fold cross-validation, out-of-fold predictions, and class weighting were applied. All analyses were performed using Python 3.11 on Google Cloud Platform Compute Engine.

Results : CatBoost was selected as the final recommendation model. For category-level prediction across 22 labels, it achieved an F1-score of 0.76, precision of 0.80, recall of 0.78, and an AUC of 0.80. The Top-5 accuracy was 0.99.

Conclusions : Machine learning algorithms can integrate multidimensional health information and individual activity preferences to provide individualized recommendations for meaningful leisure activities. This approach may support person-centered decision-making and promote meaningful activity participation among community-dwelling older adults.

Keywords : Aged, Artificial Intelligence, Leisure Activities, Machine Learning, Patient-Centered Care



Development and Usability Evaluation of a RAG-Based Health Information Chatbot Using Public Health Data

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Purpose : Vulnerable populations often face barriers to obtaining timely and reliable health information. This study developed a retrieval-augmented generation (RAG)-based chatbot using authoritative health information from the Korea Disease Control and Prevention Agency (KDCA) and evaluated its usability and performance as a real-world health information support tool.

Methods : Major disease categories were selected based on healthcare utilization, severity, mortality, and prevalence. Disease-specific health information and public Q&A data from the KDCA were processed through document chunking and embedding to construct a vector database. The chatbot integrated a RAG-based retrieval system with GPT-4o. Experts conducted a heuristic evaluation based on Nielsen's usability principles to identify usability issues and areas for improvement. Adult users also completed the System Usability Scale (SUS) and user experience and satisfaction measures.

Results : Expert and user feedback led to shorter responses, improved readability through plain language, and prioritized presentation of key information. The mean SUS score was 71.43, indicating acceptable preliminary usability; the mean rating across nine user experience and satisfaction items was 4.40 out of 5. Performance scores were 0.98 for context precision, 0.80 for context recall, 0.78 for faithfulness, and 0.77 for answer relevancy. The semantic similarity F1 score was 0.89. Emergency referral recall was 1.00, with no under-triage and an over-triage rate of 0.26.

Conclusions : This study proposes a health information delivery model that combines evidence-based public health information provided by public institutions with generative AI technologies. By applying a RAG architecture to generate responses grounded in authoritative health information, this study offers a potential approach to mitigating reliability issues associated with generative AI in healthcare information services and contributes to expanding the use of AI-based health information systems in public health communication and digital healthcare services.

Keywords : Retrieval-augmented generation, health information, chatbot, public health, usability



A Systematic Review of Information and Communication Technology-Based Interventions for Sleep Outcomes Among Adult Shift Workers: A Preliminary Finding

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Aims : To systematically identify and summarize information and communication technology (ICT)-based interventions designed to improve sleep-related outcomes among adult shift workers.

Methods : This study is part of a systematic review. PubMed, Embase, CINAHL, the Cochrane Library, and Scopus were searched on 7 May 2026. Eligible studies evaluated ICT-based intervention among adult shift workers and included a usual-care, waitlist, no-intervention, or non-digital comparator. Primary outcomes were sleep quality, insomnia severity, and sleep duration. Secondary outcomes included fatigue and daytime sleepiness. Two reviewers independently screened and assessed potentially eligible articles. Each reviewer then independently decided which articles should be included in the systematic review. The third author resolved disagreements.

Results : Of 1,263 articles (after removing duplicates) identified by the electronic database search, 1,234 articles were remained. After screening the title and abstract, 1,205 irrelevant records were excluded, 29 remained. Of these 29 full-text articles were assessed for eligibility, 13 studies met the inclusion criteria. Nine used randomized or cluster-randomized study designs, and four used non-randomized comparative or quasi-experimental designs. Study populations included nurses, emergency medical personnel, other occupational shift workers, and military personnel. Interventions comprised digital cognitive behavioral therapy for insomnia, real-time text-message fatigue management, mobile wellness or exercise programs, and sleep education or tracking applications. ICT-Based cognitive behavioral therapy generally improved sleep outcomes such as insomnia severity, subjective sleep quality, sleep efficiency, and sleepiness. However, findings for objective sleep duration and actigraphy-derived outcomes were inconsistent. Text-message and lifestyle interventions showed partly short-term improvements in fatigue or sleepiness but limited evidence of sustained improvement in overall sleep quality.

Conclusions : The findings suggest that ICT-based interventions, particularly shift-adapted digital cognitive behavioral therapy, may improve insomnia and subjective sleep outcomes in shift workers. Larger, rigorously designed trials incorporating both subjective and objective sleep assessments and longer follow-up periods are needed.

Keywords : Digital health, Shift work, Sleep quality, Systematic review

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Nursing Implications of Artificial Intelligence–Driven Chatbots in Cancer Care: A Systematic Review

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Background : AI-driven chatbots are increasingly used in oncology to support patient education, symptom monitoring, adherence, and psychosocial care; however, their implications for oncology and palliative nursing remain unclear.

Aim : To synthesize empirical evidence on the applications, feasibility, acceptability, reported outcomes, and potential nursing implications of AI-driven chatbots in cancer care.

Methods : A systematic review of empirical studies published between 2015 and 2025 was conducted following PRISMA 2020 guidance. Eight studies met the inclusion criteria and were narratively synthesized. Methodological quality was assessed using the Mixed Methods Appraisal Tool.

Results : The included studies examined chatbots for genetic counseling, treatment education, symptom monitoring, medication reminders, self-management, and psychosocial support. Overall, findings suggested generally positive patient engagement, satisfaction, and acceptability. Preliminary evidence indicated potential benefits for adherence, symptom reporting, self-management, anxiety reduction, and emotional support in selected oncology contexts. However, evidence for direct clinical effectiveness, reduced nursing workload, improved nurse-patient communication, and palliative care outcomes was limited and heterogeneous.

Conclusion : AI-driven chatbots appear feasible and acceptable as adjunctive tools in oncology care, with potential relevance to palliative nursing. Further rigorous studies are needed to evaluate clinical effectiveness, safety, escalation pathways, nursing-sensitive outcomes, and workflow integration.

Keywords : Chatbots, Artificial Intelligence, Oncology Nursing, Cancer, Oncology Care



Effectiveness of mobile health interventions to improve medication adherence for patients with cardiovascular disease: a systematic review and meta-analysis

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Purpose : This study systematically reviewed and synthesized the evidence on the effectiveness of mobile health (mHealth) interventions in improving medication adherence among patients with cardiovascular disease.

Methods : This systematic review included randomized controlled trials that evaluated the effects of mHealth interventions on medication adherence among patients with cardiovascular disease. PubMed, the Cochrane Library, CINAHL, and Embase were searched for peer-reviewed studies and grey literature published in English between January 1, 2013, and July 31, 2025. The Cochrane Risk of Bias 2 (RoB 2) tool was used to assess the risk of bias in the included studies. R software ver. 4.5.2 was used to perform the meta-analysis.

Results : Fifty-two studies were included in the systematic review, of which 20 were included in the meta-analysis. The pooled analysis demonstrated a significant improvement in medication adherence among patients with cardiovascular disease receiving mHealth interventions, with a moderate to large effect size (Hedges' $g=0.72$; 95% confidence interval, 0.20–1.25; $p<.001$), despite substantial heterogeneity ($I^2=97\%$). However, a considerable proportion of the included studies were assessed as having a high risk of bias, which may limit the internal validity of the findings. Subgroup analyses indicated that the effects of mHealth interventions on medication adherence did not differ significantly according to intervention type, duration, or outcome measurement tools.

Conclusions : mHealth interventions appear to be effective in improving medication adherence among patients with cardiovascular disease. However, these findings should be interpreted with caution because of the high risk of bias and substantial heterogeneity among the included studies. Future research should explore the use of emerging technologies, such as artificial intelligence and virtual reality, to address medication non-adherence (PROSPERO registration number: CRD42023450502).

Keywords : Cardiovascular diseases; Medication adherence; Meta-analysis; Mobile applications; Systematic review



Development and Psychometric Evaluation of an Artificial Intelligence Literacy Scale for Clinical Nurses (AILS-CN) in Healthcare Settings

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Purpose : Existing AI literacy measures may not fully capture the competencies required to integrate AI into clinical practice. As AI-based systems become increasingly embedded in healthcare, comprehensive assessment of these competencies is needed to guide education and practice. This study aimed to develop the Artificial Intelligence Literacy Scale in Healthcare (AILS-Healthcare) and evaluate its psychometric properties among clinical nurses.

Methods : This methodological study developed the AILS-Healthcare through a literature review, focus group interviews, expert content validation, and pilot testing. These processes generated 40 preliminary items reflecting AI literacy competencies relevant to clinical practice. Two independent samples of Korean clinical nurses were used for exploratory factor analysis ($n = 222$) and confirmatory factor analysis ($n = 222$). Construct, convergent, discriminant, and concurrent validity were evaluated. Reliability was assessed using Cronbach's α , composite reliability, and two-week test-retest reliability ($n = 111$).

Results : Exploratory factor analysis identified a five-factor structure explaining 60.244% of the total variance. Confirmatory factor analysis confirmed a 33-item, five-factor structure, with standardized factor loadings ranging from .627 to .853. The AILS-Healthcare demonstrated satisfactory convergent, discriminant, and concurrent validity. Concurrent validity was supported by significant positive correlations with the Meta-Artificial Intelligence Literacy Scale ($r = .360-.739$, all $p < .001$). The overall scale demonstrated excellent internal consistency (Cronbach's $\alpha = .951$), with subscale coefficients ranging from .853 to .919. Composite reliability ranged from .855 to .916, and test-retest reliability was good (ICC = .784, 95% CI [.701-.846]).

Conclusions : The AILS-Healthcare demonstrated satisfactory validity and reliability for assessing multidimensional AI literacy in clinical healthcare settings. Its five-factor structure encompasses AI knowledge, clinical application, critical judgment, ethical and professional responsibility, and AI system utilization, evaluation, and improvement. This competency-based approach reflects healthcare professionals' roles beyond technical AI use in clinical practice. The scale may support competency assessment, targeted AI education, and evaluation of educational outcomes.

Keywords : Artificial intelligence, Artificial intelligence literacy, Clinical nurses



Focus Group Interviews to Identify User Requirements for the Development of an AI-based Application for Family Caregivers of People with Dementia

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Aim(s) : Dementia affects approximately 57 million people worldwide, with most cared for at home by family members who face substantial caregiving burden. Caregivers continue to experience emotional and practical challenges even when formal support is available. Artificial intelligence (AI) may help address this gap through on-demand support, but caregiver needs should guide its development. This study explored family caregivers' requirements for an AI-based dementia caregiving support application.

Methods : Eleven family caregivers (mean age 71.4 years; 9 spouses, 2 adult children) participated in two focus group interviews (n=7, n=4) at a dementia care center in South Korea. Transcripts were analyzed using Elo and Kyngäs' inductive qualitative content analysis. Two researchers independently conducted open coding, and categories were refined through team consensus.

Results : Analysis of 88 meaning units identified three main categories. First, emotional burden and support needs reflected caregiver distress and isolation, the value of peer and center-based support, and a desire for AI-enabled emotional support and self-monitoring. Second, practical caregiving support needs arose from persistent caregiving demands and unpredictable behavioral and psychological symptoms of dementia (BPSD), highlighting the need for immediate, situation-specific guidance. Third, the need for a user-friendly and trustworthy AI application was emphasized, including intuitive use for older caregivers, guidance on technology use, access to updated and reliable information, and data security.

Conclusions : Caregivers expected AI to extend rather than replace human support in everyday caregiving. AI-based applications should integrate emotional support with real-time caregiving guidance while ensuring age-friendly usability and trustworthiness. These caregiver-driven requirements can inform nursing-led digital interventions supporting caregiver well-being and community-based dementia care.

Keywords : AI agent, caregiver, dementia, nursing,



Development and Validation of a 3-Item Short-Form Fall Assessment Scale-Korean Version for Hospitalized Adults

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Purpose : To develop a short-form of the 14-item Fall Assessment Scale-Korean Version and evaluate its clinical applicability by comparing predictive performance with that of the original scale.

Methods : This methodological study used electronic medical record data from adult patients admitted to the general ward of C University Hospital in 2024 (development cohort, n=248) and 2025 (validation cohort, n=160). The non-fall group was selected using 1:3 frequency matching based on age, sex, and admitting department. Independent predictors of falls were identified using stepwise multivariate logistic regression (retention criterion, $p < .10$), and a short-form scale was developed. The predictive performance of the short-form scale was evaluated by comparing the area under the receiver operating characteristic curve (AUC) with that of the original scale using DeLong's test in the validation cohort. Sensitivity, specificity, and Youden index were compared, and agreement in high-risk classification was assessed using Cohen's kappa.

Results : The development and validation cohorts were comparable in age, sex, and admitting department. The final 3-item short form consisted of a history of falls within the previous 6 months (odds ratio [OR], 10.60; 95% confidence interval [CI], 1.94-57.86), inappropriate behavior such as excitement or restlessness (OR, 2.61; 95% CI, 0.97-6.98), and balance or postural instability (OR, 3.78; 95% CI, 2.01-7.11). In the validation cohort, the AUC was 0.681 (95% CI, 0.590-0.771) for the original scale and 0.687 (95% CI, 0.591-0.782) for the short-form scale, with no significant difference according to DeLong's test ($p = .833$). At a cutoff score of 1, the short-form scale demonstrated a sensitivity of 0.700 and a specificity of 0.675 (Youden index=0.375), with substantial agreement in high-risk classification ($k = 0.728$).

Conclusions : The 3-item short-form scale demonstrated predictive performance comparable to that of the original 14-item scale. The short-form scale may provide a practical alternative for repeated fall risk screening because of its brevity and ease of application.

Keywords : Fall risk assessment, Scale development, Validation study



Effectiveness of Wearable-Based Physical Activity Interventions in Adults with Type 2 Diabetes Mellitus: A Systematic Review and Meta-analysis

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Purpose : Effective self-management is essential for glycemic control in patients with type 2 diabetes mellitus (T2DM). Wearable electronic devices may improve physical activity through real-time monitoring and feedback, thereby supporting diabetes management. Therefore, this study aimed to systematically review and meta-analyze the effectiveness of wearable electronic devices in patients with T2DM.

Methods : A systematic review and meta-analysis were conducted following the PRISMA guidelines. PubMed and EMBASE were searched from 2015 through April 2026. Randomized controlled trials evaluating the effects of wearable electronic devices in adults with type 2 diabetes mellitus were included. Five studies were eligible for the final meta-analysis. Statistical analyses were performed using STATA version 17.0.

Results : A total of 5 RCTs published between 2016 and 2021 were included. The included studies were conducted in Spain, the United States, Japan, and the Netherlands, and intervention periods varied, ranging from 5 weeks to 12 months. Interventions were delivered mainly through wearable activity trackers and pedometers combined with real-time feedback, goal setting, and behavioral coaching for adults with type 2 diabetes. Wearable-based physical activity interventions significantly increased the number of steps (Hedges' g 0.37, 95% CI: 0.16 to 0.58, $I^2=0.0\%$; 2 studies). However, the effect on HbA1c was not statistically significant (Hedges' g -0.11, 95% CI: -0.30 to 0.07, $I^2=0.0\%$; 4 studies).

Conclusions : Wearable-based physical activity interventions significantly increased the number of steps among adults with type 2 diabetes, but this increase in physical activity did not move into a significant improvement in HbA1c. This gap suggests that short-term gains in step count may not be sufficient to achieve meaningful glycemic control, and that longer intervention and follow-up periods may be required for physical activity to exert a measurable effect on HbA1c.

Keywords : Wearable Electronic Devices, Fitness Trackers, Exercise, Diabetes Mellitus, Type 2, Glycated Hemoglobin



Some reproductive risk factors: A study among Mongolian women diagnosed with breast cancer

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Aim : To study some of the reasons affecting the delay in diagnosis among Mongolian women diagnosed with breast cancer.

Methods : A cross-sectional study design was employed between June 28, 2022, and May 10, 2023, involving 212 nurses from family health centers in Ulaanbaatar. Participants were nurses working at the centers who provided informed consent. The study variables included nurses' knowledge level and practical activities related to breast cancer screening. Data were collected using a standardized KAP semi-structured questionnaire (7 sections, 82 items), with reliability confirmed by Cronbach's alpha of 0.87. Questionnaires were self-administered, and data collection ensured confidentiality and quality through double-checking.

Results : The mean age of the participants was 53.08 ± 11.3 . The overall treatment delay (interval ≥ 90 days from the time the clinician first noticed the first symptom to the time the first treatment was started) was 68.5% (235). When calculating the risk of breast cancer among women, 85.1% (mean score ≤ 1.66) were at average risk and 11.1% (mean score ≥ 1.66) were at high risk. When examining the factors that influenced treatment delay among breast cancer patients, there were statistically significant differences between the time from the first symptom to the time of first consultation ($p < 0.000$), neoadjuvant chemotherapy ($p < 0.010$), tumor size ($p < 0.043$), tumor stage ($p < 0.016$), breast surgery ($p < 0.014$), and tumor location ($p < 0.037$).

Conclusions : Among our study participants, the time interval from first presentation to diagnosis was short, but the interval from first symptom recognition to treatment initiation was long, suggesting overall treatment delay. They are at an optimal risk for breast cancer, but they only seek medical attention once a lump has grown large and become painful, likely due to individuals' lack of basic knowledge about breast health literacy, leading to delayed diagnosis and treatment.

Keywords : breast cancer, presentation delay, time interval, risk assessment



Analysis of Splash Radius and Distribution During Syringe-Based Wound Irrigation Using Fluorescent Visualization Techniques

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Purpose : This study aimed to analyze the dispersion patterns of splattering according to different irrigation conditions during syringe-based wound irrigation using a fluorescence visualization technique.

Methods : In this study, a fluorescein sodium-based fluorescent irrigation solution was sprayed onto a silicone skin model using a 50 mL syringe and a 19-gauge needle. An emesis basin was placed beneath the model to collect the irrigation solution, and the fluorescent solution that dispersed outside the basin was analyzed. The distance between the needle and the skin model was fixed at 10 cm. Four irrigation conditions were established by combining two irrigation pressures (4 psi and 15 psi) and two irrigation angles (45° and 90°). The splattering was visualized using a blue LED, photographed, and subsequently analyzed using the ImageJ program.

Results : The results of this study showed that the area of splattering across the four irrigation conditions ranged from 1,337.18 to 2,762.01 cm², and the maximum dispersion distance ranged from 100.02 to 285.0 cm, which was the longest under the 15 psi and 45° condition. The splattering patterns also varied depending on the conditions; no splattering on the face and chest areas was observed under the 4 psi and 45° condition. Conversely, chest splattering was observed under the 4 psi and 90° condition, and both facial and chest splattering were observed under the 15 psi condition at both 45° and 90° angles.

Conclusions : Splattering from syringe-based wound irrigation can disperse beyond the immediate vicinity of the wound, with dispersion patterns varying based on irrigation pressure and angle. The findings of this study highlight the necessity of establishing protective strategies to prevent healthcare worker exposure and environmental surface contamination.

Funding : This work was supported by the Ministry of Education of the Republic of Korea and the National Research Foundation of Korea (University Innovation Support Program in 2026).

Keywords : fluorescent, splash dispersion, wound, irrigation



The Effect of Ear Acupressure Therapy on Weight in Obese Adults and the Elderly: Systematic Review and Meta-Analysis

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Purpose : This study aimed to evaluate the effectiveness of auricular acupoint stimulation for weight reduction in obese adults and older adults through a systematic review and meta-analysis.

Methods : A systematic search of six electronic databases (PubMed, Cochrane Library, Embase, CINAHL, Web of Science, and Scopus) was conducted from inception to February 5, 2026, following the PICOS-D framework. Randomized controlled trials evaluating auricular acupoint stimulation for weight reduction were included. Risk of bias was assessed using the Joanna Briggs Institute checklist. Effect sizes were pooled as Hedges' g using random-effects models. Heterogeneity, subgroup, sensitivity, meta-regression, and publication bias analyses were performed.

Results : Twenty studies comprising 24 comparisons were included in the quantitative synthesis. Auricular acupoint stimulation showed a moderate but non-significant pooled effect on weight reduction (Hedges' g = -0.66, 95% CI -1.70 to 0.39), with substantial heterogeneity ($I^2 = 98.9\%$, $p < .001$). Significant effects were observed in specific subgroups and for selected metabolic outcomes, including leptin and total cholesterol, whereas meta-regression did not identify significant moderators. Sensitivity analyses supported the robustness of the findings, and publication bias had a limited influence on the pooled estimates.

Conclusions : Auricular acupoint stimulation demonstrated a moderate but statistically non-significant effect on weight reduction in obese adults and older adults. Although significant benefits were observed in certain subgroups and metabolic outcomes, further adequately powered randomized controlled trials with standardized intervention protocols are needed.

Keywords : Auricular acupoint stimulation, Meta-analysis, Obesity, Weight reduction



Integrating AI Driven Predictive Modeling into Breastfeeding Support for Women with Gestational Diabetes Mellitus: Findings from a 15 Year Cohort and a Prospective Midwifery Led Study

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Purpose : This study examined the relationship between breastfeeding continuity and early postpartum glycemic recovery in women with gestational diabetes mellitus (GDM). In addition, it explored the future potential of integrating artificial intelligence (AI) into midwifery practice to enhance individualized breastfeeding support and diabetes prevention.

Methods : Two complementary datasets were analyzed.

(1) A 15-year retrospective cohort of 440 GDM women who underwent a 1-month postpartum OGTT. Breast milk secretion volume was extracted from midwifery outpatient records and correlated with fasting glucose, 60-min glucose, and HbA1c.

(2) A prospective midwifery-led study of 8 GDM women followed from pregnancy to 1-month postpartum. Breastfeeding intensity, milk secretion, and breastfeeding duration were examined in relation to HOMA-IR and OGTT values.

Based on these findings, the study proposes an AI-based predictive modeling framework that integrates clinical records, metabolic biomarkers, and breastfeeding patterns.

Results : In the retrospective cohort, breast milk secretion volume showed significant negative correlations with fasting glucose ($\rho = -0.172$, $p < .001$) and 60-min glucose ($\rho = -0.173$, $p = .001$), while no association was found with HbA1c.

In the prospective cohort, breastfeeding intensity and duration were associated with lower HOMA-IR and improved OGTT values at 1 month postpartum. These consistent patterns suggest that breastfeeding contributes to short-term metabolic recovery in GDM women.

Conclusions : The integration of AI-driven predictive modeling may enable early identification of women at risk for delayed lactogenesis or impaired metabolic recovery. By generating individualized risk profiles and forecasting the metabolic impact of breastfeeding continuity, AI-supported tools could guide midwives in optimizing timing and intensity of interventions. This approach has the potential to transform postpartum diabetes prevention strategies, particularly for Asian women with reduced insulin secretion, and establish a new paradigm for personalized breastfeeding support in nursing practice.

Keywords : Breastfeeding Continuity, Gestational Diabetes Mellitus (GDM), AI Driven Predictive Modeling



Effects of Laughter-Based Interventions on Anxiety and Psychological Outcomes in Patients: A Systematic Review and Meta-analysis

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Purpose : Laughter-based interventions have gained increasing attention as complementary psychosocial strategies for promoting psychological well-being in clinical settings. However, evidence regarding their effectiveness in reducing anxiety and improving related psychological outcomes remains inconsistent. This systematic review and meta-analysis aimed to evaluate the effects of laughter-based interventions on anxiety and other psychological outcomes in adult patients.

Methods : Nine electronic databases were systematically searched from inception to December 2025. Randomized controlled trials and quasi-experimental studies investigating laughter-based interventions in adult patients were included. Two reviewers independently screened studies, extracted data, and assessed methodological quality. Effect sizes were calculated using Hedges' g with 95% confidence intervals (CIs) and pooled using random-effects models. Heterogeneity, subgroup analyses, meta-regression, sensitivity analyses, and publication bias were evaluated. This review adhered to PRISMA 2020 guidelines and was prospectively registered in PROSPERO (CRD42024495880).

Results : Twenty-two studies were included in the systematic review, of which 14 were eligible for the meta-analysis of anxiety outcomes. Laughter-based interventions significantly reduced anxiety (Hedges' $g = -1.48$, 95% CI: -2.11 to -0.86 , $p < .001$), although substantial heterogeneity was observed ($I^2 = 96.1\%$). Subgroup analyses demonstrated relatively larger effects for movement-based interventions, intervention durations of four weeks or longer, and interventions delivered across eight or more sessions. Meta-regression identified intervention facilitator as a significant moderator of treatment effects. Among secondary outcomes, laughter-based interventions significantly improved mood (Hedges' $g = 1.15$) and reduced cortisol levels (Hedges' $g = -0.95$), whereas effects on depression, stress, and well-being were not statistically significant.

Conclusions : Laughter-based interventions appear to be effective complementary approaches for reducing anxiety and improving mood in adult clinical patients. These findings support their integration into mental health nursing practice as adjunctive psychosocial interventions. Nevertheless, the substantial heterogeneity across studies highlights the need for well-designed, adequately powered multicenter trials to establish optimal intervention protocols and strengthen the evidence base.

Keywords : Laughter therapy, Anxiety, Mental health, Systematic review, Meta-analysis



The Effect of aromatherapy on pain among hemodialysis patients: a systematic review and meta-analysis

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Purpose : Pain is one of the most common and distressing symptoms experienced by patients undergoing hemodialysis, and aromatherapy has been increasingly used as a complementary intervention. However, evidence regarding its effectiveness remains inconsistent. This study aimed to evaluate the effectiveness of aromatherapy for pain reduction in patients undergoing hemodialysis through a systematic review and meta-analysis.

Methods : A systematic search was conducted according to the PICO-SD framework using six electronic databases (PubMed, EMBASE, Cochrane Library, CINAHL, Scopus, and Web of Science). Eligible studies included randomized controlled trials and quasi-experimental studies evaluating aromatherapy for pain reduction in patients undergoing hemodialysis. Two reviewers independently screened studies, extracted data, and assessed methodological quality using the Joanna Briggs Institute (JBI) critical appraisal checklists. A random-effects model was used to calculate pooled effect sizes (Hedges' g). Heterogeneity, meta-regression, sensitivity analysis, and publication bias were also evaluated.

Results : Eight articles comprising 17 intervention comparisons were included. Aromatherapy significantly reduced pain in patients undergoing hemodialysis (Hedges' g = -1.98, 95% CI: -2.48 to -1.47), although substantial heterogeneity was observed ($I^2 = 89.6\%$). Subgroup and meta-regression analyses identified greater pain reduction in multicenter studies and studies including 50 or more participants. Greater effects were also associated with inhalation aromatherapy, intervention durations of at least one week, three or more treatment sessions, shorter session durations, and JBI quality assessment scores of 8 or higher.

Conclusions : Aromatherapy was effective in reducing pain among patients undergoing hemodialysis. Greater pain reduction was associated with inhalation aromatherapy, intervention durations of at least one week, three or more treatment sessions, and shorter session durations. These findings support the use of aromatherapy as a complementary intervention for pain management in hemodialysis care.

Keywords : pain, renal dialysis, patients, aromatherapy, meta-analysis, systematic review



Nursing interventions for patients with an intestinal ostomy: a scoping review

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Purpose : Many studies explore ostomy nursing care, but no review has clearly mapped these interventions. This study aimed to analyze research trends, intervention types, timing, delivery methods, and outcomes. By identifying missing areas in current research, it will help guide future care.

Methods : A scoping review was conducted following PRISMA-ScR guidelines. Searches were conducted in PubMed, EMBASE, CINAHL, Cochrane Library, Web of Science, and Korean databases (RISS, ScienceON, DBpia, and KISS). Of 33,374 records identified, 183 studies published between 1990 and 2026 were included. Two reviewers independently charted data on intervention type, timing, delivery mode, and target outcomes; findings were analyzed descriptively and cross-tabulated.

Results : Publication increased after 2020, with 126 of 183 studies (68.9%) appearing in this period. Education and self-management interventions were most common (71 studies, 38.8%), followed by psychosocial and sexual (39, 21.3%), peristomal skin and appliance (32, 17.5%), integrated care-model (30, 16.4%), and lifestyle and physical interventions (11, 6.0%). Experimental designs—randomized controlled trials, quasi-experimental, and pilot studies—accounted for 105 studies (57.4%), with RCTs being most frequent (69, 37.7%). By timing, the preoperative period was least addressed (50 studies), whereas most interventions were applied during hospitalization (136 studies) or after discharge (160 studies). Face-to-face delivery predominated (94 studies, 51.4%), while non-face-to-face methods, incorporated in 89 studies (48.6%), rose from 35% before 2020 to 55% afterward. Among target outcomes, self-efficacy and self-management were addressed most often (95 studies), whereas sexual function (10 studies) and high-output stoma with dehydration (11 studies) were the least studied.

Conclusions : Ostomy nursing research focuses mostly on education and postoperative care. However, there is still a lack of research on preoperative preparation, lifestyle interventions, and high-output stomas. Although care programs combine multiple methods, face-to-face care is still widely used. Future progress requires clear practice guidelines and well-designed studies that focus on these missing areas.

Keywords : Nursing; Nursing care; Ostomy; Scoping review



Effects of Preoperative Exercise Interventions on Postoperative Pain Outcomes in Total Knee Arthroplasty: A Network Meta-Analysis

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Purpose : Effective postoperative pain management is crucial for patient recovery and satisfaction after total knee arthroplasty (TKA). This network meta-analysis aimed to determine which preoperative exercise intervention was most effective for reducing postoperative pain outcome after TKA.

Methods : Following PRISMA network meta-analysis guidelines, PubMed, Cochrane Library, CINAHL, and Embase were searched through November 2025. Only randomized controlled trials (RCT) examining the effects of preoperative exercise interventions before TKA were included. Bayesian network meta-analysis was performed using R 4.6.0. Pain outcomes were extracted from Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) and Knee Injury and Osteoarthritis Outcome Score (KOOS) pain subscales, and effect sizes were expressed as standardized mean differences (SMD) with 95% credible intervals (CrI) was calculated based on the change from pre-intervention baseline to 3 to 6 months postoperatively. Treatment hierarchy was assessed using the surface under the cumulative ranking curve (SUCRA).

Results : A total of 11,503 studies, 11 RCTs were included. Intervention nodes were classified into strength training, neuromotor exercise, multi-component strength exercise, and multimodal exercise, psychoeducational intervention, and usual care. Psychoeducational intervention ranked highest for pain reduction (SMD = -0.53; 95% CrI = -1.76, 0.70; SUCRA = 76.3%), followed by multi-component strength exercise (SMD = -0.30; 95% CrI = -0.89, 0.33; SUCRA = 67.8%). Psychoeducational, multi-component strength exercise showed a favorable trend toward pain reduction compared to usual care, though no statistically significant differences were confirmed.

Conclusions : These findings suggest that identifying an effective preoperative intervention for pain reduction remains challenging. However, considering the high SUCRA rankings of psychoeducational support and multi-component strength exercises, combining these physical and psychological approaches offers a practical clinical option. Furthermore, future clinical trials should expand their scope to investigate how this integrated regimen impacts other multidimensional patient-reported outcome measures, such as physical function and quality of life.

Keywords : Preoperative Exercise, Network meta-analysis, Postoperative pain, Total knee arthroplasty



Effects of nurse-led interventions on fatigue in hemodialysis: a systematic review and meta-analysis

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Purpose : Fatigue is one of the most prevalent and distressing symptoms experienced by patients undergoing maintenance hemodialysis. Although various non-pharmacological interventions have been investigated, evidence regarding the effectiveness of nurse-led interventions remains inconclusive. This study aimed to systematically review and synthesize the effects of nurse-led non-pharmacological interventions on fatigue in patients receiving hemodialysis.

Methods : A systematic review and meta-analysis were conducted in accordance with the PRISMA guidelines and the Cochrane Handbook. Six electronic databases (PubMed, EMBASE, Web of Science, CINAHL, RISS, and KISS) were searched from inception to November 2025. Fifty-three studies were included in the systematic review, and 20 randomized controlled trials (22 independent comparisons) were included in the meta-analysis. Fatigue was the primary outcome, while sleep quality, depression, and quality of life were secondary outcomes. Random-effects models and subgroup analyses by intervention modality were performed.

Results : Nurse-led non-pharmacological interventions significantly reduced fatigue compared with usual care (SMD = -0.77 , 95% CI: -1.26 to -0.28 , $p = .002$). Subgroup analysis demonstrated significant differences according to intervention modality ($p = .046$), with Energy Conservation and Activity Management interventions showing the largest effect (SMD = -1.74 , 95% CI: -2.53 to -0.95). Sleep quality improved significantly, whereas no significant effects were observed for depression or quality of life.

Conclusions : Nurse-led non-pharmacological interventions effectively reduce fatigue and improve sleep quality in patients receiving hemodialysis. These findings support the integration of evidence-based nurse-led fatigue management strategies into routine dialysis care. Further large-scale randomized controlled trials using standardized intervention protocols are warranted to establish their long-term effectiveness.

Keywords : Fatigue; Hemodialysis; Meta-analysis; Nurse-led intervention



What is the impact of Korean Hand Therapy on symptom management: A systematic review of Quasi-experimental studies

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Purpose : Korean hand therapy has been increasingly used as a complementary intervention for managing a wide range of symptoms in clinical and community settings. Although numerous quasi-experimental studies have investigated its effectiveness, evidence has not been systematically synthesized. This study aimed to systematically review quasi-experimental studies evaluating the effects of Korean hand therapy on symptom management and to summarize intervention characteristics, outcome measures, and clinical implications.

Methods : A systematic review was conducted following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guideline. Four electronic databases were searched without publication year restrictions. Eligible studies included quasi-experimental studies involving adults aged 18 years or older that evaluated Korean hand therapy for symptom management. Two reviewers independently performed study selection, data extraction, and methodological quality assessment using the Joanna Briggs Institute Critical Appraisal Checklist for Quasi-Experimental Studies.

Results : Sixteen studies met the inclusion criteria. Korean hand therapy was applied using various methods, including hand acupuncture, press-pellet therapy, moxibustion, and hand massage. Positive effects were consistently reported for pain reduction and improvement of gastrointestinal symptoms, including constipation and irritable bowel syndrome. Beneficial effects were also observed for postoperative and chemotherapy-induced nausea and vomiting. However, findings regarding sleep outcomes and objective functional measures were inconsistent across studies. Considerable heterogeneity was identified in intervention protocols, treatment duration, stimulation sites, and outcome measures. Overall methodological quality was moderate to high, although most studies had small sample sizes and limitations related to repeated outcome assessment.

Conclusions : Current evidence suggests that Korean hand therapy may be an effective complementary nursing intervention for symptom management, particularly for pain and gastrointestinal symptoms. However, methodological heterogeneity limits definitive conclusions. Future well-designed randomized controlled trials with standardized intervention protocols and objective outcome measures are needed to strengthen the evidence base.

Keywords : Complementary Therapies, Korean Hand Therapy, Symptom Management, Systematic Review



The Landscape of Health-Related Outcomes in d/Deaf population: A Scoping Review

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Purpose : This scoping review aimed to identify health-related outcomes reported in studies involving d/Deaf adults and systematically categorize these outcomes using a modified International Classification of Functioning, Disability and Health framework.

Methods : A scoping review was conducted following the methodological framework proposed by Arksey and O'Malley and reported according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews. Nine electronic databases were searched through May 2025. Eligible studies included d/Deaf adults aged 18 years or older reporting at least one health-related outcome. Identified outcomes were categorized into six components of a modified International Classification of Functioning, Disability and Health framework.

Results : Sixty-three studies met the inclusion criteria, yielding 202 health-related outcomes. Activities and Participation accounted for the largest proportion of outcomes (35.0%), followed by Body Functions (21.2%), Environmental Factors (18.2%), Personal Factors (14.8%), Quality of Life (9.4%), and Body Structures (1.0%). Frequently examined outcomes included health knowledge, health behaviors, communication, healthcare access, social participation, mental health, and quality of life. Many studies also used sign language-adapted instruments and accessible data collection procedures to accommodate participants' communication preferences.

Conclusions : Health among d/Deaf populations extends beyond hearing-related functioning to encompass physical, psychological, behavioral, social, and contextual dimensions. This review provides a comprehensive overview of health-related outcomes examined in d/Deaf research and offers a conceptual foundation for future outcome assessment and research in this population.

Keywords : d/Deaf populations, Health-related outcomes, Outcome assessment, Scoping review



From Narrative to Knowledge Graph: An ICPS-Based Transformation Methodology for Clinical Judgment and Shared Decision-Making

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Purpose : Patient-safety narratives in KOPS shared cases, public reports, and adjudicated or mediated cases remain difficult to compare without a standardized structure. This study aims to develop a reproducible ICPS-based methodology that transforms Korean patient-safety narratives and reporting materials into a graph-ready evidence structure for clinical judgment and shared decision-making.

Methods : We integrated a Korean Patient Safety Reporting and Learning System (KOPS) source inventory and dashboard pipeline with an adjudicated and mediated legal-case seed table. Public alerts, annual datasets, statistics reports, and case narratives were converted into canonical records, ICPS starter concepts, mapping matrices, review-required flags, and a graph preview. Case narratives were coded for event type, antecedent risk signals, detection and response process, legal or clinical judgment, preventability, and candidate ICPS concepts. Selected review-required KOPS items and case narratives will be independently reviewed by clinical reviewers as accept, revise, or defer.

Results : The pipeline organized 182 source files, including 57 patient-safety alerts and 118 statistics files. Annual datasets from 2017-2024 contributed 109,343 records; 2024 was the latest complete statistics year, with 22,118 records and a high-severity rate of 9.36%. Draft ICPS-linked entries were concentrated in patient accidents (47,614), medication or intravenous fluid events (43,756), other or unclear events requiring review (6,634), clinical processes (5,276), and surgery or procedure events (2,483). The graph preview contained 53 nodes and 83 relationships. Ten adjudicated or mediated cases are being aligned to refine clinical judgment, monitoring, escalation, documentation, preventability, and shared decision-making concepts.

Conclusions : Linking KOPS reporting language, ICPS concepts, and case narratives into a graph-ready structure extends ICPS from classification to relation-based analytic infrastructure. The workflow supports identification of recurring patient-safety patterns and prepares expert-reviewed evidence for manuscript expansion and future electronic health record-based risk-signal extraction.

Keywords : Patient Safety; Clinical Decision-Making; Shared Decision-Making; Medical Informatics; ICPS; Knowledge Graph



Nurse-Supported Self-Acupressure for Cancer-Related Fatigue: An Updated Evidence Review

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Purpose : Cancer-related fatigue is common among adults with cancer and remains difficult to manage using accessible, patient-administered non-pharmacological strategies. This updated evidence review synthesized randomized trial evidence on nurse-led or nurse-supported self-acupressure for cancer-related fatigue, focusing on feasible protocols for self-care and nursing education.

Methods : An updated evidence synthesis of randomized controlled trials was conducted. PubMed, Embase, Cumulative Index to Nursing and Allied Health Literature, and the Cochrane Library were searched from inception to June 2026. Eligible studies enrolled adults with cancer and evaluated self-acupressure interventions that could be taught, reinforced, or monitored by oncology nurses. Risk of bias was appraised using Cochrane tools. Owing to heterogeneity in acupoint selection, dose, duration, delivery mode, comparators, and fatigue measures, a narrative synthesis was undertaken.

Results : Included trials generally suggested that self-acupressure may reduce cancer-related fatigue compared with usual care, whereas differences versus sham controls were less consistent. Frequently used somatic acupoints included Zusanli, Sanyinjiao, and Hegu, whereas auricular and mobile application-guided protocols used different acupoint sets. Common protocols ranged from once to twice daily, for one to three minutes per point, over two to eight weeks. A recent phase three trial in ovarian cancer survivors showed that mobile application-guided self-acupressure was feasible and safe; true and sham protocols showed more favorable fatigue outcomes than usual care but did not differ significantly from each other.

Conclusions : Nurse-supported self-acupressure may be a feasible adjunctive strategy for managing cancer-related fatigue, particularly in survivorship care. Findings support oncology nurses in teaching simplified self-care protocols and using digital tools to reinforce adherence. However, point-specific effects and recommendations during active cancer treatment should be interpreted cautiously. Future trials should standardize protocols, dose, delivery methods, comparators, and adverse event reporting.

Keywords : Acupressure, Cancer-related fatigue, Nursing education, Self-care



Cross-Cultural Validation of the Korean Patient-Centered Survivorship Care Index among Adult Cancer Survivors

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Purpose : The Patient-Centered Survivorship Care Index reflects cancer survivors' priorities for patient-centered survivorship care. This study translated and culturally adapted the instrument for Korea and evaluated its measurement properties among adult cancer survivors.

Methods : This multicenter validation study recruited adult cancer survivors from three tertiary hospitals in South Korea. Translation included forward translation, expert review, back-translation, cognitive debriefing, and content-validity assessment. Of 220 questionnaires, 198 were analyzed. Structural validity was evaluated using robust maximum-likelihood confirmatory factor analysis. The prespecified seven-factor model was primary, with residual-covariance models examined as sensitivity analyses. Reliability, convergent and discriminant evidence, and relations with unmet needs were also assessed.

Results : Thirty-four of 36 items were retained, with a scale-level content validity index average of 0.98. The prespecified seven-factor model showed moderate fit: comparative fit index 0.913, Tucker-Lewis index 0.904, root mean square error of approximation 0.075, and standardized root mean square residual 0.060. An original-study-informed sensitivity model improved these indices to 0.923, 0.914, 0.071, and 0.055, respectively. A data-informed model with four interpretable within-factor residual covariances improved them further to 0.937, 0.930, 0.064, and 0.049, respectively, but requires independent replication. Standardized loadings ranged from 0.70 to 0.94, average variance extracted from 0.64 to 0.81, and heterotrait-monotrait ratios from 0.675 to 0.896. Subscale Cronbach's alpha ranged from 0.85 to 0.94, McDonald's omega from 0.86 to 0.94, and total Cronbach's alpha was 0.98. Scores showed little association with unmet-needs count (Spearman's rho = 0.072, p= 0.313) and a small positive association with severity-weighted unmet-needs intensity (rho = 0.162, p= 0.023).

Conclusions : The Korean version showed preliminary psychometric support for assessing survivors' priorities for patient-centered survivorship care. Further validation in independent post-treatment and community-based samples is warranted.

Keywords : Cancer survivors, Cross-cultural adaptation, Patient-centered care, Psychometric validation



Checklist-Based Inhaler Education in Patients with Chronic Obstructive Pulmonary Disease: A Randomized Controlled Trial

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Purpose : Inhaler technique errors are common in patients with Chronic Obstructive Pulmonary Disease (COPD), highlighting the need for a standardised yet patient-tailored approach to support correct inhaler use. This study aims to evaluate the effects of a nurse-led, checklist-based inhaler education program incorporating self-efficacy-enhancing strategies on inhaler technique, self-care self-efficacy, symptom control, and health-related quality of life (HRQoL).

Methods : A single-center, parallel-group, double-blind randomized controlled trial was conducted at a tertiary hospital outpatient clinic in South Korea. Sixty outpatients with COPD were randomly assigned to an intervention group or a control group. The intervention included checklist-guided identification of inhaler technique errors at baseline, individualized feedback through corrective practice, and reinforcement via reminder text message. At both baseline and follow-up, inhaler technique, COPD Assessment Test (CAT) scores and Medical Research Council (mMRC) dyspnea scale scores were measured by an expert. Self-care self-efficacy and HRQoL were self-administered. All participants were analyzed according to the intention-to-treat principle.

Results : Compared to the control group, the intervention group showed greater improvements in inhaler technique ($\beta = 14.06$, 95% CI [12.97, 15.15], $t = 25.74$, $p < .001$) and self-care self-efficacy ($\beta = 6.72$, 95% CI [6.23, 7.21], $t = 27.24$, $p < .001$), and greater reductions in CAT scores ($\beta = -4.63$, 95% CI [-5.12, -4.14], $t = -19.04$, $p < .001$), mMRC dyspnea scale scores ($\beta = -0.34$, 95% CI [-0.44, -0.24], $t = -7.11$, $p < .001$) and HRQoL scores ($\beta = -10.69$, 95% CI [-12.19, -9.19], $t = -14.36$, $p < .001$), indicating better symptom control and HRQoL from pre- to post-test.

Conclusions : A theory-informed, checklist-based inhaler education program improved inhaler technique and patient-centered outcomes compared to usual inhaler education in outpatient COPD care. This approach appears feasible for routine implementation and warrants further evaluation of its reproducibility and long-term durability.

Keywords : Checklist; Patient Education; Pulmonary Disease, Chronic Obstructive; Randomized Controlled Trial



The Impact of Illness Perception on Self-Care Performance in Patients with Rheumatoid Arthritis: The Mediating Effect of Self-Efficacy

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Purpose : This study aimed to identify the level of illness perception, self-efficacy, and self-care performance among patients with rheumatoid arthritis (RA), and to examine the mediating effect of self-efficacy on the relationship between illness perception and self-care performance.

Methods : A descriptive cross-sectional design was used. Data were collected from 139 RA outpatients at a university hospital in Yangsan, Republic of Korea using structured questionnaires. Illness perception was measured using the Korea Illness Perception Questionnaire (K-IPQ), self-efficacy with the New General Self-Efficacy Scale (NGSE), and self-care performance with the Self-Care Behaviors Scale-Korean (SCBS-K19). Data were analyzed using descriptive statistics, Pearson's correlation coefficients, multiple linear regression based on the Baron and Kenny framework, and the Sobel test.

Results : Self-care performance was significantly correlated with both illness perception ($r=.35, p<.001$) and self-efficacy ($r=.49, p<.001$). In the mediation analysis, illness perception significantly predicted self-care performance in Step 1 ($\beta=.30, p<.001$) and self-efficacy in Step 2 ($\beta=.58, p<.001$). In Step 3, when both variables were entered simultaneously, self-efficacy remained a significant predictor of self-care performance ($\beta=.42, p<.001$), whereas the effect of illness perception became non-significant ($\beta=.06, p=.522$). The Sobel test confirmed that self-efficacy had a significant full mediating effect ($Z=3.60, p<.001$).

Conclusions : These findings demonstrate that self-efficacy fully mediates the relationship between illness perception and self-care performance in patients with RA. Mere disease knowledge alone is insufficient; enhancing patients' confidence in managing their symptoms is essential. Therefore, nursing interventions and self-management programs that focus on enhancing self-efficacy are essential to improve self-care practices among RA patients.

Keywords : Illness perception, Rheumatoid arthritis, Self-care performance, Self-efficacy



Effects of Mindfulness-Based Stress Reduction on Nurse Burnout: A Systematic Review and Meta-Analysis

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Purpose : Professional burnout is a common occupational health issue among nurses, adversely affecting psychological well-being, job performance, and quality of care. Although Mindfulness-Based Stress Reduction (MBSR) has been increasingly used to alleviate burnout, evidence regarding its effectiveness remains inconsistent. Therefore, this systematic review and meta-analysis aimed to evaluate the effects of MBSR on professional burnout among nurses.

Methods : A systematic search of the Cochrane Library, CINAHL, and PubMed was conducted in June 2026 using MeSH terms, subject headings, and free-text keywords related to nurses, mindfulness-based interventions, and burnout. Articles were screened following PRISMA guidelines, and 11 randomized controlled trials were included. The level of evidence was classified according to the Oxford Centre for Evidence-Based Medicine (CEBM) criteria, while methodological quality was assessed using the Cochrane Risk of Bias 2.0 (RoB 2.0) tool. Meta-analysis was performed with Review Manager 5.4.

Results : A total of 11 randomized controlled trials were included, all classified as Level II evidence according to the Oxford Centre for Evidence-Based Medicine (CEBM). The RoB 2.0 assessment indicated that eight studies had a low risk of bias, while three raised some concerns regarding the reporting of randomization. The interventions comprised Mindfulness-Based Stress Reduction (MBSR) and other mindfulness-based programs delivered either face-to-face or online, spanning durations from several days up to 12 weeks. A meta-analysis of 862 nurses demonstrated that mindfulness-based interventions significantly reduced occupational burnout compared to controls (standardized mean difference [SMD] = -1.46 , 95% confidence interval [CI]: -2.35 to -0.56 , $p = .001$), although substantial heterogeneity was observed ($I^2 = 97\%$).

Conclusions : Mindfulness-based interventions are effective non-pharmacological treatments for reducing burnout among nursing staff. Although substantial heterogeneity exists due to variations in intervention characteristics, clinical settings, and outcome assessments, integrating personalized mindfulness programs into healthcare institutions can enhance nurses' mental health, resilience, and overall occupational well-being.

Keywords : Burnout, Mindfulness-Based Stress Reduction, Nurse



Factors Associated with Geriatric Nursing Practice among Nurses in Tertiary Hospitals: Ageism, Nursing Professionalism, and Ethical Climate

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Purpose : This study aimed to identify factors associated with geriatric nursing practice among nurses working in tertiary hospitals, focusing on ageism, nursing professionalism, and ethical climate.

Methods : This descriptive survey study was conducted with 163 nurses who had at least one year of clinical experience and were employed at two tertiary hospitals located in Seoul and Gyeonggi Province, South Korea. Data were collected through an online survey from May 15 to June 1, 2026. The collected data were analyzed using descriptive statistics, independent t-tests, one-way ANOVA, Pearson's correlation coefficients, and multiple linear regression with IBM SPSS Statistics 32.0.

Results : The mean score for geriatric nursing practice was 52.06 ± 6.99 out of a possible 64 points. Geriatric nursing practice was negatively correlated with ageism ($r = -0.27, p < .001$) and positively correlated with nursing professionalism ($r = 0.36, p < .001$) and ethical climate ($r = 0.34, p < .001$). Multiple linear regression analysis revealed that nursing professionalism ($\beta = .19, p = .036$) and ageism ($\beta = -.18, p = .016$) were significant predictors of geriatric nursing practice. The regression model explained 16.8% of the variance in geriatric nursing practice ($\text{Adj. } R^2 = .168, F = 11.885, p < .001$).

Conclusions : This study found that geriatric nursing practice among nurses in tertiary hospitals is influenced by attitudes toward older adults and professional nursing values. Therefore, educational approaches aimed at improving perceptions of older adults and strengthening professional identity are needed to enhance geriatric nursing competencies in caring for the growing population of older patients.

Keywords : Ageism; Professionalism; Ethical Climate; Geriatric Nursing



Factors Influencing Intention to Engage in Evidence-Based Practice among Nursing Students with Clinical Practice Experience

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Purpose : This study aimed to examine information literacy, attitudes toward evidence-based practice (EBP), EBP knowledge, and intention to engage in EBP among nursing students with clinical practice experience, and to identify factors influencing their intention to engage in EBP.

Methods : This descriptive correlational study included 147 third- and fourth-year nursing students from two universities in J and C provinces, Korea. Participants were recruited using convenience sampling. Data were collected from October 20 to November 10, 2025, via an online self-administered questionnaire. Data were analyzed using SPSS/WIN 28.0 with descriptive statistics, independent t-test, one-way ANOVA, Pearson's correlation coefficients, and multiple linear regression.

Results : Intention to engage in EBP differed by gender ($t=2.13$, $p=.035$) and perceived importance of research ($t=2.08$, $p=.038$). Information literacy, attitudes toward EBP, EBP knowledge, and intention to engage in EBP were all positively correlated. Information literacy was positively correlated with attitudes toward EBP ($r=.68$, $p<.001$), EBP knowledge ($r=.37$, $p<.001$), and intention to engage in EBP ($r=.58$, $p<.001$). Attitudes toward EBP were positively correlated with EBP knowledge ($r=.34$, $p<.001$) and intention to engage in EBP ($r=.64$, $p<.001$), and EBP knowledge was positively correlated with intention to engage in EBP ($r=.31$, $p<.001$). Multiple regression analysis revealed that attitudes toward EBP ($\beta=.51$, $p<.001$), information literacy ($\beta=.27$, $p<.001$), and perceived importance of research ($\beta=-.11$, $p=.038$) were significant predictors of intention to engage in EBP, accounting for 58% of the variance ($F=66.19$, $p<.001$).

Conclusions : Nursing students' intention to engage in EBP was associated with their attitudes toward EBP, information literacy, and perceived importance of research. Educational strategies to enhance intention to engage in EBP should focus on strengthening information literacy, fostering positive attitudes toward EBP, and emphasizing the importance of research in nursing practice.

Keywords : Attitude, Evidence-based practice, Information literacy, Intention



Nursing Experience of a Newly Diagnosed Unmarried Female with Acute Myeloid Leukemia

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Purpose : This report aims to explore the nursing experience of a patient with acute myeloid leukemia (AML) during the period of receiving chemotherapy. The primary goals were to alleviate anxiety, improve respiratory issues, prevent infections and chemotherapy-induced side effects, and establish disease awareness as well as self-care capabilities.

Methods : A qualitative case study design was applied. The nursing care period spanned from June 30, 2023, to August 11, 2023, with a follow-up telephone interview conducted on August 18, 2023. The subject was a 37-year-old unmarried female who was diagnosed with AML following a persistent cough. Data were collected through observation, interviews, and direct nursing care, and comprehensively analyzed using Gordon's 11 Functional Health Patterns. The prioritized health problems identified included ineffective breathing pattern, anxiety, altered protection, and impaired oral mucous membrane. Nursing interventions integrated respiratory care, psychological support, infection prevention, oral care, and multidisciplinary collaborative care.

Results : Following the interventions, the patient's respiratory function improved, and she recovered from pneumonia. Her anxiety level decreased significantly, with the Beck Anxiety Inventory (BAI) score dropping from 25 to 7. Complete remission was achieved with full hematologic recovery and no occurrence of infection. Furthermore, her oral mucositis improved from Grade 2 to Grade 0.

Conclusions : The findings demonstrate that cross-disciplinary care, patient education, mindfulness, music therapy, and family support can effectively enhance therapeutic outcomes and the patient's self-care ability.

Keywords : Acute Myeloid Leukemia (AML), Induction Chemotherapy, Anxiety, Altered Protection, Multidisciplinary Care.



Self-care and health literacy interventions in adults with hematologic malignancies: a scoping review

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Purpose : This scoping review mapped self-care and health-literacy interventions for adults with hematologic malignancies and identified nursing-relevant gaps.

Methods : Following JBI methodology and reported according to PRISMA-ScR, eligibility criteria were structured using the Population–Concept–Context framework: adults with hematologic malignancies, interventions supporting self-care competency or health literacy, and any treatment phase or setting. Six databases were searched without date restrictions through June 2026, yielding 1,337 records, which were screened against prespecified eligibility criteria. Data were re-coded using the Sørensen health-literacy framework and Riegel self-care typology; categories were non-mutually exclusive.

Results : Thirteen studies from eight countries were included. They covered multiple myeloma, leukemia, lymphoma, transplantation, and CAR-T populations and focused mainly on active treatment and peri-transplantation. Interventions were commonly nurse-led or multidisciplinary and delivered digitally (n=5), face-to-face (n=3), or in blended formats (n=3). Components included adverse-effect and symptom self-management education; transplant-specific self-care, including self-injection and central-line or oral care; medication and adherence support; psychoeducation and coping; and remote monitoring with clinician feedback. Some used behavioral or empowerment theories. Health-literacy support was common for access (n=11), understanding (n=13), and application (n=13), but rare for patient-facing appraisal (n=2). Only two studies trained patients to interpret symptoms and select responses; others relied on automated alerts or clinician-directed follow-up. Improvements were reported in knowledge or self-care capability (n=8), symptoms or complications (n=7), quality of life (n=6), and psychological outcomes (n=5). Measures were heterogeneous; quality of life was assessed most often using the EORTC QLQ-C30 or FACT scales, followed by anxiety/depression and self-efficacy measures.

Conclusions : Interventions supported information access, understanding, and use but rarely strengthened appraisal or independent symptom-response decisions, and none directly measured health literacy. Future studies should measure health literacy, strengthen appraisal and decision support, standardize outcomes, address digital equity, and evaluate nurse-led programs across treatment and survivorship.

Keywords : Health literacy, hematologic neoplasms, oncology nursing, self care



Effects of Cold Water Spray on Thirst in Patients with Heart Failure

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Purpose : Thirst is a common problem among patients with heart failure receiving diuretics and fluid restriction and may negatively affect treatment adherence and quality of life. This study aimed to evaluate the effectiveness of low-volume cold-water spray in reducing thirst intensity and thirst-related distress among patients with heart failure undergoing fluid restriction.

Methods : A randomized controlled trial will used sixty eligible subjects from the Department of Cardiac surgery of a medical center in central Taiwan participate in this study. A total of sixty subjects were randomly and equally assigned to the control group A and experimental group B. To offer experimental group B cold water spray twice/hour from 10am to 4pm for 4 days, and control group A still routine care. Pretests will done when joined the test before interventions, and posttests were done after the interventions complete after 30 minutes everyday. Data including thirst intensity with numerical rating scale and measure oral moisture with oral moisture checking device.

Results : Fifty-eight hospitalized patients with heart failure were allocated to the experimental(n=28) or control group(n=30), with no significant differences in baseline characteristics. After four days, the experimental group had significantly lower thirst intensity and higher oral moisture levels than the control group(both $p < 0.001$). Significant effects of time, group, and group-by-time interaction were observed for oral moisture levels(all $p < 0.001$). Changes in thirst intensity were not correlated with changes in oral moisture in either group. Regression analysis identified cold-water spray as an independent factor associated with reduced thirst and increased oral moisture(both $p < 0.001$).

Conclusions : Cold-water spray reduced thirst intensity and increased oral moisture in hospitalized patients with heart failure. It may be a simple and feasible intervention for thirst relief in patients undergoing fluid restriction.

Keywords : Heart failure, Thirst, Cold water spray



Professional Autonomy, Organizational Commitment, and Perceived Organizational Innovativeness as Predictors of Evidence-Based Practice Implementation in Clinical Nurses

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Purpose : Evidence-based practice implementation can be considered an innovative behavior in clinical nursing. This study aimed to identify factors associated with evidence-based practice implementation among clinical nurses to inform strategies for its dissemination and sustained adoption.

Methods : A descriptive correlational design was used. Participants were nurses with at least 12 months of clinical experience from two general hospitals located in a metropolitan city and a province. Nurse managers who were not directly involved in patient care were excluded. Data were collected via self-report questionnaires from March to April 2025, and 169 responses were analyzed. Data analysis included descriptive statistics, independent t-tests, one-way ANOVA, Pearson correlation coefficients, and multiple linear regression using SPSS 27.0.

Results : Evidence-based practice implementation score was 3.38 ± 0.56 (mean $\pm$ SD) and differed significantly by education level, awareness, education experience, and recent conference attendance. Implementation showed positive correlations with age and clinical experience, and was moderately correlated with professional autonomy, organizational commitment, and perceived organizational innovativeness. In multiple regression, being well aware of evidence-based practice ($\beta=.20$, $p=.004$), higher professional autonomy ($\beta=.28$, $p<.001$), and higher perceived organizational innovativeness ($\beta=.22$, $p=.015$) were significant predictors, explaining 32.0% of variance in implementation.

Conclusions : Professional autonomy and perceived organizational innovativeness were key predictors of evidence-based practice implementation. Interventions that strengthen nurses' autonomy and foster an innovation-supportive organizational climate may accelerate the dissemination and sustained adoption of evidence-based practice. Multi-center studies considering broader organizational characteristics and additional determinants are recommended.

Keywords : Evidence-based practice, Nurses, Professional autonomy, Organizational Commitment, Organizational innovativeness



The Effects of Patient-Centered Care, Patient Safety Environment, and Health Literacy Perceived by Inpatients on Patient Experience

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Purpose : This study aimed to investigate hospitalized patients' perceptions of patient-centered care, patient safety environment, and health literacy, and to examine the effects of these factors on patient experience. The findings provide evidence to support strategies for improving the quality of patient-centered healthcare services and patient experience.

Methods : A descriptive cross-sectional survey was conducted using a structured questionnaire. Participants were 180 inpatients hospitalized for more than three days at tertiary and general hospitals in J Province, South Korea. Data were collected between September 2024 and April 2025 through convenience sampling. Statistical analyses included descriptive statistics, independent t-tests, one-way ANOVA, Pearson's correlation coefficients, and multiple linear regression using SPSS/WIN 27.0.

Results : The mean scores were 3.55 ± 0.66 for patient-centered care, 2.90 ± 0.30 for patient safety environment, 3.13 ± 0.55 for health literacy, and 81.82 ± 11.25 for patient experience. Patient-centered care differed significantly according to sex and ward type, while perceptions of the patient safety environment and patient experience varied by length of hospital stay. Health literacy differed according to health insurance type. Patient experience showed significant positive correlations with patient-centered care ($r=0.66$, $p<.001$) and health literacy ($r=0.29$, $p<.001$). Patient-centered care was also positively associated with both patient safety environment ($r=0.16$, $p=.029$) and health literacy ($r=0.43$, $p<.001$). Multiple linear regression revealed that patient-centered care was the strongest predictor of patient experience ($\beta=0.64$, $p<.001$), explaining 43.7% of the variance in patient experience.

Conclusions : Patient-centered care was identified as the most influential factor affecting patient experience among hospitalized patients. These findings emphasize the importance of nursing practices that actively reflect patients' preferences and promote effective communication. To enhance patient experience, healthcare organizations should strengthen patient-centered care through systematic education, organizational support, and institutional policies that facilitate its implementation in clinical practice.

Keywords : Patient-Centered Care, Patient Safety Environment, Health Literacy, Patient Experience



Effects of General Anesthesia on Emergence Agitation After Laparoscopic Surgery

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Purpose : This study aimed to determine the incidence of emergence agitation (EA) and identify its associated risk factors among adult patients undergoing laparoscopic surgery under general anesthesia. The findings provide evidence for developing nursing interventions to prevent EA and improve postoperative recovery.

Methods : A descriptive cross-sectional study was conducted with 185 adult patients who underwent laparoscopic surgery under general anesthesia at a tertiary university hospital in J Province, South Korea. Data were collected between June and September 2025 using structured questionnaires and clinical records. Variables included preoperative stress, anxiety, personality type, perioperative characteristics, and postoperative emergence agitation assessed using the Richmond Agitation-Sedation Scale (RASS). Data were analyzed using descriptive statistics, independent t-tests, χ^2 tests, Pearson's correlation coefficients, and binomial logistic regression with SPSS/WIN 29.0.

Results : Emergence agitation occurred in 22.7% of patients, most frequently immediately after admission to the post-anesthesia care unit. Patients with severe preoperative stress demonstrated a significantly higher incidence of EA than those with lower stress levels ($\chi^2=41.23$, $p<.001$). Longer operation and anesthesia times were also significantly associated with EA ($p<.001$). Preoperative stress showed a positive correlation with RASS scores immediately after surgery ($r=0.464$, $p<.001$) and 10 minutes after admission to the recovery room ($r=0.465$, $p<.001$). Logistic regression analysis revealed that male sex (OR=3.94, 95% CI=1.41–10.96, $p=.009$) and higher preoperative stress (OR=1.19, 95% CI=1.06–1.34, $p=.003$) were significant predictors of EA. The final model explained 40.5% of the variance in EA (Nagelkerke $R^2=0.405$, $p<.001$).

Conclusions : Male sex and preoperative stress were identified as the primary risk factors for emergence agitation following laparoscopic surgery under general anesthesia. These findings highlight the importance of routine preoperative psychological assessment and individualized nursing interventions targeting high-risk patients. Implementing perioperative stress-management strategies may reduce the incidence of emergence agitation and promote safer postoperative recovery.

Keywords : Laparoscopic surgery, Emergence agitation, Preoperative stress, Preoperative anxiety



Methodological quality assessment of systematic reviews published in nursing journals

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Purpose : Systematic reviews and meta-analyses represent the highest level of evidence for informing evidence-based healthcare practice. Given the substantial increase in their publication within nursing research, evaluating their methodological quality is essential to ensure the credibility of synthesized evidence. This methodological study aimed to appraise the methodological quality of systematic reviews published in Korean nursing journals.

Methods : A literature search was conducted to identify systematic reviews of experimental studies published in 11 major Korean nursing journals between 2020 and 2024. Two reviewers independently assessed the methodological quality of the included SRs using AMSTAR 2. Inter-rater reliability was evaluated using observed agreement and Gwet's AC1.

Results : Sixty-four reviews were included. Approximately 11 to 14 reviews were published annually, with nearly half (48.4%) published in English. Adults were the most frequently studied population (n = 39, 60.9%), the Behavioral domain was the most common intervention category (n = 28, 43.8%), and the Psychosocial Health domain was the most common outcome category (n = 18, 28.1%). Most reviews were rated as critically low quality (n = 57, 89%), whereas the remainder were rated as low quality (n = 7, 11%). The three most frequently unmet AMSTAR 2 criteria were reporting the funding sources of the included studies (97%), conducting a comprehensive literature search (80%), and providing justification for excluding studies (78%). Inter-rater reliability was high, with an overall observed agreement of 0.92 and an AC1 of 0.86.

Conclusions : Our findings indicate that the generally poor methodological quality of systematic reviews published in Korean nursing journals may limit the validity and trustworthiness of the synthesized evidence, thereby weakening the evidence base for nursing research and practice. Improving the quality of future systematic reviews will require rigorous methodological training, greater adherence to established methodological standards, and stronger support for conducting and reporting high-quality reviews.

Keywords : bias, evidence-based nursing, nursing, review, systematic review



Current status and future challenges of “patient journey” research in Japan

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Purpose : The “patient journey” is a framework adapted from the “customer journey”, originally used to understand consumer purchasing behavior—for use in healthcare and the pharmaceutical industries. It serves to capture the comprehensive picture of how patients feel, think, and act throughout the process of recognizing an illness and undergoing diagnosis and treatment at medical institutions. As the patient journey is a relatively new framework in the healthcare sector, this study aims to examine its current applications and future challenges in Japan through a literature review.

Methods : A literature search was conducted using the Japanese literature database “Ichushi-Web” with the keyword “patient journey.” The search covered the past 10 years and was performed in June 2026. Forty-five publications were identified; of these, 27 that aligned with the study’s objectives were selected for analysis.

Results : All the literature reviewed was published in or after 2020. The content was categorized as follows: “creation and utility of patient journeys for specific diseases” (11 papers); “quality improvement in healthcare using patient journeys” (4); “relationship between patient experience and patient journeys” (4); “effectiveness of support interventions incorporating patient journeys” (3); “medical safety education incorporating patient journeys” (2); “continuous nursing care aligned with the patient journey” (2); and “usefulness of patient journeys in interprofessional healthcare” (1).

Conclusions : The findings indicate that patient journey research in Japan has emerged only since 2020, suggesting that it is a relatively new and developing field. Most studies were exploratory and descriptive, reporting the initial implementation of the patient journey in clinical practice. Although only two papers focused on nursing, they reported the tool’s utility in delivering patient-centered nursing care, suggesting its potential for future application in nursing practice.

Keywords : patient journey, current status, future challenges



Evidence-Based Nonpharmacological Management Recommendations for Low Back Pain: A Systematic Review from a Global Perspective

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Purpose : To synthesize and compare recommendations for the nonpharmacological management of low back pain across recent clinical practice guidelines, and to identify areas of consensus and inconsistency relevant to nursing practice.

Methods : This systematic review of clinical practice guidelines was reported in accordance with the PRISMA 2020 statement. Four bibliographic databases and five guideline repositories were searched for clinical practice guidelines published between January 2019 to March 2026 that provided nonpharmacological recommendations for low back pain. Two reviewers independently screened records, assessed full texts, and extracted recommendations. Recommendations were mapped onto nine intervention categories, and, because grading systems differed across guidelines, the direction and strength of each recommendation were harmonized into a common five-level scheme. The protocol was prospectively registered with the International Prospective Register of Systematic Reviews (CRD42025640254).

Results : Sixteen guidelines from ten countries and the World Health Organization were included. Exercise and physical activity showed the strongest consensus: all 14 guidelines addressing them issued a recommendation in favor, most often for general exercise and motor control training. Education and self-management were recommended by 11 of the 12 guidelines addressing them, with one neither recommending for nor against, and psychological interventions by all 9 guidelines addressing them. In contrast, of the 9 guidelines addressing traction and orthoses, 7 recommended against traction and 6 against orthoses. Recommendations for electrotherapy, thermotherapy, and complementary therapies were inconsistent or inconclusive. Acupuncture was recommended for chronic low back pain by 4 of 6 guidelines but for acute pain by none.

Conclusions : Guidelines broadly agreed that exercise, education, self-management, and psychological interventions are central to nonpharmacological care for low back pain, whereas recommendations for passive and complementary modalities were inconsistent and, for acupuncture, varied by pain duration. Because these core interventions largely fall within the nursing scope of practice, the findings support nurse-led models of care.

Keywords : Clinical practice guideline, Low back pain, Nursing, Systematic review



Comparative Evaluation and Selection of Transformer-based Models for Automated Classification of Advance Care Planning Literature

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Purpose : Amidst the exponential growth of Advance Care Planning (ACP) literature, healthcare providers face substantial barriers in navigating complex clinical evidence. This study aims to provide the foundational evidence for establishing a high-precision informatics framework by identifying the optimal specific Transformer model—among BERT, PubMedBERT, and BioBERT—to streamline evidence-based nursing interventions. By automating the classification of functional domains and analyzing clinical sentiments, this research seeks to bridge the gap between vast academic data and real-time clinical decision-making, ultimately enhancing the quality of patient-centered end-of-life care.

Methods : Three Transformer-based models (BERT, PubMedBERT, and BioBERT) were evaluated for ACP document classification using 3,756 academic abstracts published between 2016 and 2025. Model performance was assessed using Accuracy, Precision, Recall, F1-score, ROC-AUC, and Specificity. Domain-specific sentiment patterns were subsequently analyzed using the VADER sentiment algorithm.

Results : PubMedBERT demonstrated the strongest overall classification performance on the independent test set, achieving the highest accuracy (0.9273), precision (0.8907), recall (0.8971), and F1-score (0.8938) among the three Transformer models, with a ROC-AUC of 0.9837 and specificity of 0.9756. Sentiment analysis showed that the Intervention domain exhibited the highest proportion of positive sentiment, whereas the Outcome domain showed the highest proportion of negative sentiment, indicating distinct lexical sentiment patterns across ACP domains.

Conclusions : The PubMedBERT-based classification approach demonstrated strong performance for navigating the rapidly expanding ACP literature. By accurately categorizing clinical domains and identifying domain-specific sentiment patterns, this approach may help healthcare professionals more efficiently navigate the growing body of ACP evidence. These findings suggest that PubMedBERT can serve as a robust foundation for future intelligent nursing decision-support systems, enabling nurses to rapidly access relevant interventions, psychosocial outcomes, and policy-related evidence while supporting evidence-based, patient-centered ACP consultations.

Keywords : Advance Care Planning; Natural Language Processing; Deep Learning; Decision Support Techniques



The Effectiveness of Using Artificial Intelligence-Enabled Patient Decision Aids in Supporting Shared Decision-Making in Clinical Setting: A Systematic Review and Meta-Analysis

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Purpose : This study aims to systematically review and synthesize current evidence on the effectiveness of Artificial intelligence-enabled patient decision aids (AI-enabled PDAs) in clinical setting from patients' perspectives.

Methods : A comprehensive search was conducted across 6 databases from their inception through October 2025. The risk of bias in the included studies was assessed using the Cochrane risk of bias tool and the revised JBI checklist. Outcomes analyzed in this review were categorized at the interaction level of shared decision-making (SDM) effects, which addresses communication and relationships between patients and healthcare providers. These outcomes included decisional quality, decisional conflict, decisional regret, satisfaction with consultation, and consultation duration. The data were synthesized using CMA software.

Results : A total of twelve studies were included, comprising four RCTs, three cluster-RCTs, and five quasi-experimental designs. Data synthesize revealed that AI-enabled PDAs significantly improved decisional quality (MD = 16.92, 95% CI: 10.00-23.84; N= 367); reduced decisional conflict (SMD = 0.434, 95% CI: 0.107-0.762; N= 1340), and lowered decisional regret (MD = 5.82, 95% CI: 2.69-8.95; N= 1953) without prolonging consultation time (MD = 1.70, 95%CI: -0.66-4.07; N= 367). However, AI-enabled PDAs did not significantly increase satisfaction with consultation compared to usual care (MD = 0.96, 95%CI: -0.06-1.98; N= 457).

Conclusions : AI-enabled PDAs significantly improve decisional quality and reduce decisional conflict and regret without affecting consultation time. However, evidence remains insufficient to confirm superiority over conventional PDAs or benefits beyond interactional outcomes. Further research is needed to evaluate their impact across other levels of SDM effects and clinical contexts.

Keywords : Artificial intelligence, patient decision aid, shared decision-making, patient's perspective



"I WANT TO GO HOME": A QUALITATIVE CASE STUDY ON THE TRANSITIONAL CARE DILEMMAS OF AN OLDER PATIENT DISCHARGING TO HOME CARE

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Purpose : Adopting a qualitative, holistic framework, this study explores the transitional care lived experiences and structural dilemmas surrounding a 92-year-old advanced-age patient presenting with multiple complex chronic comorbidities. During the inpatient period from September 20 to October 8, 2025, a comprehensive multi-dimensional care framework—anchored in the "Five Wholes" philosophy (Whole-Person, Whole-Family, Whole-Process, Whole-Team, and Whole-Community)—was structurally introduced. The central objective of this intervention was to construct a secure pathway for the patient's safe transition back home, while systematically mitigating the acute psychological and physical caregiving burdens experienced by primary family caregivers.

Methods : This study employed a qualitative descriptive case study methodology. The investigation integrated the Intrinsic Capacity of Older People (ICOPE) assessment tool with the early implementation of discharge planning services. Operating in strict alignment with national Long-Term Care 2.0 framework directives, the care team formulated a highly individualized care plan. Data and clinical insights were gathered through continuous clinical observations, semi-structured interactions, and multidisciplinary consultations. This qualitative approach facilitated tailored nursing instructions, specialized psycho-educational counseling, and precise community-based welfare resource referrals, ensuring that both the biological and psychosocial needs of the family unit were addressed dynamically.

Results : From a macro-sociological and clinical perspective, discharge planning services function as an indispensable bridge linking clinical medicine to community social welfare. The qualitative findings underscore three structural impacts: First, it substantially optimizes institutional healthcare resource allocation. By establishing robust, continuous home care capabilities, the framework effectively minimizes unplanned readmission rates, thereby ensuring acute-care hospital beds remain available for high-acuity patients. Second, it accomplishes a seamless, precise integration with Long-Term Care 2.0 policies. Discharge planning serves as the critical node for transferring patients to specialized community assets (such as home nursing and respite services), ensuring public welfare funds are precisely allocated to vulnerable, high-risk domestic units. Third, it serves a protective function against caregiver burnout. Social responsibility fundamentally dictates the safeguarding of informal family caregivers; by proactively neutralizing long-term caregiving distress through comprehensive institutional support, discharge planning mitigates the risk of catastrophic caregiver collapse, making it a cornerstone of ethical, humanistic healthcare delivery.

Conclusions : Discharge planning serves as the critical node for transferring patients to specialized community assets (such as home nursing and respite services), ensuring public welfare funds are precisely allocated to vulnerable, high-risk domestic units. Third, it serves a protective function against caregiver burnout. Social responsibility fundamentally dictates the safeguarding of informal family caregivers; by proactively neutralizing long-term caregiving distress through comprehensive institutional support, discharge planning mitigates the risk of catastrophic caregiver collapse, making it a cornerstone of ethical, humanistic healthcare delivery.

Keywords : Discharge planning, Long-Term Care 2.0 in Taiwan



Latent Classes of Health Literacy and Associated Factors Among Adults With Cardiocerebral Vascular and Metabolic Diseases: An Analysis of the 2024 Korea National Health and Nutrition Examination Survey

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Purpose : Adults with cardiocerebrovascular and metabolic diseases need to evaluate health information and apply it effectively to daily self-management. Because health literacy vulnerabilities may differ across domains and influence chronic disease management, this study identified latent classes of health literacy and examined factors associated with class membership.

Methods : This cross-sectional secondary analysis used data from the 2024 Korea National Health and Nutrition Examination Survey. Participants were 2,399 adults aged ≥ 19 years diagnosed with hypertension, diabetes mellitus, dyslipidemia, stroke, myocardial infarction, or angina who completed 10 health literacy items. Latent class analysis was performed, and the final model was selected using information criteria, entropy, classification quality, class size, and interpretability. Complex-sample multinomial logistic regression incorporating weights, stratification, and clustering identified associated factors. Analyses used IBM SPSS Statistics version 27.0 and R version 4.3.5.

Results : Four classes were identified: overall adequate health literacy (63.3%), disease prevention vulnerability (15.6%), health information appraisal and application vulnerability (15.5%), and complex health literacy vulnerability (5.6%). Entropy was .882, and the regression model was significant (Wald $F=4.78$, $p<.001$). Appraisal and application vulnerability was associated with age <65 years ($OR=0.32$, 95% $CI=0.23-0.43$). Complex vulnerability was associated with age <65 years ($OR=0.38$, 95% $CI=0.23-0.63$), urban residence ($OR=0.43$, 95% $CI=0.25-0.74$), and no muscle-strengthening exercise ($OR=2.87$, 95% $CI=1.11-7.40$). Disease prevention vulnerability was associated with age <65 years ($OR=0.41$, 95% $CI=0.29-0.58$), National Health Insurance coverage ($OR=0.47$, 95% $CI=0.30-0.76$), and no muscle-strengthening exercise ($OR=1.80$, 95% $CI=1.22-2.65$).

Conclusions : Health literacy among adults with cardiocerebral vascular and metabolic diseases comprised distinct patterns of vulnerability rather than a single level of ability. These findings suggest that health literacy assessment should consider domain-specific vulnerability patterns. Tailored health information and education based on sociodemographic characteristics and health behaviors may facilitate effective communication and chronic disease self-management.

Keywords : health literacy, latent class analysis, cardiocerebrovascular disease, metabolic disease, secondary data analysis



Factors Influencing Lymphedema Prevention Behaviors among Patients after Breast Cancer Surgery Based on Social Cognitive Theory

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Purpose : This study aimed to identify factors influencing lymphedema prevention behaviors among patients after breast cancer surgery, guided by Bandura's Social Cognitive Theory. In this study, lymphedema-related knowledge and self-efficacy for lymphedema prevention behaviors were conceptualized as cognitive factors, social support as a social-environmental factor, grit as a behavioral-support factor, and lymphedema prevention behaviors as the behavioral outcome.

Methods : This study used a descriptive correlational design. A total of 152 patients who had undergone breast cancer surgery were recruited through convenience sampling from a tertiary hospital in the Republic of Korea. Data were collected from July to October 2025 using structured questionnaires assessing self-efficacy for lymphedema prevention behaviors, lymphedema-related knowledge, social support, grit, and lymphedema prevention behaviors. Data were analyzed using descriptive statistics, Pearson's correlation coefficients, and hierarchical regression analysis with SPSS/WIN 27.0.

Results : The mean score for lymphedema prevention behaviors was 63.46 ± 7.64 out of 76. Hierarchical regression analysis showed that age ≥ 40 years ($\beta = .25$, $p < .001$, 95% CI = 3.50–12.78), lymph node dissection ($\beta = .24$, $p = .002$, 95% CI = 3.34–13.87), self-efficacy for lymphedema prevention behaviors ($\beta = .21$, $p = .010$, 95% CI = 0.07–0.51), and grit ($\beta = .18$, $p = .022$, 95% CI = 0.04–0.52) were significant positive predictors of lymphedema prevention behaviors. In contrast, longer time since diagnosis was negatively associated with lymphedema prevention behaviors ($\beta = -.16$, $p = .028$, 95% CI = -0.07–0.00). These variables explained 26.2% of the variance in lymphedema prevention behaviors.

Conclusions : The findings support the applicability of Social Cognitive Theory in explaining lymphedema prevention behaviors among patients after breast cancer surgery. In particular, cognitive factors, such as self-efficacy for lymphedema prevention behaviors, and behavioral-support factors, such as grit, were significant predictors of preventive behaviors. Theory-based interventions that enhance self-efficacy and strengthen sustained behavioral support may help improve lymphedema prevention behaviors in this population. Future studies should examine these relationships among high-risk breast cancer patients, particularly those within 1–3 years after surgery.

Keywords : Breast Cancer Lymphedema, Breast Neoplasms, Health Behavior, Social Cognitive Theory



Differences in Quality of Life by Sociodemographic and Clinical Characteristics Among Korean Lung Cancer Survivors

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Purpose : Quality of life (QoL) has become an increasingly important outcome in lung cancer care. Given that lung cancer survivors face a high risk of recurrence alongside prolonged multidimensional burdens, understanding variations in QoL based on sociodemographic and clinical characteristics is essential to identify vulnerable populations and develop targeted interventions. This study aimed to examine variations in QoL across sociodemographic and clinical characteristics among Korean lung cancer survivors.

Methods : A cross-sectional study was conducted among 201 Korean lung cancer survivors recruited through an online lung cancer community between July and October 2025. Data were collected using a sociodemographic and clinical characteristics form and the Functional Assessment of Cancer Therapy–Lung (FACT-L) instrument. Data were analyzed using IBM SPSS Statistics 29.0 with descriptive statistics, independent t-tests, and one-way ANOVA.

Results : The mean FACT-L total score was 80.61 ± 21.39 (range: 0–136). Quality of life differed significantly according to marital status ($p = .03$), occupational status ($p < .001$), monthly household income ($p = .03$), and subjective socioeconomic status ($p < .001$). Significant differences were also observed according to clinical diagnosis ($p = .003$), cancer stage ($p < .001$), history of surgery ($p = .004$), radiation therapy ($p = .01$), other treatments ($p = .02$), perceived financial burden of treatment ($p < .001$), consideration of treatment discontinuation due to financial burden ($p < .001$), receipt of non-reimbursed treatment ($p < .001$), and comorbidities ($p = .01$).

Conclusions : Quality of life varied according to both socioeconomic and clinical characteristics among Korean lung cancer survivors. These results serve as a foundation for designing evidence-based care interventions tailored to the specific needs of this population. Consequently, early identification of high-risk survivors, alongside the implementation of individualized financial support and nursing interventions, may help improve their quality of life.

Keywords : Lung cancer survivors, Oncology nursing, Quality of life



Applications and Challenges of Artificial Intelligence in Terminal Care: A Scoping Review

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Purpose : Population aging and the increasing demand for terminal care have heightened the need for timely, individualized, and high-quality care. Artificial intelligence (AI) has recently been introduced into terminal care to support clinical practice; however, evidence remains fragmented across countries and healthcare settings, and the applications of AI and associated challenges have not been comprehensively synthesized. This review aimed to clarify the current applications and challenges of AI in terminal care.

Methods : A scoping review was conducted using PubMed and Ichushi-Web. The search terms were "Artificial Intelligence" AND "terminal care" AND "nursing." Studies describing the applications or challenges of AI in terminal care were selected. 18 studies were included in the final analysis and examined using qualitative thematic analysis.

Results : 5 categories of AI use in terminal care were identified: (1) end-of-life prediction and palliative care initiation support (e.g., identification of patients who may benefit from palliative care and mortality prediction); (2) patient and family decision-making support (e.g., advance care planning [ACP] and hospice care planning); (3) holistic distress assessment support (e.g., detection of physical, psychological, social, and spiritual distress); (4) care delivery and care coordination support (e.g., legacy-making and multidisciplinary collaboration); and (5) educational support (e.g., communication with terminally ill patients and education for family caregivers). Identified challenges included the transparency and accountability of AI-generated predictions and recommendations, privacy and data security concerns, fairness of AI-supported decision-making, integration into clinical practice, inequitable access to AI-supported care, and the need to maintain person-centered care.

Conclusions : Although AI has been applied across multiple domains of terminal care, significant challenges and knowledge gaps remain. Future research is needed to develop terminal care models that integrate the strengths of AI with healthcare professionals' clinical judgment and individualized, person-centered care.

Keywords : Artificial Intelligence; Terminal Care; Scoping Review



Multidimensional Needs of Family Caregivers of Home-Dwelling Older Adults with Dementia: A Qualitative Approach for Integrated Intervention Development

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Purpose : The rapid increase in the elderly population in Korea has led to a significant rise in the number of dementia patients. Family caregivers of older adults with dementia often experience physical, psychological, psychosocial, and spiritual health issues. This study aimed to identify intervention needs among family caregivers through focus group interviews, aiming to provide foundational data for developing effective intervention strategies to improve the quality of life for dementia caregivers.

Methods : This qualitative study employed a focus group interview design to explore the perspectives of family caregivers of older adults with dementia. Participants were recruited through snowball sampling, and seven individuals with prior experience participating in intervention programs for dementia caregivers were included in the final analysis. Semi-structured interviews explored barriers and facilitators to program participation, suggestions for program improvement, and essential components of an integrated intervention program. The interview data were analyzed using qualitative content analysis.

Results : Through focus group interviews, four main themes emerged: (1) necessity of diverse programs realistically accessible to caregivers; (2) need for accurate information to facilitate caregiving services and resource utilization; (3) requirement for psychological and emotional support and social interaction; and (4) demand for effective educational media.

Conclusions : By qualitatively exploring the actual experiences and latent needs of family caregivers, this study complements the limitations of previous quantitative research. Based on these findings, it is recommended that intervention programs for family caregivers prioritize accessible and tailored support strategies.

Keywords : Dementia older adults, Family caregiver, Multidimensional needs, Focus group interview, Qualitative study



Psychometric Validation of the COST (COmprehensive Score for Financial Toxicity)-K among Korean Lung Cancer Survivors

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Purpose : Financial toxicity caused by the costs of cancer treatment adversely impacts patient outcomes, including quality of life, mental health, and treatment adherence. Given that lung cancer remains the leading cause of cancer-related mortality alongside its rising incidence in Korea, research on financial toxicity among lung cancer survivors is imperative. Therefore, the purpose of this study was to evaluate the psychometric properties of the Comprehensive Score for Financial Toxicity (COST, Version 2) among Korean lung cancer survivors, as it is the most widely used tool to measure financial toxicity worldwide.

Methods : A methodological study was conducted to examine the validity and reliability of the COST-K. A convenience sample was recruited through an online community platform for Korean lung cancer survivors between July and October 2025. Data were collected using sociodemographic and clinical questionnaires, the COST-K, and the Functional Assessment of Cancer Therapy–Lung (FACT-L). The data were analyzed using the Statistical Package for Social Science (SPSS) version 29.0.

Results : Two factors were identified explaining 57.84% of the total variance. The COST-K showed good internal consistency, with a Cronbach's α of 0.88. The COST-K showed a significant negative correlation with the FACT-L ($r = -.67$), indicating strong concurrent validity. Approximately 44.8% and 23.4% of lung cancer survivors experienced mild and severe financial toxicity, respectively. Age, gender, marital status, occupational status, educational level, living arrangements, household income, and subjective socioeconomic status were significantly associated with financial toxicity.

Conclusions : The COST-K Version 2 demonstrated good reliability and concurrent validity with a two-factor structure among Korean lung cancer survivors, in contrast to the original US-developed COST, which features a one-factor structure. Given that lung cancer survivors experiencing higher financial toxicity report lower HRQoL, financial toxicity is a crucial variable that must be incorporated into future investigations of quality of life in this population.

Keywords : COST, financial toxicity, lung cancer survivors, psychometric validation



Factors associated with sleep quality in elderly patients with cancer

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Purpose : Poor sleep quality is highly prevalent among elderly patients with cancer and is associated with functional decline, reduced quality of life, and increased mortality. This study aimed to investigate the effects of frailty, symptom experience, and loneliness on sleep quality in elderly patients with cancer and to provide a foundation for developing nursing interventions.

Methods : This descriptive cross-sectional study included 153 patients with cancer aged 65 years or older who were hospitalized for chemotherapy, radiation therapy, surgery, or conservative treatment at a single hospital between July and October 2024. Data on participants' general and clinical characteristics, frailty, Symptom experience, loneliness, and sleep quality were collected. Descriptive statistics and stepwise multiple linear regression analysis were performed to identify factors associated with sleep quality.

Results : The mean sleep quality score indicated that overall sleep quality was poor among elderly patients with cancer (9.42 ± 4.59). Symptom experience, loneliness, and sleep quality were significantly positively correlated. Marital status, cohabitating family status, previous sleep disorders, comorbidities, number of cancer recurrences, and normal body mass index influenced sleep quality. Multiple regression analysis revealed that greater symptom experience and higher levels of loneliness levels were associated with poorer sleep quality. In addition, previous sleep disorders and the presence of comorbidities were significant predictors of poor sleep quality.

Conclusions : Poor sleep quality remains a significant concern among elderly patients with cancer. Symptom experience and loneliness were key factors associated with poorer sleep quality, highlighting the importance of addressing both physical symptoms and psychosocial needs. Nursing interventions targeting symptom management and loneliness may improve sleep quality and ultimately enhance the quality of life of elderly patients with cancer.

Keywords : Elderly, Patients with cancer, Sleep quality, Frailty, Symptom experience, Loneliness



Factors associated with depressive symptoms among middle-aged female family caregivers of people with dementia in South Korea: Using socioecological model

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Purpose : Using a socioecological framework, this study aimed to examine the factors associated with depressive symptoms among middle-aged female caregivers in South Korea.

Methods : Data were drawn from the 2019 Korea Community Health Survey. Women aged 40–59 years were categorized as either family caregivers of people with dementia or as non-caregivers. Propensity score matching was used to minimize baseline differences between groups. Depressive symptoms were assessed using the Patient Health Questionnaire-9 (PHQ-9). Individual (sociodemographic characteristics and health factors), interpersonal (caregiving status, participation in social activities, and frequency of contact with family and friends), and community factors (trust in community residents and satisfaction with community medical services, the community environment, and the community transportation) were included in the analysis. Group differences were examined using t-tests and chi-square tests. Logistic regression models were used to identify the factors associated with depressive symptoms.

Results : After matching, caregivers showed a higher prevalence of depressive symptoms than noncaregivers. In multivariable logistic regression, diabetes, smoking, caregiving, participation in social activities, contact with family or friends, trust in other residents of the community, and satisfaction with the community environment and medical services were associated with depressive symptoms.

Conclusions : Our findings underscore the need for multifactorial strategies with which to support the mental health of middle-aged female caregivers of people with dementia. Interventions that address modifiable health risks, enhance social participation and access to interpersonal support, promote trust within communities, and improve the community environment may help reduce depressive symptoms in this population.

Keywords : caregivers, dementia, depression, family care



Mapping Infection Control Strategies across the Chain of Infection in Korean Long-Term Care Facilities: An Integrative Review

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Purpose : Healthcare-associated infections pose a significant threat to resident safety in long-term care facilities (LTCFs). This integrative review examined infection control elements and intervention strategies across the chain of infection in Korean LTCFs to identify gaps in infection prevention practices and provide evidence for strengthening infection control systems.

Methods : An integrative review was conducted using 25 Korean studies published between 2008 and 2024, including quantitative, qualitative, and mixed-methods research. The selected studies were analyzed according to the six stages of the chain of infection: infectious agent, reservoir, portal of exit, mode of transmission, portal of entry, and susceptible host. Infection control interventions were synthesized into eight key infection control elements.

Results : Twenty-five studies were included in the review. Because individual studies addressed multiple stages of the chain of infection, each stage was analyzed independently. Among the six stages, susceptible host (n=25) and mode of transmission (n=24) were the most frequently addressed, whereas infectious agent (n=13), reservoir (n=4), portal of entry (n=2), and portal of exit (n=1) were underrepresented. Eight key infection control elements were identified: organizational culture, education, dedicated infection control personnel, monitoring, infection prevention resources, physical environment, interorganizational collaboration, and infection control guidelines. Education (n=21), infection control guidelines (n=19), and physical environment (n=18) were the most frequently reported elements. Gaps remained in multidrug-resistant organism management, organizational support, and stage-specific intervention strategies.

Conclusions : Applying the chain of infection framework enabled a comprehensive understanding of infection control strategies and identified stage-specific gaps in existing interventions. These findings provide evidence for developing tailored infection prevention programs, strengthening infection prevention systems, establishing dedicated infection control personnel with enhanced competencies, and informing national infection control policies for Korean long-term care facilities. This review also provides a practical framework for developing sustainable, evidence-based infection prevention strategies and may serve as a foundation for future digital health and AI-supported infection prevention initiatives in long-term care settings.

Keywords : Chain of infection, Infection prevention and control, Long-term care facilities, Integrative review, Multidrug-resistant organisms (MDROs)



Perceptions of Death and Advance Directives among Korean Adults: A Phenomenological Comparison by Marital Status

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Purpose : This study explored, using a phenomenological approach, how Korean adults perceive death and advance directives, and examined how these perceptions differ by marital status.

Methods : Focus group interviews were conducted across four generational cohorts (ages 21–34, 35–44, 45–54, 55–64) and analyzed using Colaizzi's phenomenological method. For this analysis, participants were regrouped by marital status, unmarried versus married, to compare patterns of death perception and advance directive decision-making.

Results : Married participants often traced their motivation to a specific experience: witnessing a family member being asked to decide on a patient's treatment in an intensive care unit, which shifted their view of advance directives from an abstract idea to a way of protecting their own spouse and children from a similar burden. Despite this recognition, actual completion was frequently delayed, either because participants did not know a simple way to complete one, or because they feared that visibly preparing for death would burden their children psychologically. Unmarried participants, by contrast, tended to describe death as something that happens to others rather than an event bearing directly on their own lives. Their approach to advance directives divided along two lines: some intended to wait until the decision could be discussed with their family of origin, while others treated it as a private matter to decide independently. A small number of exceptional cases, associated with direct occupational exposure to death, departed from both patterns regardless of marital status.

Conclusions : Marital status was associated with distinct patterns in death perception and decision-making, particularly regarding whose burden the decision was felt to be. However, exceptions linked to death exposure suggest marital status alone does not fully account for these differences, indicating a need for future research incorporating exposure to death as an additional variable.

Keywords : Advance Directives, Attitude to Death, Qualitative Research, Focus Groups, Marital Status



Developing a Mobile Application to Improve Communication between Care Staff and Family Caregivers in Long-Term Care Facilities: An Action Research Study within Project-Based Learning

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Purpose : Communication gaps between care staff and family caregivers in long-term care facilities are associated with family anxiety, staff workload, and reduced institutional trust. This study aimed to describe the process and outcomes of an action research project in which undergraduate nursing students and a faculty member formed a research team within project-based learning in a gerontological nursing course to develop a mobile application addressing this communication gap.

Methods : An action research design was employed over eight weeks from April to May 2026, following iterative cycles of planning, acting, observing, and reflecting. The course was grounded in project-based learning and incorporated capstone design principles, with a functional prototype as the final learning outcome. The student team visited long-term care facilities to select a field-based sub-theme, specified the problem using structured analysis tools, including a decision grid, a question tree, and a what-why-how tree, and iteratively refined the solution through two rounds of field interviews with nurses and care workers.

Results : The team prioritized the communication and information-sharing gap between care staff and families. Interviews revealed that families primarily sought daily-life information, such as meals, sleep, and program participation, rather than clinical data, and that real-time updates could increase confusion and documentation burden. Reflecting these needs, the team developed OnCare, a pilot prototype with operable core functions, including day-after care summaries, documentation linked to electronic records, a reassurance photo album, consultation requests, visit and overnight-leave reservations, and integrated notices. Second-round interviews confirmed its field applicability and guided refinements.

Conclusions : This action research enabled students to transform a field-identified problem into a stakeholder-validated working prototype while fostering empathy, problem-finding, and design competencies. The application demonstrated potential as a digital care platform enhancing family reassurance, institutional trust, and staff efficiency, and this student-faculty collaborative model constitutes a replicable strategy linking gerontological nursing education with practice improvement.

Keywords : action research, gerontological nursing, long-term care, mobile application, project-based learning



Development of a Prototype AI Standardized Patients Simulation System for Advance Care Planning Communication Training

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Purpose : This study aimed to (1) develop a prototype communication simulation program using artificial intelligence standardized patients (AISPs) for facilitators of the Hanoljigi program, a patient-centered advance care planning (ACP) communication initiative developed in Korea, and (2) assess its initial usability and acceptability as a novel alternative to conventional standardized patient (SP)-based communication training in end-of-life care.

Methods : The AISP simulation system was developed in five iterative phases in collaboration with nursing experts and a technical team, building on dialogue data, scenarios, and evaluation frameworks from the ACP program. The system pairs a web-based simulator with an LLM-powered backend for dialogue processing. The phases were: (1) establishing design principles and infrastructure, (2) configuring the LLM and creating avatars, (3) integrating the system, (4) optimizing functionality, and (5) designing the usability evaluation.

Results : The system was built on three guiding principles—clinical safety, educational transparency, and technical feasibility—and features a scenario-conditioned AI architecture using Claude Opus 4.5 for consistent patient interactions, an automated evaluation module with stage-specific scoring and feedback, and a multimodal pipeline combining text-to-speech and lip-synchronization for realism. In usability testing with ten home care nurses who had experienced the ACP program, the system scored highly overall (mean 81.8, SD 8.57, out of 90). Feedback praised the system's responsiveness, while pacing, voice quality, and interface layout were noted as areas for improvement.

Conclusions : This study demonstrates the feasibility of a principle-guided AISP simulation system for ACP communication training. The prototype's strong usability among clinical nursing experts suggests potential as an alternative to traditional SP-based training. Future work will focus on speech-based interaction, more human-like imperfections, and efficacy studies on ACP communication competence and confidence.

Keywords : Advance Care Planning, Artificial Intelligence, Communication Skills, Simulation Training



Associations of Good Death Perceptions with Two Types of Death Preparation among Older Adults

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Purpose : This study aimed to examine death preparation as a multidimensional construct by distinguishing active and anticipatory preparation from material and post-death preparation. Specifically, it investigated how perceptions of a good death and health- and psychological-related factors were associated with each type of death preparation among community-dwelling older adults while accounting for sociodemographic characteristics.

Methods : This study conducted a secondary analysis of nationally representative data from the 2023 National Survey of Older Koreans (n = 7,503). Death preparation was categorized into active and anticipatory preparation and material and post-death preparation. Hierarchical regression analyses were performed to examine factors associated with each type of preparation after controlling for sociodemographic variables.

Results : Active and anticipatory preparation was positively associated with subjective health status, depression, life satisfaction, and the individual dimension of good death perceptions. In contrast, material and post-death preparation correlated with life satisfaction and the relational dimension of good death perceptions. Sociodemographic factors, including age, income, and religion, were associated with both types of preparation. Overall, active and anticipatory preparation was relatively limited among older adults.

Conclusions : Death preparation should be understood as a multidimensional process with distinct value-based pathways. The findings underscore the importance of differentiating types of preparation and suggest that interventions should consider both individual and relational aspects of end-of-life values. Efforts to enhance communication and institutional support may be needed to promote active and anticipatory preparation among older adults.

Keywords : Death preparation, Advance care planning, Good death perceptions, Older adults, End-of-life planning, Psychosocial factors, Aging



Factors Associated with Health-Related Quality of Life Among Adults with Ischemic Heart Disease: An Ecological Model Approach

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Aim(s) : Heart disease is the second leading cause of death in South Korea and requires long-term treatment and management. Improving health-related quality of life (HRQoL) among patients with ischemic heart disease is therefore an important nursing priority. This study aimed to identify factors associated with HRQoL among adults with ischemic heart disease using an ecological model.

Methods : This study employed a secondary analysis of data from the eighth Korea National Health and Nutrition Examination Survey (KNHANES VIII-1 and VIII-2, 2019–2020). A total of 287 adults aged 19 years or older diagnosed with ischemic heart disease were included. Based on an ecological model, factors related to HRQoL were examined at the individual, interpersonal, organizational/community, and public policy levels. Frequency analysis and general linear model analysis were conducted using a complex sampling design.

Results : In the ecological model, subjective health perception at the personal level and health screening experience at the organizational/community level were significantly associated with HRQoL. Participants who perceived their health as good or average had higher HRQoL than those who perceived it as poor. Additionally, those who underwent health screening exhibited higher HRQoL than those who did not. The overall model was statistically significant and explained 28.1% of the variance in HRQoL ($F = 4.41, p < .001$).

Conclusions : These findings indicate that subjective health perception and health screening experience are important correlates of HRQoL among adults with ischemic heart disease. Nursing interventions to improve HRQoL should account for subjective health perception, and promoting engagement in preventive health care, including health screening, may also be beneficial.

Keywords : Adult, Health-related quality of life, Ischemic heart disease



Factors Influencing Scabies Infection Control among Nurses in Long-term Care Facilities: A Mixed-methods Study based on an Ecological Model

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Purpose : This study aimed to identify factors influencing scabies infection control performance among nurses in long-term care facilities using an ecological model as a theoretical framework.

Methods : A mixed-method design was employed. In the quantitative phase, a structured questionnaire was administered to 201 nurses. Variables included knowledge on scabies, attitudes towards scabies, peer group caring behaviors, resource supply, nursing work environment and scabies infection control performance. Data were analyzed using descriptive statistics, independent group t-tests, one-way ANOVA, Pearson's correlations and hierarchical multiple regression analysis. In the qualitative phase, in-depth semi-structured interviews were conducted with 9 participants. Interview data were analyzed using directed content analysis following the procedural steps by Graneheim and Lundman (2004). Quantitative and qualitative findings were integrated.

Results : The hierarchical multiple regression model explained 31.40% of the variance in scabies infection control performance. Significant predictors were resource supply, peer group caring behaviors, absence of personal scabies infection history, and attitudes towards scabies. Qualitative analysis yielded 473 meaning units, organized into 5 themes: (1) nurses' cognitive-emotional characteristics and behavioral adaptation when confronting scabies; (2) dynamics of interpersonal networks surrounding infection control activities; (3) organizational capacity deficits and implicit institutional culture suppressing standardized infection control performance; (4) fragile functioning of community-level support networks; and (5) delayed macro-level policy reform and pending tasks in the public support system.

Conclusions : To enhance scabies infection control performance of nurses in long-term care facilities, interventions should simultaneously address resource support, peer collaboration culture, nurses' attitude modification, and nurses who have experienced scabies infection. These findings provide an evidence base for developing tailored scabies management programs and advocate for policy improvements including institutionalized legal reporting obligations, appropriate nursing fee structures for infection control activities, and uninsured treatment cost coverage.

Keywords : Scabies, infection control, long-term care, nurses



The effects of Type D personality, self-disclosure, social support, and deliberate rumination on post-traumatic growth in breast cancer patients

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Purpose : This study is a descriptive correlational study based on the post-traumatic growth model of Tedeschi and Calhoun (2018) that aims to investigate the relationships between Type D personality, self-disclosure, social support, intentional rumination, and post-traumatic growth in patients diagnosed with breast cancer, and to identify factors influencing post-traumatic growth.

Methods : The study was conducted at a tertiary hospital in a metropolitan city from August 29 to September 20, 2025, with 142 patients diagnosed with breast cancer. Data were collected using the Type D Personality Scale-14, the Self-Disclosure Scale, the Multidimensional Scale of Perceived Social Support, the Rumination Scale, and the Korea Post-Traumatic Growth Inventory. Collected data were analyzed using SPSS 27.0 with descriptive statistics, t-tests, ANOVA, Pearson's correlation coefficient, and hierarchical regression analysis.

Results : The mean post-traumatic growth score of breast cancer patients was 56.54 ± 17.39 . Among the 142 participants, 58 (40.8%) were classified as Type D personality, and 84 (59.2%) as non-Type D personality. Post-traumatic growth was positively correlated with self-disclosure ($r=.48$, $p<.001$), social support ($r=.61$, $p<.001$), and deliberate rumination ($r=.63$, $p<.001$). Hierarchical regression analysis revealed that education level ($\beta=.13$, $p=.019$), time since diagnosis (2–5 years: $\beta=.18$, $p=.002$; ≥ 5 years: $\beta=.16$, $p=.006$), social support ($\beta=.37$, $p<.001$), and deliberate rumination ($\beta=.45$, $p<.001$) had significant positive effects on post-traumatic growth.

Conclusions : These findings suggest the need for intervention strategies that comprehensively manage social support and deliberate rumination to enhance post-traumatic growth in patients with breast cancer.

Keywords : Breast cancer, Post-traumatic growth



Establishing a Competency-Based Framework for Cancer Pain Management in Hospice Nursing: A Modified Delphi Consensus Study

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Purpose : Competency-based education in hospice nursing requires clearly defined, observable, and measurable standards to ensure safe and consistent cancer pain management. However, current practice is often guided by implicit expectations and locally developed tools, resulting in variability in nurses' competencies and limited comparability across settings. This study aimed to develop an evidence-based, expert-validated core competency framework to support curriculum design, clinical assessment, and quality improvement in cancer pain management in Taiwan.

Methods : A modified Delphi method was conducted with 15 purposively selected experts in pain management, oncology nursing care, and medical and nursing education, each with at least 10 years of relevant clinical or educational experience in Taiwan. Two rounds evaluated indicators across importance, frequency, and feasibility using a 5-point Likert scale, with a consensus threshold set at 90% or higher. Content Validity Index and Standard Deviation examined expert validity and consensus concentration.

Results : In Round 1, 6 of 22 initial indicators did not meet the consensus threshold. After revision based on expert feedback, 26 indicators were re-evaluated in Round 2. Although all 26 indicators reached high importance consensus, 7 were excluded because of lower frequency and feasibility ratings, suggesting a gap between recognized value and actual implementation, particularly in psychosocial care. The final framework comprised 19 indicators across 6 domains, supporting its use as a structured competency map for education and assessment.

Conclusions : The 19 validated indicators establish a robust competency-based education framework for developing and evaluating hospice nurses' competencies in cancer pain management. By translating expected clinical performance into observable and assessable standards, this framework can support competency-based curriculum development, formative assessment, and faculty development. Future work should address systemic barriers that limit psychosocial care delivery and examine how these indicators can be embedded in workplace-based assessment.

Keywords : Cancer pain management; Clinical assessment; Competency-based education; Hospice nursing.



Predictors of Fatigue Among Patients on Hemodialysis: A Comparative Study by Employment Status

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Purpose : Fatigue is a debilitating symptom for hemodialysis patients, often leading to disruptions in employment and social roles. Despite its impact, research comparing the structural predictors of fatigue between employed and unemployed patients remains scarce. This study aimed to identify differences in fatigue levels and its predictors based on employment status among hemodialysis patients.

Methods : This descriptive survey included 232 hemodialysis patients (122 unemployed, 110 employed) recruited from two tertiary hospitals and three specialized dialysis centers in South Korea. Structured questionnaires assessed depression, anxiety, cognitive-behavioral factors (damage beliefs, fear of symptom aggravation, avoidance/resting behavior), nutritional status, and sleep quality. Data were analyzed using multiple regression analysis.

Results : Fatigue levels were above the moderate threshold in both groups, with the unemployed group reporting significantly higher fatigue than the employed group ($p < .001$). For the unemployed group, significant predictors were depression ($\beta = .343$), damage beliefs ($\beta = .217$), sleep quality ($\beta = .193$), fear of symptom aggravation ($\beta = .175$), and avoidance/resting behavior ($\beta = .129$), explaining 63.9% of the variance. Conversely, for the employed group, damage beliefs ($\beta = .253$), nutritional status ($\beta = -.196$), and sleep quality ($\beta = .176$) were significant predictors, explaining 56.4% of the variance.

Conclusions : Fatigue levels and their predictors differ significantly by employment status. While damage beliefs and poor sleep quality were common predictors, depression and cognitive-behavioral factors were unique to unemployed patients, whereas nutritional status was distinct for employed patients. Tailored physical and nutritional interventions are urgently needed for employed patients to manage fatigue and support job retention amidst their dual burden of treatment and work.

Keywords : Employment; Fatigue; Hemodialysis; Predictors



Clinical and Functional Correlates of Communication-Related Quality of Life in People with Amyotrophic Lateral Sclerosis in South Korea

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Purpose : This study examined factors associated with communication-related quality of life among people with amyotrophic lateral sclerosis, focusing on clinical characteristics, functional status, voice-related difficulties, and communication-related factors.

Methods : A cross-sectional study was conducted with 113 adults diagnosed with amyotrophic lateral sclerosis by neurologists who were recruited through a nationwide online patient community in South Korea. Data were collected using an online survey. Functional status was assessed using the Amyotrophic Lateral Sclerosis Functional Rating Scale–Revised, voice-related disability using the Korean version of the Voice Handicap Index-10, and communication-related quality of life using the Korean version of the Quality of Communication Life Scale. Independent t-tests, one-way analysis of variance, Pearson correlation analyses, and multiple linear regression were performed to identify factors associated with communication-related quality of life.

Results : Better fine motor function was independently associated with higher communication-related quality of life, whereas bulbar-onset disease and greater voice-related disability were independently associated with lower communication-related quality of life. The final regression model explained 53.4% of the variance in communication-related quality of life. Most participants continued to rely on natural speech despite progressive communication impairment, whereas the use of augmentative and alternative communication remained limited.

Conclusions : Communication-related quality of life in people with amyotrophic lateral sclerosis was associated with disease phenotype, upper extremity function, and voice-related disability. The limited use of augmentative and alternative communication despite progressive communication impairment highlights the importance of early assessment of communication needs and timely, individualized communication interventions, including augmentative and alternative communication, according to disease progression and functional status.

Keywords : amyotrophic lateral sclerosis, communication, quality of life, voice



Differences in perceptions of nail trimming between nursing staff and care workers in long-term care facilities

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Purpose : Nail trimming is a basic component of daily living support in long-term care facilities. However, conditions such as ingrown nails, onychia, and onychomycosis often require medical assessment, which may lead to discrepancies in role perception between nursing staff and care workers. This study aimed to clarify differences in their perceptions of nail care and to identify implications for establishing a safe and collaborative care system.

Methods : A secondary analysis was conducted using data from our previous self-administered questionnaire survey of 1,800 nurses and 1,800 care workers employed in long-term care facilities in Japan. Chi-square tests were used to compare the two groups. Ethical approval was obtained from the authors' affiliated institution.

Results : Valid responses were obtained from 777 nurses and 721 care workers. Nurses were significantly more likely to have detected nail abnormalities (99.7%) compared with care workers (98.8%) ($p = 0.031$). Nurses also reported greater difficulty performing nail trimming (89.9%) than care workers (78.1%) ($p < 0.00001$). No significant difference was observed in the proportion of respondents who felt burdened by nail care (nurses 54.0%, care workers 51.7%, $p = 0.37$). Free-text responses from nurses highlighted concerns such as insufficient specialized knowledge and uncertainty regarding the appropriate extent of trimming. Care workers expressed uncertainty about the boundary between daily living support and medical care, as well as delays in response when reporting abnormalities to nurses due to workload constraints.

Conclusions : Nurses' higher rates of detecting nail abnormalities and experiencing difficulty with nail trimming may reflect their medical perspective and heightened awareness of risks such as bleeding or skin injury. Care workers, on the other hand, face challenges related to unclear boundaries between daily living support and tasks requiring medical judgment. Clarifying role expectations and establishing criteria for decision-making in abnormal cases are essential for building a safe and collaborative care system.

Keywords : care workers, nail trimming, nursing staff, long-term care facility



Trends in AI-Related Nursing Research on Older people with Dementia: A 10-Year Literature and Text-Mining Analysis

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Purpose : The purpose of this study was to identify trends in nursing research related to older people with dementia using artificial intelligence (AI).

Methods : A literature search was conducted in PubMed using the keywords “elderly,” “dementia,” “AI,” and “nursing,” yielding 127 articles published between 2016 and 2026. The URLs of all articles were processed using Microsoft Copilot to extract research titles. Text data mining was then performed using Fujitsu’s Trend Search, and co-occurrence relationships among terms were visualized through its mapping function.

Ethical Considerations: Because all analyzed articles were publicly available and only titles without author-identifying information were extracted, this study did not involve any ethical concerns.

Results : Analysis of the 127 articles revealed a clear upward trend in publications over the 10-year period, rising from 4–5 articles per year in 2016–2018 to 26–33 articles in 2024–2025. This growth reflects increasing interest in AI-based nursing approaches for older adults with dementia. A total of 801 significant keywords were extracted, and three major wedges were identified: [global], [caregivers, dementia], and [with, cognitive, adults].

Within the global wedge, co-occurrence lines connected terms such as systematic–analysis–study, disease–risk, Alzheimer, and home–nursing, indicating emphasis on evidence-based approaches, risk assessment, and community-based dementia care.

The caregivers–dementia wedge showed strong links between research and care, underscoring the central role of caregivers in AI-supported dementia nursing.

The with–cognitive–adults wedge revealed connections among older, dementia, home care, artificial intelligence, and review, suggesting growing attention to AI-assisted cognitive assessment, home monitoring, and support for independent living.

Conclusions : The upward publication trend and the emergence of three keyword wedges demonstrate rapid expansion of AI-related nursing research in dementia care, indicating a shift toward preventive, community-oriented, and technology-supported nursing practices.

Keywords : Artificial intelligence, Dementia nursing, older people



Experiences of Fatigue and Self-Management among Patients Undergoing Hemodialysis

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Purpose : This study aimed to explore how patients undergoing hemodialysis experience fatigue throughout the dialysis cycle and how they actively manage fatigue in their everyday lives.

Methods : This qualitative study used the inductive content analysis approach of Elo and Kyngas. Seventeen adults receiving maintenance hemodialysis for at least six months at three dialysis units in South Korea participated in individual in-depth interviews. Data were analyzed through preparation, organization, and reporting phases using open coding, categorization, and abstraction.

Results : Six themes were identified across two categories: fatigue experience and fatigue self-management. In the fatigue experience category, participants described “physical heaviness and psychological burden before dialysis,” reflecting bodily discomfort associated with fluid and uremic accumulation as well as anxiety about the upcoming treatment; “becoming physically and mentally drained during dialysis,” capturing abrupt physical deterioration related to hypotension and fluid removal alongside emotional distress from prolonged immobilization; and “absolute exhaustion and a crumbling daily life after dialysis,” reflecting post-dialysis fatigue, a pattern unique to hemodialysis, in which patients felt unable to function immediately after treatment and this exhaustion gradually extended to daily activities, social relationships, and self-perception. In the fatigue self-management category, participants engaged in “strategic energy conservation before dialysis” through dietary and fluid restrictions and activity pacing; “physiological and cognitive adjustment during dialysis” through distraction and monitoring bodily responses; and “adaptive coexistence with fatigue through intentional pause and recovery after dialysis,” using fatigue as a signal to reorganize everyday life. Together, these findings portray fatigue as a cyclical process of accumulation, intensification, and recovery, while self-management represents continuous adaptation across the dialysis cycle.

Conclusions : Fatigue among patients undergoing hemodialysis is a multidimensional and cyclical experience rather than a single physical symptom, and self-management is an active, phase-specific adaptive process. Findings highlight the need for patient-centered nursing interventions tailored to phase-specific fatigue patterns and everyday self-management contexts.

Keywords : fatigue experience, fatigue self-management, hemodialysis, qualitative content analysis



Mapping Palliative Care Education Across the Nursing Professional Continuum: A Scoping Review of Educational Methods and Outcome Evaluation

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Purpose : This scoping review aimed to map the scope and reported outcomes of palliative care educational interventions across the professional nursing continuum, using a theoretically informed tiered classification framework.

Methods : Following Arksey and O'Malley's five-stage framework, studies were retrieved from PubMed, EMBASE, and Cochrane Library (January 2014 to September 2024). Included studies were classified into three tiers — Fundamental (undergraduate), Generalist (post-licensure), and Specialized (advanced practice) — using the World Health Organization palliative care integration framework and the European Association for Palliative Care nursing competency guidelines. Methodological quality was appraised using the Mixed Methods Appraisal Tool.

Results : Of 178 studies assessed for eligibility, 81 met the inclusion criteria (Fundamental, n=51; Generalist, n=29; Specialized, n=1). Attitudinal outcomes were the most frequently reported across both the Fundamental (94.1%) and Generalist (89.7%) levels, while knowledge acquisition and clinical skill development were comparatively less frequent. Outcome evaluations were predominantly conducted at the immediate learner-response level; assessment of observable skill performance and practice-level behavioural change was infrequent. Regarding instructional design, simulation-based approaches were most common at the Fundamental level, whereas didactic instruction was the primary method at the Generalist level.

Conclusions : Palliative care nursing education across the professional continuum is incompletely aligned with competency standards. Attitudinal outcomes predominate over knowledge and skill development, and evidence remains disproportionately concentrated at the undergraduate level. These findings indicate a gap in the evidence base for competency-driven education. Educational content and approaches should be more systematically differentiated across professional levels, specialized-level education warrants greater prioritization, and outcome frameworks grounded in observable clinical performance should be more consistently applied.

Keywords : Palliative care, Nursing education, Competency, Scoping review



Effects of an end-of-life conversation game in facilitating engagement of nurses in advance care planning: A mixed-method study

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Purpose : Nurses play a crucial role in advance care planning (ACP) as initiators and facilitators. Cultural barriers and limited training hinder nurses' involvement in end-of-life (EOL) conversations, highlighting the need for new strategies. This study aims to explore the impact of a conversation game intervention and its acceptability to nurses.

Methods : This study used a mixed-methods design, including a single-group pre-test and post-test study and focus group interview. Forty-four nurses providing direct care participated in a two-hour session consisting of an EOL conversation game and ACP educational materials. Participants completed pre- and post-intervention questionnaires, and their experiences with the intervention were explored qualitatively. Within-subject changes were analyzed using generalized estimating equations, and qualitative data through thematic analysis.

Results : The intervention significantly improved perceptions of a good death ($b = 0.23$, $p = .004$ for personal control; $b = 0.11$, $p = .018$ for clinical criteria), perceived role in EOL treatment decision-making ($b = 2.41$; $p < .001$), ACP confidence ($b = 9.61$, $p < .001$) and intention ($b = 1.00$, $p < .001$), and emotional affect ($b = 1.84$, $p = .014$ for positive affect; $b = -3.57$, $p < .001$ for negative affect) among nurses. Participants enjoyed engaging in the game, finding it a satisfactory experience. Thematic analysis reported experiences with intervention, perceived benefits, cultural appropriateness, suggestions for improvement, potential application, and barriers to implementation.

Conclusions : The conversation game intervention may effectively enhance nurses' ACP-related competence and support them in promoting EOL discussions with patients in Korean hospital settings. This conversation game may contribute to creating meaningful encounters among clinicians by helping them learn from personal reflection and peers' insights. When integrating into hospital-based programs, this game can serve as an educational tool for nurses and as a practical strategy for overcoming barriers to EOL discussions in patient care.

Keywords : advance care planning, end-of-life conversations, games, nurses.



Long-term Care Hospital Nurses' Experiences with Behavioral and Psychological Symptoms of Dementia and Factors Associated with Management Competence

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Purpose : This study aimed to explore long-term care hospital nurses' experiences of behavioral and psychological symptoms of dementia, their management competence, and associated factors.

Methods : This secondary analysis used data from 194 long-term care hospital nurses collected during the development of the Competence Scale in Managing Behavioral and Psychological Symptoms of Dementia for Nurses. Symptom experiences were assessed using multiple-response items on the most frequent and burdensome symptoms, and common care situations in which they occurred. Management competence was measured using the 21-item, 5-point Likert scale. Data were analyzed using descriptive statistics, Spearman's correlation, Mann-Whitney U and Kruskal-Wallis tests, and bootstrap multiple regression.

Results : The most frequently experienced symptoms were agitation/aggression (72.2%), delusions (52.6%), and hallucinations (46.9%), whereas the most burdensome symptoms were agitation/aggression (74.2%), delusions (49.5%), and sleep/night-time behavior disturbances (41.2%). Symptom frequency and perceived burden were significantly correlated ($\rho=.73$, $p=.007$), although sleep/night-time behavior disturbances were perceived as more burdensome than their frequency suggested. Symptoms occurred mainly during routine care, including meal assistance (37.6%), medical and nursing procedures (37.6%), diaper changing (36.1%), and medication administration (35.1%). The mean competence score was 84.88 ± 9.97 (item mean 4.04). Proactive prevention had the highest mean subscale score, whereas professional initiative had the lowest. In bootstrap multiple regression, being married ($B=8.46$) and management burden ($B=-3.24$) were independently associated with competence.

Conclusions : Because symptoms were commonly occurred during routine care and management burden was associated with competence, educational programs should focus on highly burdensome symptoms within routine care situations. Further large-scale studies with random samples are needed to confirm factors associated with management competence. **This work was supported by the National Research Foundation of Korea (NRF) grant funded by the Korea government (MSIT) (2022R1H1A2092693 & RS-2024-00340386).

Keywords : behavioral and psychological symptoms of dementia; long-term care hospital; management competence; nurses



Effectiveness of Interdisciplinary Whole-Person Care Conferences on Family Satisfaction in a Respiratory Care Ward

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Purpose : Patients in respiratory care wards often experience prolonged ventilator dependence, multiple chronic illnesses, functional decline, and complex care needs. Fragmented interdisciplinary communication may affect long-term care planning, discharge transition, and family understanding of treatment goals. This project aimed to evaluate whether interdisciplinary whole-person care conferences improved care integration, long-term care planning, and family satisfaction.

Methods : Patients requiring prolonged mechanical ventilation, experiencing difficulty with ventilator weaning, having multiple care needs, or requiring decisions regarding subsequent care were included. Major problems identified were inadequate integration of interdisciplinary information, insufficient family understanding, unclear conference initiation criteria, and lack of standardized documentation. Improvement strategies included establishing conference criteria and standard operating procedures, forming an interdisciplinary team of physicians, nurses, respiratory therapists, dietitians, rehabilitation therapists, social workers, and family members, and developing a standardized long-term care planning form. The form covered prognosis, ventilator weaning, nutrition, rehabilitation, pressure injury and infection prevention, family caregiving preparedness, discharge transition, long-term care resources, and palliative care needs. Primary nurses prepared patient information before conferences, facilitated discussions with families, documented agreed care plans, and continuously monitored their implementation. Family care satisfaction was evaluated annually.

Results : Overall family satisfaction increased from 99.55% in 2025 to 99.85% in 2026 and remained at a consistently high level. In 2026, satisfaction reached 100% for communication of patient needs to the healthcare team, disease and caregiving education, discharge and referral discussions, and respect for patient and family opinions. Satisfaction with nurses proactively identifying and managing problems increased from 96.55% to 100%. These findings indicated improved responsiveness to family concerns and better coordination of subsequent care.

Conclusions : Standardized interdisciplinary whole-person care conferences improved care integration, communication, family understanding, and satisfaction. Incorporating these conferences into routine respiratory care ward practice may strengthen long-term care planning, shared decision-making, and discharge transition for ventilator-dependent patients.

Keywords : respiratory care ward, whole-person care conference, interdisciplinary care, long-term care planning, discharge transition



Safeguarding Tube Safety: A Shared Decision-Making Initiative to Reduce Non-Obstructive NG Tube Reinsertion Rates

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Purpose : Conventional nasogastric (NG) tubes leave ~55 cm exposed, causing prominent facial appearance and a 3.5% baseline non-obstructive reinsertion rate from accidental pulling or discomfort. Conversely, two-piece NG tubes feature a detachable external segment that minimizes line pulling. Therefore, this project aimed to implement shared decision-making (SDM) regarding two-piece NG tube selection to reduce non-obstructive reinsertion rates.

Methods : A dedicated project task force was established to build team consensus, enhance clinical communication skills, and develop a Patient Decision Aid (PDA) along with clinical evaluation forms. From January 2 to December 31, 2025, utilizing convenience sampling, 151 long-term NG tube-dependent patients in our home care agency participated in the SDM process. Among them, 35.8% of patients and their families opted for the out-of-pocket two-piece NG tube.

Results : Accounting for monthly home care visit schedules and family out-of-pocket budget considerations, the average duration from decision initiation to the confirmed transition to a two-piece NG tube was 24.3 days. Following implementation, the non-obstructive NG tube reinsertion rate significantly decreased from 3.5% to 0.4%, successfully achieving the project's goal.

Conclusions : Currently, two-piece NG tubes are not covered by National Health Insurance (NHI) in Taiwan, leading most families to default to conventional tubes, which correlates with high reinsertion rates due to accidental pulling or discomfort. By utilizing an evidence-based Patient Decision Aid, this project not only effectively reduced the non-obstructive reinsertion rate but also received highly positive feedback regarding the preservation of patient dignity and facial aesthetics. This intervention demonstrates robust clinical utility and generalizability. We strongly recommend that policymakers evaluate the feasibility of including two-piece NG tubes under NHI coverage in the future.

Keywords : Two-piece Nasogastric Tube, Shared Decision-Making, Home Health Care



Mechanisms Underlying Advance Care Planning Engagement Among Patients With Heart Failure and Chronic Kidney Disease: The Mediating Role of Patient Activation

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Purpose : Meaningful patient engagement is fundamental to effective advance care planning (ACP), yet research on the mechanisms underlying ACP engagement among patients with heart failure (HF) and chronic kidney disease (CKD) remains limited. Drawing on evidence that autonomy preference and illness perception represent motivational and cognitive antecedents of ACP engagement, and that patient activation is a key behavioral determinant, this study examined the relationships among these variables and the mediating role of patient activation.

Methods : A cross-sectional survey was conducted among 230 outpatients with HF (n = 115) or CKD (n = 115) between December 2025 and April 2026. Participants completed questionnaires on sociodemographic characteristics, illness perception, autonomy preference, patient activation, and ACP engagement. Data were analyzed using path analysis with bias-corrected bootstrapping examined the mediating role of patient activation, and multigroup path analysis evaluated model invariance across disease groups.

Results : The mean ACP engagement score was 3.03 ± 0.81 . Although 64.8% of participants were aware of ACP, only 14.3% had completed ACP documentation. Patient activation had a significant positive direct effect on ACP engagement ($p < .001$). Illness perception had a significant negative indirect effect on ACP engagement through patient activation ($p = .033$), whereas both the decision-making ($p = .009$) and information-seeking ($p < .001$) domains of autonomy preference showed significant positive indirect effects. The model explained 21.7% of the variance in patient activation and 51.3% of the variance in ACP engagement, and the mediation model was invariant across the HF and CKD groups.

Conclusions : Patient activation was the primary determinant of ACP engagement and mediated the associations of illness perception and autonomy preference with ACP engagement. These findings suggest that interventions designed to enhance patient activation may promote ACP engagement among patients with HF and CKD.

Keywords : advance care planning, chronic kidney disease, heart failure, path analysis; patient engagement



Early Palliative Care Interventions: What They Include, How They Are Delivered, and What Outcomes They Measure – A Systematic Review of Randomized Controlled Trials

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Purpose : This study examined how early palliative care interventions for adults with advanced illness were designed, delivered, and evaluated in randomized controlled trials.

Methods : This systematic review was conducted following the Joanna Briggs Institute methodology. Six databases were searched for randomized controlled trials published in 2010–2024. Two reviewers independently screened records, extracted data, and assessed risk of bias for each trial's primary outcome using Cochrane Risk of Bias 2. Intervention components, delivery modes, provider structure, and outcome measures were classified into prespecified categories and synthesized narratively.

Results : Thirty-one trials from 17 countries were included (6,840 participants). Twenty-six trials (83.9%) involved advanced cancer, 4 (12.9%) non-malignant conditions including heart failure and chronic respiratory diseases, and 1 (3.2%) both; most were conducted in outpatient settings (19, 61.3%). All trials included symptom management, followed by psychosocial-spiritual support in 29 (93.5%) and decision-making support, including advance care planning, in 19 (61.3%); 4 (12.9%) addressed transition to end-of-life care. All trials were delivered in person, most often supplemented by telephone (13, 41.9%). Supplementary materials were used in 8 (25.8%) and computer- or web-based methods in 1 (3.2%); none used video, mobile, or remote monitoring. Twenty-four trials (77.4%) involved multidisciplinary teams. Overall quality of life (29, 93.5%) and psychological status (26, 83.9%) were most often measured, whereas decision-making and advance care planning outcomes were measured in only 4 (12.9%). Risk of bias was low in 5 trials (16.1%), with some concerns in 19 (61.3%), and high in 7 (22.6%).

Conclusions : Early palliative care, delivered in person and mainly by multidisciplinary teams, focused on symptom management and psychosocial-spiritual support, largely in cancer populations. Digital delivery was limited, and decision-making and advance care planning outcomes were rarely measured. Future trials should include non-malignant conditions, test digital and hybrid delivery, and align outcomes with intervention components.

Keywords : Delivery of health care, Palliative care, Systematic review



Associations between Palliative Care Needs, Mental Health, and Advance Care Planning Engagement among Patients with Heart Failure: A Cross-sectional Study

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Purpose : Patients with heart failure (HF) may benefit from early palliative care to address symptom burden, psychosocial distress, and advance care planning (ACP). Mobile-based interventions may facilitate accessible early palliative care but should reflect patients' needs. This study aimed to assess the levels of palliative care needs, mental health, ACP engagement, and attitudes toward early palliative care and to identify factors associated with ACP engagement among patients with HF.

Methods : This study employed a cross-sectional descriptive design. Fifty patients with HF were recruited from the cardiology clinic of a tertiary hospital in Korea. Participants completed the Integrated Palliative care Outcome Scale, the Generalized Anxiety Disorder-7, the Patient Health Questionnaire-9, the 34-item Advance Care Planning Engagement Survey, and study-developed items assessing attitudes toward early palliative care. Descriptive statistics, independent t-test, Pearson's correlation analysis, and multiple linear regression analysis were performed using IBM SPSS version 30.0.

Results : Participants' mean age was 61.84 years; 60% were male, and mean disease duration was 9.82 years. The mean palliative care needs score was 8.96 ± 7.57 (possible range 0–68). Mean anxiety and depression scores were 2.74 ± 3.61 and 3.22 ± 3.48 , with mild-to-moderate symptoms in 28% and 26%, respectively. The mean ACP engagement score was 2.90 ± 0.89 on a 1–5 scale, with readiness scoring lowest (2.05 ± 1.07). Most participants had never heard of palliative care (90%) and had no clear perception of it (84%), whereas 58% were willing to use mobile-based palliative care services. Multiple linear regression analysis, including variables significant in bivariate analyses, showed that female sex ($B=0.53$, $p=.038$) and prior awareness of palliative care ($B=1.15$, $p=.008$) were associated with higher ACP engagement.

Conclusions : Relatively low symptom and psychological burdens may represent an opportunity to promote palliative care awareness and ACP engagement before clinical deterioration. Mobile-based services could facilitate early palliative care and ACP in routine care.

Keywords : Advance care planning, Heart failure, Mental health, Palliative care



Moving Better, Feeling Better: Effects of a Multicomponent Exercise Program in Frail Older Adults Receiving Long-Term Care

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Purpose : To evaluate the effects of a 12-week multicomponent exercise program on balance, physical performance, and self-rated health among predominantly pre-frail or frail older adults receiving community-based long-term care services.

Methods : A nonequivalent control group pretest-posttest-follow-up design was used. Participants were older adults with certified long-term care grades attending community day-care centers (mean age 84 years; mean Charlson Comorbidity Index 5.3), most of whom were pre-frail or frail. The program was delivered three times weekly for 50 minutes over 12 weeks. Outcomes included the Berg Balance Scale, self-rated health, the Short Physical Performance Battery and its component tests, handgrip strength, and the Timed Up and Go test, assessed at baseline, immediately after the intervention (12 weeks), and four weeks later (16 weeks). Complete-case analysis included 29 participants who completed all assessments (intervention, 14; control, 15). Generalized estimating equations examined group-by-time effects, adjusting for baseline mobility, cognition, and activities of daily living.

Results : Groups were comparable at baseline. At 12 weeks, the intervention group improved more than the control group on the Berg Balance Scale (adjusted difference, 4.20 points; 95% confidence interval, 2.09-6.31; $p < .001$), self-rated health (1.40 points; 0.61-2.19; $p < .001$), and the balance component of the Short Physical Performance Battery (1.11 points; 0.39-1.83; $p = .003$); the total Short Physical Performance Battery score and the Timed Up and Go test were favorable but nonsignificant (both $p = .053$), and the proportion classified as robust rose from 29 to 64 percent in the intervention group. At 16 weeks, four weeks after the program ended, no group-by-time effect remained significant.

Conclusions : Among predominantly pre-frail or frail older adults receiving long-term care, a 12-week multicomponent exercise program improved balance and self-rated health immediately after the intervention, but the gains were not sustained four weeks later. Continued or maintenance exercise may be needed to preserve functional benefits.

Keywords : Exercise Therapy, Frail Elderly, Long-Term Care, Postural Balance



Care Managers' Perspectives on Supporting Families Before and After Bereavement in Japan: A Qualitative Study Using Focus Groups

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Purpose : In Japan's community-based integrated care system, care managers often remain involved with families across the end-of-life trajectory, yet little is known about how they perceive and practice support before and after bereavement. This study aimed to clarify how care managers in Japan perceive and practice family support before and after bereavement.

Methods : Three focus group interviews were conducted with 12 care managers in Chiba Prefecture, and the transcripts were analyzed using qualitative descriptive methods. This study was approved by the institutional research ethics committee.

Results : The analysis identified a two-layered structure of family support consisting of four domains of concrete practice and one cross-cutting professional foundation. Decision making support before bereavement functioned as an intervention that accompanied families' emotional fluctuation and facilitated anticipatory grief. Family relationship building support, including trust formation and multidisciplinary collaboration, created a safe relational environment that enabled families to express concerns and reduce caregiving burden. Grief care was practiced as continuous emotional accompaniment beginning before death and extending into bereavement, supporting grief expression, meaning reconstruction, and reduction of regret. A distinctive finding was the emergence of postmortem affairs support as a major category. Care managers frequently assisted with property management, inheritance procedures, coordination of postmortem delegation, and linkage to legal resources—roles insufficiently addressed in international literature. These practices reflect Japan's community-based integrated care system, where care managers maintain long-term involvement with families and often fill systemic gaps related to administrative vulnerability after death. The cross-cutting professional foundation, including boundary setting, ethical judgment, and communication skills, enabled care managers to navigate complex family situations and balance autonomy, safety, and professional limits.

Conclusions : Overall, the multifaceted and continuous support provided by care managers contributed to reducing family regret, promoting meaning reconstruction, and facilitating post-loss adaptation. Strengthening institutional support is needed to enhance bereavement-related family care within Japan's long-term care system.

Keywords : family support, pre- and post-bereavement care, decision making support, postmortem affairs support, care managers, qualitative research



Early Post-bereavement Grief Care for Family Caregivers after Home-Based End-of-Life Care: A Scoping Review

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Purpose : This study mapped early grief care interventions for family caregivers after home-based end-of-life care with the goal of developing effective early interventions.

Methods : A comprehensive literature search was conducted across five academic databases: PubMed, CINAHL, Embase, Cochrane Library, and Igaku Chuo Zasshi Web. The search covered all the records from the inception of each database until the end of March 2024. The search strategy was guided by the population-concept-context (PCC) framework, which included quantitative intervention studies involving family members of adults who died at home after receiving home-based end-of-life care, in which grief-related or psychosocial outcomes were assessed for interventions delivered during caregiving or during the early bereavement period. Two reviewers screened, selected, and plotted the data.

Results : Of 4,766 records, after removing 1,721 duplicates, 3,045 titles and abstracts were screened; 57 records were retained for detailed abstract assessment, of which 23 underwent a full-text review, and five studies met the inclusion criteria. Four were randomized controlled trials, and one was a clinical trial registry entry. The interventions in the four completed trials included specialist palliative care-based dyadic psychological support, a structured primary care bereavement program, a bereavement management program in general practice, and an automated remote monitoring and coaching program during home hospice care. Outcomes included grief, depression, anxiety, bereavement adjustment, and healthcare utilization. Some interventions, particularly dyadic specialist palliative care and digital monitoring plus stepped response, showed benefits in anxiety, caregiver burden, and six-month bereavement outcomes, whereas primary care programs demonstrated limited effects.

Conclusions : Early grief care should be multifaceted and tailored to the caregiver's needs. Early screening is recommended to identify individuals requiring support. This study offers valuable insights into the future development and implementation of effective early grief care interventions for families following home-based end-of-life care.

Keywords : family caregivers, grief care, home-based end-of-life care, scoping review



Self-management experiences and unmet supportive care needs among cancer survivors with persistent chemotherapy-induced peripheral neuropathy and high pain catastrophizing: A qualitative study

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Purpose : High pain catastrophizing may hinder effective self-management among cancer survivors with persistent chemotherapy-induced peripheral neuropathy (CIPN); however, little is known about how these individuals manage their symptoms or perceive their supportive care needs. This study explored the self-management experiences and unmet supportive care needs of cancer survivors with persistent CIPN and high pain catastrophizing.

Methods : This qualitative descriptive study included 19 adult cancer survivors with persistent chemotherapy-induced peripheral neuropathy (CIPN) and high pain catastrophizing. Data were collected through in-depth individual interviews and analyzed using thematic analysis.

Results : Three interconnected themes were identified: (1) Developing personalized self-management in an information vacuum, (2) Catastrophizing as a barrier to self-management, and (3) Unmet needs arising from systemic neglect and medical paternalism. Participants developed personalized approaches to managing persistent CIPN through trial and error. High pain catastrophizing undermined motivation for self-management, intensified emotional distress, and contributed to social isolation. Participants also described unmet supportive care needs, including insufficient symptom management, lack of empathy from healthcare professionals, and limited access to coordinated multidisciplinary care.

Conclusions : Cancer survivors with persistent CIPN and high pain catastrophizing encounter barriers to effective self-management that arise from both psychological vulnerability and gaps in healthcare support. Interventions should extend beyond symptom education to provide ongoing psychological support, individualized self-management guidance, and coordinated multidisciplinary care that addresses the long-term impact of persistent CIPN.

Keywords : chemotherapy-induced peripheral neuropathy, pain catastrophizing, self-management, supportive care



Care Needs and Associated Factors in Elderly Women in Korea

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Purpose : Integrated Care is a system that provides customized, integrated support for medical, nursing, and care services to enable the elderly and people with disabilities to live healthy lives in their own homes rather than in hospitals or facilities. Consequently, caring for the elderly within the community requires efforts to identify those in need of care. The purpose of this study was to examine the status of care needs among elderly women using the 2023 Korea Health Panel (KHP) data and to provide basic strategies for identifying elderly women in need of care.

Methods : The 2023 Korea Health Panel data, collected from March to July 2023 by the Korea Institute for Health and Social Affairs and the National Health Insurance Service, were analyzed using descriptive statistics, chi-square tests, and multiple logistic regression with SPSS version 26.0 program. The study subjects included 2,417 elderly women who responded to the question regarding their care needs over the past year.

Results : The rate of care needs among elderly women in Korea was 7.6%. The odds of requiring care were significantly higher among elderly women who were economically inactive(17.82 times, CI=7.09–44.75, $p<.001$), reported poor self-rated health status(5.27 times, CI=2.57–10.83, $p<.001$), were aged 85 or older(4.83 times, CI=2.70–8.66, $p<.001$), were aged 75–84(1.98 times, CI=1.26–3.12, $p=.003$), reported suicidal ideation(4.52 times, CI=1.91–10.67, $p=.001$), abstained from alcohol(3.27 times, CI=1.94–5.52, $p<.001$), did not have a spouse(2.51 times, CI=1.44–4.35, $p=.001$), were Medicaid recipients(2.12 times, CI=1.29–3.51, $p=.003$), did not exercise regularly(2.02 times, CI=1.37–2.98, $p<.001$), had unmet healthcare needs(1.72 times, CI=1.09–2.69, $p=.019$), and had an experience of being bedridden(1.59 times, CI=1.10–2.31, $p=.014$) compared to their respective counterparts.

Conclusions : Healthcare providers should consider economic activity status, self-rated health status, age, suicidal ideation, alcohol consumption, marital status, medical insurance type, regular exercise, unmet healthcare needs, and experience of bedridden to identify elderly women eligible for integrated care.

Keywords : Care needs, Elderly, Korea, Women



Exploring Medication Adherence as a Dynamic Process of Post-discharge Adaptation in Patients with Coronary Artery Disease: A Qualitative Content Analysis

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Purpose : To explore how medication adherence develops during post-discharge adaptation among patients with coronary artery disease, an area that remains insufficiently understood despite its importance in preventing recurrent cardiovascular events.

Methods : A qualitative descriptive study using inductive content analysis was conducted. Semi-structured interviews were performed with 23 patients with coronary artery disease who had undergone percutaneous coronary intervention and were receiving long-term medication therapy. Interviews with four cardiovascular healthcare professionals were included to enhance interpretation through data triangulation. Data were analyzed using the inductive content analysis approach described by Elo and Kyngäs.

Results : Five overarching themes were identified: accepting lifelong treatment after an unexpected diagnosis, integrating medication into everyday routines, overcoming barriers to continued treatment, building confidence through interactions with healthcare professionals, and achieving long-term self-management. Participants described gradually reconstructing their daily lives following hospital discharge, with medication becoming embedded within everyday routines as they adapted to living with coronary artery disease. Rather than representing a single health behavior, medication adherence evolved through patients' ongoing adaptation to life after hospital discharge.

Conclusions : The findings suggest that medication adherence is best understood as a dynamic process of post-discharge adaptation rather than a discrete health behavior. Interventions should therefore extend beyond promoting medication adherence alone to supporting patients' long-term adaptation and self-management throughout the transition from hospital to home.

Keywords : Coronary artery disease, Medication adherence, Qualitative content analysis, Transitional care



The effect of living alone of elderly on suicidal thoughts: sequential mediating effects of depression and social support

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Purpose : To analyze the effect of living alone of elderly on suicidal ideation, and examine sequential mediating effects of depression and social support.

Methods : A secondary analysis of the 2023 National Survey of Older Koreans was conducted. Of 10,078 participants, 127 were excluded for missing data, yielding a final sample of 9,951. Analysis used SPSS 25.0 and included frequency analysis, descriptive statistics, chi-square tests, and PROCESS Macro Model 6 with 5,000 bootstrap samples (significance level, 5%).

Results : Living alone positively affected depression ($B=0.194, p<.01$), negatively affected social support ($B=-0.173, p<.001$), and positively affected suicidal ideation ($B=0.725, p<.01$). Depression negatively affected social support ($B=-0.045, p<.001$) and positively affected suicidal ideation ($B=0.348, p<.001$); social support negatively affected suicidal ideation ($B=-0.346, p<.05$). Bootstrap analysis confirmed significant indirect effects through depression, through social support, and through the sequential depression–social support path, as no confidence interval included zero.

Conclusions : Living alone raised suicidal ideation by increasing depression and weakening social support, with sequential mediation statistically verified. Suicide prevention for older adults living alone requires depression management and strengthened social support alongside attention to living arrangements. By identifying depression and social support as a sequential psychological–social pathway, this study extends prior research beyond a simple association between living alone and suicidal thoughts among older adults.

Keywords : Older adults, Living alone, Suicidal ideation, Depression, Social support

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Workplace Violence: A Qualitative Study of the Experiences and Coping Strategies of Nurses at a Regional Teaching Hospital in Taiwan

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Purpose : This study aimed to describe hospital nurses' experiences of workplace violence and their adaptations to the workplace violence. Purposive sampling was applied to recruit four nurses who had been Violence at work.

Methods : The nurses participated in in-depth interviews, which were taped and transcribed verbatim. Content analysis was then conducted on the data. Three major themes of Workplace Violence experiences and related adaptations were identified: (1) triggering event, (2) the shock after the storm, (3) the self-awareness of nurses.

Results : It is hoped the results of this study will not only contribute to knowledge of workplace Violence of Taiwanese nurses but also support hospital administrators in dealing with this Violence.

Conclusions : It is recommended that methods of preventing Violence be developed, along with management strategies for responding to Violence events. In this way, the negative impact of workplace Violence on the professional development of nursing can be avoided.

Keywords : Workplace Violence



Latent Classes of Psychosocial–Environmental Factors and Health-Risk Behavior Associated with Types of Suicidal Behavior among Korean Adolescents

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Purpose : his study identified latent classes based on psychosocial–environmental factors and health-risk behavior among Korean adolescents and examined their associations with suicidal ideation, suicide plans, and suicide attempts.

Methods : This study used a cross-sectional secondary data analysis design. Data were obtained from the 2024–2025 Korea Youth Risk Behavior Survey(KYRBS). After excluding missing values, 104,399 adolescents were included. Guided by Problem Behavior Theory(Jessor, 1997), latent class analysis was performed using seven psychosocial–environmental factors and eight health-risk behavior indicators. Suicidal behavior was classified into mutually exclusive categories: ideation($n=7,862$, 7.5%), plan($n=3,128$, 3.0%), and attempt($n=2,815$, 2.7%). Latent class analysis was conducted to identify heterogeneous subgroups based on psychosocial–environmental factors and health-risk behavior indicators. Associations between the latent classes and types of suicidal behavior were examined using the three-step multinomial logistic regression approach.

Results : Four latent classes were identified: Class 1, Psychological–environmental stability with violence/accident experience (37.3%), Class 2, Psychological–environmental complex vulnerability with multiple risk behaviors (6.1%), Class 3, Psychological–emotional vulnerability with lifestyle-related risks (18.9%), and Class 4, Psychological–environmental stability with physical inactivity (37.8%). Compared with Class 4, those with psychological–emotional vulnerability and lifestyle-related risks showed the highest likelihood of suicidal ideation ($RRR=9.31$), whereas adolescents with psychological–environmental complex vulnerability and multiple risk behaviors had the highest likelihood of suicide planning ($RRR=9.63$) and suicide attempts ($RRR=13.53$).

Conclusions : Psychological–emotional vulnerability combined with lifestyle-related risks was most strongly associated with suicidal ideation, supporting early school-based screening and preventive interventions. In contrast, psychological–environmental complex vulnerability with multiple risk behaviors was most strongly associated with suicide planning and attempts, highlighting the need for intensive case management and coordinated multidisciplinary referral systems.

Keywords : Adolescent, Health-Risk Behavior, Latent Class Analysis, Suicide



The Effects of AI-Based Mental Health Chatbots on Reducing Anxiety, Depression, and Stress: A Systematic Review and Meta-analysis

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Purpose : Emerging adults are vulnerable to psychological problems and often experience emotional distress. Artificial intelligence (AI)-based mental health chatbots have rapidly expanded as accessible mental health interventions. However, their clinical effectiveness remains unclear. This study aims to evaluate the effectiveness of AI-based mental health chatbots in reducing depression, anxiety, and stress among emerging adults through a systematic review.

Methods : A systematic review was conducted in accordance with the PRISMA guidelines. PubMed and EMBASE were searched from database inception through April 2026. We included randomized controlled trials that evaluated AI-based chatbot interventions for young adults aged 18–25 years with non-clinical emotional distress. Six studies met the inclusion criteria and were included in the final analysis. Statistical analyses were conducted using STATA 17.0.

Results : A total of 6 RCTs were selected and published between 2024 and 2026. The included studies were conducted in Jordan, South Korea, Switzerland, Canada, and China, comprising a total of 2,764 emerging adults. Interventions were delivered mainly through mobile applications and ranged from rule-based programs (WHO STARS) and CBT-based conversational coaching to fully generative large language model (LLM)-based companionship agents. AI-Based Mental Health Chatbot programs decreased depression (5 studies; Hedges' g -0.33, 95% CI: -0.57 to -0.08, $I^2=82.3\%$), stress (4 studies; Hedges' g -0.53, 95% CI: -0.79 to -0.27, $I^2=41.6\%$), and anxiety (5 studies; Hedges' g -0.24, 95% CI: -0.41 to -0.07, $I^2=62.5\%$).

Conclusions : AI-based mental health chatbots were associated with significant reductions in depression, anxiety, and stress among emerging adults with non-clinical emotional distress. These findings suggest that AI-based chatbots may serve as an applicable form of support for emotional distress in emerging adults.

Keywords : Anxiety, Artificial Intelligence, Depression, Stress, Psychological, Young Adult



Long-Term Depressive Symptom Burden and Risk of Incident Dementia in Older Adults: A Longitudinal Study

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Purpose : Depressive symptoms have been associated with an increased risk of dementia. However, most previous studies have relied on a single assessment of depressive symptoms, which may not adequately capture long-term symptom burden. This study examined the association between long-term depressive symptom burden, assessed through repeated measurements, and incident dementia among adults aged 65 years or older.

Methods : We conducted a longitudinal analysis of 5,942 adults aged ≥ 65 years using data from the Korean Longitudinal Study of Aging. Depressive symptoms were assessed biennially using the CESD-10 from 2006 to 2020. Long-term depressive symptom burden was defined as the mean CESD-10 score across repeated assessments, requiring at least four measurements. Burden based on assessments through 2018 was used to predict incident dementia in 2020, and burden was subsequently updated through 2020 to predict incident dementia in 2022. Time-varying Cox proportional hazards regression models estimated hazard ratios adjusting for demographic, socioeconomic, lifestyle, and health-related factors.

Results : Among 5,942 participants, 151 developed incident dementia. Higher cumulative depressive symptom burden was significantly associated with an increased hazard of incident dementia after adjustment for age, gender, and education (HR 1.10, 95% CI 1.05–1.14). Older age (HR 1.12, 95% CI 1.10–1.14), no formal education (HR 1.75, 95% CI 1.15–2.67), no economic activity (HR 2.28, 95% CI 1.20–4.35), low social engagement (HR 3.95, 95% CI 1.43–10.90), poorer self-rated health (HR 3.00, 95% CI 1.91–4.73 for low; HR 1.65, 95% CI 1.14–2.40 for middle), and no exercise (HR 1.62, 95% CI 1.07–2.46) were also significantly associated with incident dementia.

Conclusions : Greater long-term depressive symptom burden was associated with an increased risk of incident dementia among adults aged 65 years or older. These findings highlight the importance of repeated monitoring of depressive symptoms and suggest that integrating longitudinal mental health assessment into community-based dementia prevention programs may support earlier identification of high-risk individuals.

Keywords : dementia, depressive symptoms, longitudinal study, older adults



Key Components of Effective Adolescent Gambling Prevention Interventions: A Systematic Review

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Purpose : This study aimed to systematically review the characteristics, educational contents, delivery methods, outcomes, and effects of adolescent gambling prevention interventions and to provide evidence for future intervention development.

Methods : A systematic review was conducted according to the Cochrane Handbook, PRISMA guidelines, and the review manual of the NECA. PubMed, EMBASE, CINAHL, PsycINFO, KISS, RISS, DBpia, KMbase, and KoreaMed were searched. Studies were included if they targeted adolescents aged 10–19 years, examined universal gambling prevention interventions in school or community settings, reported quantitative outcomes, and used randomized controlled or quasi-experimental designs. Study quality was assessed using JBI critical appraisal tools. Educational contents, delivery methods, and outcomes were analyzed using the CASEL Framework, Dale's Cone of Experience, and Bloom's taxonomy, respectively.

Results : Twelve studies were included. All were conducted outside Korea, and most were school-based, offline group programs using randomized controlled designs. Educational contents mainly addressed gambling knowledge, risks, cognitive distortions, probability, randomness, and gambling-related attitudes or beliefs. Responsible decision-making was included in all studies, whereas social awareness was not identified. Delivery methods most frequently involved symbolic experiences, including lectures, discussions, and quizzes, with some studies using audiovisual materials, role-playing, or simulations. Outcome variables and intervention effects were analyzed according to Bloom's taxonomy. Cognitive outcomes showed relatively consistent improvements in gambling-related knowledge and cognitive distortions. Affective outcomes showed inconsistent effects on gambling attitudes, while self-efficacy and related emotional variables generally showed no significant changes. Psychomotor outcomes, including gambling behavior and coping-related skills, showed partial or inconsistent improvements across studies.

Conclusions : Existing adolescent gambling prevention interventions are largely school-based and knowledge-oriented. Future interventions should incorporate balanced social-emotional learning competencies and experiential strategies, reflect adolescents' developmental characteristics and online gambling environments, and be applicable to diverse youth populations, including out-of-school adolescents.

Keywords : Adolescent, Gambling, Prevention, Systematic review



Temporal Network Analysis Identifies Morning Fatigue as a Central Symptom Linking Child Sleep Problems and Caregiver Depression in Angelman Syndrome

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Purpose : Children with Angelman syndrome (AS) frequently experience persistent sleep disturbances, which contribute to caregiver psychological distress. However, little is known about which specific sleep symptoms are most strongly associated with caregiver depression over time. This study aimed to examine the temporal relationships between caregiver-perceived child sleep quality and caregiver depression and to identify central sleep symptoms using temporal network analysis.

Methods : This secondary analysis used 14-day longitudinal data from 65 primary caregivers of children with AS. Caregiver-perceived child sleep quality was assessed using a seven-item sleep questionnaire, and caregiver depression was measured using the Korean version of the Center for Epidemiologic Studies Depression Scale–Revised (K-CESD-R). Multilevel vector autoregressive (mIVAR) models were applied to estimate temporal, contemporaneous, and between-subject networks. Outstrength and instrength centrality indices were calculated to identify influential sleep symptoms.

Results : The temporal network demonstrated positive temporal associations between caregiver depression and multiple child sleep symptoms. Appears tired upon waking in the morning showed the highest outstrength centrality, indicating the greatest influence on subsequent symptom dynamics, whereas has difficulty falling back asleep after waking during the night showed the highest instrength centrality, indicating the greatest susceptibility to influence from other symptoms. No significant associations between caregiver depression and child sleep symptoms were observed in the contemporaneous network. The temporal network demonstrated acceptable stability (CS-coefficient > 0.25).

Conclusions : The associations between child sleep problems and caregiver depression emerged primarily through temporal rather than contemporaneous relationships. Morning fatigue was identified as the most influential sleep symptom within the temporal network and may represent a priority target for early assessment and intervention. Temporal network analysis provides additional insight into symptom interactions over time and may support the development of family-centered nursing interventions for children with AS and their caregivers.

Keywords : Angelman Syndrome, Sleep Wake Disorders, Caregivers, Depression, Network Analysis, Longitudinal Studies



Experiences of a motivation enhancement program for medication adherence among community-dwelling persons with mental illness

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Purpose : Medication adherence is essential for preventing relapse and promoting recovery among persons with mental illness. Motivation, defined as the drive to act voluntarily, is a key determinant of medication adherence. The Motivation Enhancement Program for Medication Adherence is designed to strengthen motivation by promoting autonomy, competence, and relatedness, which are core components of Self-Determination Theory. This study aimed to explore the experiences of community-dwelling persons with mental illness who participated in the program.

Methods : This qualitative study recruited participants registered at community mental health centers in Daejeon and Geumsan, South Korea. Eligible participants were adults aged 19 years or older, diagnosed with a mental disorder, and currently taking psychiatric medications. They had attended at least six of the eight program sessions. Nine participants were purposively sampled. Data were collected through two focus group interviews held between July and August 2025, and analyzed using thematic analysis following Braun and Clarke's approach.

Results : Four themes emerged: "shift in perceptions of medication adherence," "development of self-directed medication adherence competence," "discovery of support resources," and "need for participant-centered program refinement." Participants reported overcoming negative perceptions, gaining a better understanding of prescribed medications, and strengthening their motivation and responsibility for adherence. They adopted practical strategies, such as setting medication alarms, and identified available support resources during medication-related crises, and developed mutual understanding of common adherence challenges through peer discussions. Participants also reported burdens related to program participation and the need for more detailed medication education and flexible participation methods.

Conclusions : The Motivation Enhancement Program for Medication Adherence improved participants' motivation, sense of responsibility, understanding of medication adherence, and use of practical adherence strategies. The findings also suggest the need for individualized education and flexible participation methods to reduce participation burdens. Ongoing refinement of the program may further support sustained medication adherence in community settings.

Keywords : medication adherence, mentally ill persons, qualitative research



Development and Psychometric Evaluation of the Independent Living Ability Scale for People with Mental Disorders

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Purpose : To develop the Independent Living Ability Scale (ILAS) for people with mental disorders and evaluate its psychometric properties.

Methods : The study followed DeVellis's instrument development procedures and the COSMIN guidelines. The study consisted of instrument development and validation phases. During the instrument development phase, a conceptual framework based on the Independence Model was established, and preliminary items were generated through a literature review and qualitative interviews. Content validity was established through two rounds of expert review, followed by pilot testing. In the instrument validation phase, data were collected between August and October 2025 from 424 people with mental disorders recruited from 24 community-based mental health institutions across 15 regions of South Korea. Participants were divided into two independent samples for exploratory factor analysis ($n = 210$) and confirmatory factor analysis ($n = 214$). Construct validity was evaluated using exploratory and confirmatory factor analyses. Convergent validity was assessed using correlations with the Community Integration Measure, and discriminant validity was evaluated using the heterotrait-monotrait ratio. Reliability was assessed using McDonald's ω and test-retest reliability.

Results : The ILAS comprised 24 items across five factors: daily living management, symptom management, self-determination, psychological empowerment, and community participation, explaining 51.1% of the total variance. Confirmatory factor analysis supported the five-factor structure with acceptable model fit. The ILAS demonstrated good convergent validity, as evidenced by a positive correlation with the Community Integration Measure ($r = .72$), as well as good discriminant validity, sufficient internal consistency (McDonald's $\omega = .95$), and high test-retest reliability.

Conclusions : The ILAS is a valid and reliable instrument for assessing the independent living abilities of people with mental disorders. It provides a comprehensive assessment of multidimensional independent living abilities and may facilitate individualized rehabilitation planning and the evaluation of recovery-oriented interventions and rehabilitation outcomes across mental health care settings.

Keywords : independent living; mental disorders; psychometric validation; scale development



Bridging Adolescents and Practitioners: How a Generative Artificial Intelligence Chatbot Facilitated Help-Seeking in Youth Mental Health Care

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Purpose : Adolescents experience high psychological distress yet avoid formal help-seeking from mental health services due to informal or online support preference or stigma. Artificial intelligence (AI) chatbots may expand help-seeking options, but it remains unclear whether they replace or complement adolescent-practitioner caring relationships. This mixed-methods study examined how a nurse-led AI chatbot program facilitated adolescents' mental health help-seeking and how practitioners perceived the AI role in youth mental health care.

Methods : A generative AI chatbot co-designed by a nurse-led multidisciplinary team through cognitive-behavioral model was applied in adolescents at six youth service centers for 8 weeks in northern Taiwan. Adolescents completed validated scales measuring psychological distress (five-item Brief Symptom Rating Scale), help-seeking intention (adapted General Help-Seeking Questionnaire), and technology acceptance. Practitioners completed a structured questionnaire on the chatbot's role in the adolescent-professional relationship. Conversation logs from February to May 2026 underwent content analysis.

Results : Thirty-three adolescents and eleven practitioners participated, yielding 120 analyzable conversations. The adolescents' psychological distress declined significantly from 5.81 to 3.10 ($p = .023$). Notably, they ranked the chatbot as their second help-seeking source (above counselors, psychologists, and psychiatrists), an anonymous, 24/7 channel broadening rather than bypassing help-seeking. Moreover, adolescents disclosed concerns rarely voiced elsewhere: family economic hardship, foster-care backgrounds, loneliness, and self-harm ideation emerged from conversation logs. They valued emotional validation, guided self-reflection, and non-judgmental companionship that lowered the threshold to disclosure. However, they reserved judgment on its deeper emotional benefit. Practitioners perceived that chatbot could not replace professional support but valued its records as entry points for understanding and reconnecting with the adolescents.

Conclusions : Adolescents embraced the chatbot as a low-threshold disclosure channel, with both groups viewing it as complementing rather than replacing human care. As a boundary-aware relational scaffold within a nurse-led, supervised care ecosystem, it bridged adolescents and practitioners, strengthening rather than weakening the relationship-centered care.

Keywords : Adolescents; chatbot; help-seeking; relationship-centered care



Relationships and Differences in Resilience and Depression among Korean Family Caregivers of People with Dementia

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Purpose : Although the risk of depression among family caregivers of people with dementia (PwD) is high and resilience is established as a protective factor, limited evidence exists regarding this relationship among Korean family caregivers. Identifying differences in depression and resilience across sociodemographic characteristics is crucial for detecting vulnerable groups among family caregivers. Therefore, the aims of this study were to (1) evaluate the relationship between resilience and depression among Korean family caregivers of PwD. (2) identify the differences in resilience and depression based on sociodemographic factors among Korean family caregivers of PwD.

Methods : This descriptive cross-sectional study collected data from March to August 2024 through online communities from a total of 324 family caregivers of PwD in South Korea. The questionnaire included sociodemographic characteristics, along with the Korean versions of the Connor-Davidson Resilience Scale (CD-RISC) and the Center for Epidemiologic Studies Depression Scale (CES-D). Data were analyzed using IBM SPSS Statistics 29.0, employing descriptive statistics, independent t-tests, and one-way ANOVAs.

Results : The relationship between resilience and depression showed a significant negative correlation ($r = -.68$). The level of resilience differed significantly according to gender ($p=.002$), age ($p=.003$), education level ($p=.02$), occupation ($p=.002$), relationship to the patient ($p=.03$), caregiving duration ($p=.01$), weekly caregiving hours ($p=.02$), presence of co-caregivers ($p<.001$), co-caregivers' caregiving hours ($p=.02$), subjective economic status ($p<.001$), and perceived health status ($p<.001$). Depression showed significant differences by gender ($p=.02$), education level ($p=.01$), caregiving duration ($p=.003$), presence of co-caregivers ($p<.001$), subjective economic status ($p<.001$), and perceived health status ($p<.001$).

Conclusions : Enhancing resilience may help reduce depression among primary family caregivers of PwD. Caregivers with specific sociodemographic characteristics may be more vulnerable to depression and exhibit lower levels of resilience. These findings may provide useful evidence for developing tailored support programs to reduce depression and enhance resilience among Korean primary family caregivers of PwD.

Keywords : Dementia, Family Caregivers, Resilience, Depression



Factors associated with organizational commitment among junior army personnel

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Purpose : This study aimed to examine the relationships among job stress, resilience, emotional intelligence, and organizational commitment, and to identify the key predictors of organizational commitment among junior army personnel.

Methods : This cross-sectional, correlational study was conducted from March 11 to March 20, 2025. A total of 188 junior army personnel within five years of commissioning, serving in army units, were recruited through convenience sampling. Data were collected using a structured 92-item questionnaire assessing a modified version of the Organizational Commitment Questionnaire, the Job Stress Scale, the Korean version of the Connor–Davidson Resilience Scale, and the Wong and Law Emotional Intelligence Scale. Descriptive statistics, correlation analysis, and hierarchical multiple regression analysis were performed to identify factors associated with organizational commitment.

Results : The mean scores for organizational commitment, job stress, resilience, and emotional intelligence were 3.11, 2.08, 2.99, and 4.01, respectively. Organizational commitment was significantly higher among male participants, smokers, those reporting very good sleep quality, and those with high perceived health status. Staff sergeants showed significantly higher organizational commitment than first lieutenants. Organizational commitment was negatively correlated with a directive command structure, excessive workload, and evaluation-related pressure, and positively correlated with resilience and emotional intelligence. In hierarchical multiple regression analysis, being a first lieutenant, resilience, anxiety about accidents, and evaluation-related pressure were significant predictors of organizational commitment. The final model explained 34.3% of the variance in organizational commitment.

Conclusions : Enhancing resilience and reducing evaluation-related stress through organizational strategies may improve organizational commitment among junior army personnel. Military rank was also identified as an independent factor influencing organizational commitment, even after controlling for other variables. These findings highlight the need for differentiated, rank-specific intervention programs, along with resilience-enhancement training and a fair and transparent performance evaluation system.

Keywords : Job stress; junior army personnel; organizational commitment; resilience



Associations of emotional intelligence, cognitive flexibility, and emotional labor with communication competence in psychiatric nurses

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Purpose : This study examined the relationships among emotional intelligence, cognitive flexibility, emotional labor, and communication competence and identified factors associated with communication competence among nurses working in psychiatric wards.

Methods : A cross-sectional correlational study was conducted with 143 nurses working in psychiatric wards. Participants were recruited using convenience sampling from five general hospitals in Daejeon, Chungcheong, and Jeju regions, as well as through the online bulletin board of the Korean Psychiatric Mental Health Nurses Association. Emotional intelligence, cognitive flexibility, emotional labor, and communication competence were measured using the Wong and Law Emotional Intelligence Scale, Cognitive Flexibility Inventory, Emotional Labor Scale, and Global Interpersonal Communication Competence Scale, respectively. Data were collected via online self-report questionnaires from September 15 to November 10, 2025. Data were analyzed using descriptive statistics, group comparisons, correlation analysis, and hierarchical multiple regression.

Results : The mean scores for emotional intelligence, cognitive flexibility, emotional labor, and communication competence were 5.15, 4.98, 3.05, and 3.93. Communication competence significantly differed by religious affiliation, with nurses without a religious affiliation reporting higher communication competence than those with a religious affiliation. Emotional intelligence, cognitive flexibility, emotional labor, and psychiatric ward work experience were significant factors associated with communication competence. The final model explained 47.5% of the variance in communication competence. Higher emotional intelligence and cognitive flexibility, lower emotional labor, and greater psychiatric ward work experience were associated with higher communication competence.

Conclusions : Emotional intelligence, cognitive flexibility, emotional labor, and psychiatric ward work experience should be considered when developing interventions to improve communication competence among psychiatric ward nurses. Strategies that strengthen emotional intelligence and cognitive flexibility while reducing emotional labor may be especially beneficial for nurses with limited psychiatric ward work experience.

Keywords : Cognitive flexibility, communication competence, emotional intelligence, emotional labor



Effects of Laughter-Based Interventions on Depressive Symptoms in Older Adults: A Systematic Review and Meta-Analysis

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Purpose : Depressive symptoms are highly prevalent among older adults, and non-pharmacological interventions such as laughter-based therapies have been increasingly investigated. We aim to systematically evaluate the effects of laughter-based interventions on depressive symptoms in older adults.

Methods : Nine electronic databases were searched from inception to December 2025. Randomized controlled trials and quasi-experimental studies involving adults aged ≥ 65 years were included. Effect sizes were calculated as Hedges' g and pooled using random-effects models. Heterogeneity was assessed using I^2 with corresponding confidence intervals. Subgroup, meta-regression, and sensitivity analyses and publication bias assessments were performed.

Results : Thirty studies were included, of which 27 ($N = 1,443$ participants) contributed to the primary meta-analysis. Laughter-based interventions significantly reduced depressive symptoms (Hedges' $g = -0.78$, 95% confidence interval: -1.02 to -0.55 ; $p < .001$), with substantial heterogeneity ($I^2 = 78.3\%$). Subgroup analyses showed consistent effects across most study and intervention characteristics, and meta-regression analyses did not identify significant moderators. Sensitivity analyses confirmed the robustness of the findings. No significant publication bias was detected. In addition, laughter-based interventions demonstrated significant improvements in several secondary outcomes, including anxiety, stress, general mental health, subjective well-being, quality of life, and physical function, whereas no significant effects were observed for sleep quality, self-esteem, or cognitive function.

Conclusions : Laughter-based interventions are associated with a significant reduction in depressive symptoms among older adults, suggesting their potential as non-pharmacological approaches.

Keywords : laughter therapy, meta-analysis, older adults, systematic review



Mindset, work engagement, and job stress as predictors of nursing competency among clinical nurses

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Purpose : Nursing competency is essential for delivering safe, high-quality patient care and responding effectively to increasingly complex clinical environments. Although previous studies have primarily examined occupational factors associated with nursing competency, evidence on the combined effects of psychological and occupational factors remains limited. This study aimed to identify predictors of nursing competency by focusing on the combined effects of mindset, work engagement, and job stress among clinical nurses.

Methods : This cross-sectional descriptive correlational study included 204 clinical nurses recruited using convenience sampling from a university hospital in Daejeon Metropolitan City and Sejong Special Self-Governing City, Republic of Korea. Data were collected through an online survey from April 15 to April 24, 2025. Measurements were obtained using the Nursing Competency Scale, the Korean-adapted version of Dweck's Mindset Scale, the Korean version of the 9-item Utrecht Work Engagement Scale, and the Job Stress Scale. Data were analyzed using descriptive statistics, independent t-tests, one-way analysis of variance, Pearson's correlation coefficients, and hierarchical multiple regression analysis.

Results : Growth mindset was positively associated with nursing competency, whereas fixed mindset was negatively associated with nursing competency. Work engagement emerged as the strongest predictor, and educational level and job stress were also significant predictors. Together, these variables explained 30.3% of the variance in nursing competency.

Conclusions : Both psychological factors (growth and fixed mindsets) and occupational factors (work engagement and job stress) were identified as significant predictors of nursing competency among clinical nurses. Work engagement showed the greatest contribution to nursing competency, while the contrasting effects of growth and fixed mindsets highlight the importance of treating mindset as a multidimensional construct in nursing competency development. These findings support the integration of psychological and organizational strategies into interventions aimed at enhancing nursing competency, including promoting a growth mindset, reducing fixed mindset tendencies, enhancing work engagement, and supporting effective job stress management.

Keywords : Clinical nurses, nursing competency, mindset, work engagement, job stress



Gender Disparities in Mental Health and Resilience Among Nursing Undergraduates

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Purpose : The data in this paper are baseline data from a waitlist-randomised controlled trial that primarily aims to measure the effectiveness of a resilience-boosting intervention by examining differences in depression, anxiety, stress, and resilience levels among nursing undergraduates.

Methods : All Year 4 nursing undergraduates from the same bachelor's programme were invited to participate in this study. They completed the Connor-Davidson Resilience Scale and Depression Anxiety Stress Scale before the intervention commenced as baseline data. Gender differences were analysed using independent-samples t-tests and Mann-Whitney U tests. Spearman correlations examined relationships among variables. Multiple regression analyses with centred variables and interaction terms tested moderation hypotheses, including two-way (resilience x stressor) and three-way (resilience x stressor x gender) interactions, to determine whether resilience buffered the stress-depression and anxiety-depression relationships and whether these effects varied by gender.

Results : 264 participants (M=89, F=175) completed the questionnaires. Resilience scores were similar for males (M = 24.21, SD = 5.78) and females (M = 23.46, SD = 6.19), with no significant gender difference. Male students reported significantly higher depression ($p = .039$, $r = .13$) and anxiety ($p = .028$, $r = .14$) than females, while stress differences were nonsignificant but trended higher in males ($p = .071$, $r = .11$). Resilience showed moderate negative correlations with depression ($rs = -.403$), anxiety ($rs = -.323$), and stress ($rs = -.366$; all $p < .001$). A marginal interaction indicated resilience may weakly buffer the stress-depression relationship (interaction $p = .086$), whereas no moderation was observed for the anxiety-depression link. Three-way interactions with gender were nonsignificant, suggesting comparable resilience effects across genders.

Conclusions : Male participants demonstrate significantly higher depression and anxiety than females despite comparable resilience. Resilience shows protective associations across genders, supporting the development of universal resilience-building programmes within nursing education to enhance student mental health and professional preparedness.

Keywords : anxiety, depression, resilience, stress, nursing undergraduate



School-Level Differences in the Association Between Smartphone Overdependence and Suicide-Related Behaviors Among Korean Adolescents

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Purpose : To examine the association between smartphone overdependence and suicide-related behaviors (suicidal ideation, suicide planning, and suicide attempts) among Korean adolescents and to compare these associations between middle and high school students.

Methods : This secondary analysis used data from the 19th Korea Youth Risk Behavior Survey (2023). A total of 47,482 adolescents (25,661 middle school and 21,821 high school students) were included. Suicide-related behaviors were assessed as suicidal ideation, planning, and attempts during the past 12 months. Smartphone overdependence was categorized as normal, potential-risk, and high-risk. Complex sample logistic regression analyses were conducted after adjusting for sex, academic achievement, economic status, smartphone usage time, and sleep duration.

Results : High-risk smartphone overdependence was significantly associated with greater risks of suicidal ideation, planning, and attempts in both middle and high school students. Among middle school students, adjusted odds ratios (AORs) ranged from 2.54 to 3.26, whereas among high school students, AORs ranged from 2.45 to 3.22. Potential-risk overdependence was also associated with suicide-related behaviors, particularly among middle school students. In addition, longer smartphone use (≥ 4 hours/day) and shorter sleep duration (< 7 hours/day) were associated with increased risks of suicide-related behaviors.

Conclusions : These findings highlight the need for school-level and developmentally tailored approaches to adolescent suicide prevention. Comprehensive strategies that promote healthy smartphone use, adequate sleep, and early identification of vulnerable adolescents may help reduce suicide-related behaviors.

Keywords : Adolescent, Smartphone Overdependence, Suicidal Ideation, Suicide Planning, Suicide Attempt



Nursing on the Threshold: A Hermeneutic Phenomenological Study of General Psychiatric Nurses' Experiences of Caring for Mentally Ill Offenders

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Purpose : To explore the essential meaning of general psychiatric nurses' experiences of caring for mentally ill offenders. The care of mentally ill offenders frequently extends to general psychiatric wards because of the limited dedicated forensic infrastructure; yet the lived experiences of general psychiatric nurses in navigating the complex threshold between therapeutic care and risk management remain unarticulated.

Methods : This qualitative study used van Manen's hermeneutic phenomenological approach. In-depth one-to-one interviews were conducted with eight registered psychiatric nurses in South Korea, and the data were analysed across four lived existentials: corporeality, temporality, spatiality, and relationality.

Results : The essential structure of the lived experiences comprised six categories: (1) The Body Frozen Before the Criminal History, (2) Continuing Care with a Body Weighed Down by Fear, (3) A Relationship Held at a Distance, (4) The Knot of Perception Untied by Time, (5) The Sorrow of Facing a Life with Nowhere to Stay, and (6) The Ward's Order Shaken by a Single Patient. The nurses continued to provide care while bearing a fear inscribed on the body and maintaining a deliberate distance, yet over time they experienced a dynamic shift in which they came to re-perceive the person as a human being.

Conclusions : To sustain therapeutic care and protect nurses, standardised guidelines, mentoring by experienced nurses, peer support, and institutional support must be established, so that the burden of this care is not left to the individual nurse's struggle.

Keywords : hermeneutic phenomenology, lived experience, forensic nursing, mentally ill offenders



Mediating Effect of Self-Compassion on the Relationship between Self-Awareness and University Life Adaptation among Undergraduate Students

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Aim(s) : University Life Adaptation is essential for identity formation and psychological adaptation among university students in early adulthood. This study investigated the mediating effect of self-compassion on the relationship between self-awareness and university life adaptation among undergraduate students.

Methods : This study included 180 undergraduate students from K University in G-metropolitan, South Korea. Data were collected from May 8 to 18, 2026, using self-report questionnaires. Data were analyzed with independent t-tests, analysis of variance, Scheffé's test, and Pearson's correlation coefficients using IBM SPSS Statistics version 29.0. A mediation analysis was conducted using Hayes's PROCESS macro model 4 with bootstrapping.

Results : University Life adaptation showed significant positive correlations with self-awareness ($r = .50$, $p < .001$) and self-compassion ($r = .48$, $p < .001$). Self-awareness positively influenced self-compassion ($\beta = .45$, $p < .001$) and university life adaptation ($\beta = .43$, $p < .001$). Self-compassion positively influenced university life adaptation ($\beta = .28$, $p < .001$) and partially mediated the relationship between self-awareness and university life adaptation ($\beta = .13$, $p < .001$).

Conclusions : This study indicates that self-compassion is a significant mediator in the relationship between self-awareness and university life adaptation. Based on this finding, self-compassion is essential for enhancing university life adaptation. Therefore, it is necessary to develop comprehensive strategies to promote self-compassion.

Keywords : Adaptation, Awareness, Self-Compassion, Students



The Dual Burden of Physical and Cognitive Decline: Linking Cognitive Frailty to Suicidal Ideation in Visually Impaired Older Adults

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Purpose : Older adults with visual impairment are vulnerable to suicidal ideation, likely due to the interplay between physical decline, cognitive impairment, and psychosocial challenges. Cognitive frailty, defined as the coexistence of physical frailty and mild cognitive impairment, has emerged as a multidimensional construct; however, its relevance to suicidal ideation in this population has not been sufficiently investigated. This study investigated the association between cognitive frailty and suicidal ideation among community-dwelling older adults with self-reported visual impairment in South Korea.

Methods : This cross-sectional secondary analysis used data from the 2023 National Survey of Older Koreans. The final analytic sample comprised 3,924 adults aged ≥ 65 years with self-reported visual impairment. Complex sample logistic regression analyses were conducted to examine the association between cognitive frailty status and suicidal ideation.

Results : The prevalence of suicidal ideation was highest in the cognitive frailty group (10.5%), followed by the physical frailty-only group (6.1%), the mild cognitive impairment-only group (1.2%), and the robust group (0.9%). After full adjustment, only cognitive frailty remained significantly associated with suicidal ideation (OR = 2.709, 95% CI = 1.048–7.003).

Conclusions : These findings suggest that the combined effects of physical and cognitive decline contribute to increased psychological burden. For mental health nurses, this highlights that the dual burden of cognitive frailty limits coping capacity and independence, directly increasing suicide risk beyond the effect of clinical depression.

Keywords : Cognitive frailty, suicidal ideation, older adults, visual impairment, vulnerability



An Online Self-Compassion Enhancement Program for Military Nursing Cadets: Development and Pilot Evaluation

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Purpose : This study aimed to develop an online self-compassion enhancement program tailored for military nursing cadets and to evaluate its feasibility, acceptability, and preliminary effects on perceived stress, psychological well-being, and self-compassion.

Methods : A pilot intervention study with a single-group pretest–posttest design was conducted among five first-year cadets at the Korea Armed Forces Nursing Academy (KAFNA). The program was systematically developed using the ADDIE instructional design model and incorporated the core components of self-compassion: self-kindness, mindfulness, and common humanity. The intervention consisted of five weekly online sessions (60 minutes each) that included loving-kindness meditation, breathing meditation, body scan meditation, compassionate writing, and emotion regulation training. Data were analyzed using descriptive statistics and the Wilcoxon signed-rank test.

Results : The developed program demonstrated satisfactory content validity and consisted of five structured sessions reflecting the psychological and educational characteristics of military nursing cadets. Following the intervention, perceived stress significantly decreased ($p=.043$), while psychological well-being significantly increased ($p=.042$). Although self-compassion and subjective health status improved, these changes were not statistically significant. Participants reported high levels of satisfaction with the online format and indicated that the program promoted emotional awareness, self-reflection, and the practical application of self-compassion in daily life.

Conclusions : This pilot study provides preliminary evidence that an online self-compassion enhancement program is both feasible and educationally valuable for military nursing cadets. Integrating self-compassion training into military nursing education may promote psychological well-being, strengthen resilience, and foster lifelong self-care competencies that may help prepare future military nursing officers to cope with the psychological demands of both clinical practice and military service. Further randomized controlled studies with larger samples and longitudinal follow-up are warranted to establish its effectiveness and long-term educational impact.

Keywords : Military nursing education; Mindfulness; Psychological well-being; Self-compassion



The Mediating Role of Mindfulness in the Relationship Between Clinical Practicum Stress and Emotional Stability Among Military Nursing Cadets

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Purpose : This study aimed to examine the mediating role of mindfulness in the relationship between clinical practicum stress and emotional stability among military nursing cadets enrolled at the Korea Armed Forces Nursing Academy (KAFNA), while describing their levels of clinical practicum stress, mindfulness, and emotional stability.

Methods : A descriptive correlational study was conducted with 124 third- and fourth-year KAFNA cadets who had clinical practicum experience. Data were collected through an online survey from October to November 2023. Clinical practicum stress, mindfulness, and emotional stability were measured using validated instruments. Data were analyzed using descriptive statistics, independent t-tests, Pearson's correlation coefficients, and mediation analysis using the SPSS PROCESS Macro (Model 4) with 50,000 bootstrap resamples.

Results : The mean scores for clinical practicum stress, mindfulness, and emotional stability were 2.78 ± 0.57 , 3.79 ± 0.74 , and 3.59 ± 0.55 , respectively. Fourth-year cadets experienced significantly higher clinical practicum stress than third-year cadets ($p < .001$). Clinical practicum stress was negatively correlated with mindfulness ($r = -.291$, $p = .001$) and emotional stability ($r = -.463$, $p < .001$), whereas mindfulness was positively correlated with emotional stability ($r = .784$, $p < .001$). Mediation analysis demonstrated that mindfulness partially mediated the relationship between clinical practicum stress and emotional stability (indirect effect = -0.20 , 95% CI = -0.38 to -0.05).

Conclusions : Mindfulness emerged as a significant psychological resource that partially buffered the adverse effects of clinical practicum stress on emotional stability. These findings support the integration of mindfulness-based education into military nursing curricula to strengthen emotional resilience and psychological well-being among military nursing cadets. Such educational strategies may better prepare future military nursing officers to maintain professional readiness and deliver resilient nursing care in demanding clinical and military environments.

Keywords : Clinical practicum stress; Emotional stability; Military nursing education; Mindfulness



Effects and Design Determinants of Digital Mental Health Interventions for University Students: A Systematic Review, Meta-analysis, and Meta-regression of Randomized Controlled Trials

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Purpose : To synthesize the effects of digital mental health interventions on anxiety, depression, stress, and well-being among university students and to identify intervention design characteristics associated with stronger effects.

Methods : A systematic review, meta-analysis, and meta-regression of randomized controlled trials was conducted. Studies evaluating digital or digitally mediated mental health interventions for university or college students were included. Outcomes were measured using validated instruments. Effect sizes were calculated as Hedges' g and pooled using random-effects models, with negative values indicating effects favoring the intervention. Meta-regression and subgroup analyses examined intervention duration, delivery mode, human support, and core intervention type as potential moderators.

Results : Thirty-four randomized controlled trials were included. Digital mental health interventions significantly improved anxiety (28 studies; Hedges' $g = -0.338$, 95% confidence interval -0.464 to -0.212), depression (29 studies; $g = -0.390$, 95% confidence interval -0.510 to -0.270), stress (19 studies; $g = -0.375$, 95% confidence interval -0.490 to -0.260), and well-being (18 studies; $g = -0.317$, 95% confidence interval -0.420 to -0.214 ; all $p < 0.001$). Heterogeneity was moderate to substantial. No significant moderators were identified for anxiety, depression, or well-being. For stress, intervention duration explained 61 percent of between-study variance; medium-duration interventions showed the largest effect, followed by long- and short-duration interventions. Human support explained 30 percent of between-study variance, with supported interventions producing greater stress reduction than unsupported or self-guided interventions.

Conclusions : Digital mental health interventions significantly improved anxiety, depression, stress, and well-being among university students. The findings suggest that stress reduction is strengthened when programs include adequate duration and structured human support. University-based digital mental health programs should therefore be designed not only for accessibility, but also for sufficient therapeutic exposure and support.

Keywords : Digital intervention, Mental health, University students, Meta-analysis, Meta-regression



Health literacy, depressive symptoms, perceived health status, and suicidal ideation among Korean adults aged 19–64 years: a nationally representative cross-sectional study

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Purpose : Suicidal ideation remains a pressing public health issue in South Korea. Depressive symptoms and poor perceived health status are associated with suicidal ideation, but whether these associations vary by health literacy remains unclear. This study aimed to identify factors associated with suicidal ideation and to examine whether health literacy moderated these associations among Korean adults aged 19–64 years.

Methods : This cross-sectional study analyzed data from the 2023 Korea National Health and Nutrition Examination Survey. Of 4,071 adults aged 19–64 years, 3,956 with valid suicidal ideation responses were included in descriptive and bivariate analyses; 3,734 with complete data on all model variables were included in regression analyses. Health literacy was entered as a standardized continuous score. Complex-sample analyses incorporated sampling weights, stratification, and clustering. Rao–Scott chi-square tests and complex-sample logistic regression were performed.

Results : The weighted prevalence of suicidal ideation was 4.6%. In the interaction model, poorer perceived health status was associated with higher odds of suicidal ideation (OR = 1.60, 95% CI = 1.17–2.19, $P = 0.004$), whereas participants without depressive symptoms had lower odds than those with depressive symptoms (OR = 0.05, 95% CI = 0.03–0.07, $P < 0.001$). The depressive symptoms $\times$ health literacy interaction was not significant (OR = 0.72, 95% CI = 0.46–1.15, $P = 0.167$), whereas the perceived health status $\times$ health literacy interaction was significant (OR = 1.44, 95% CI = 1.04–2.00, $P = 0.028$).

Conclusions : Health literacy moderated the association between perceived health status and suicidal ideation, but not the association between depressive symptoms and suicidal ideation. Perceived health status and health literacy should be considered jointly when assessing suicidal ideation. Longitudinal and intervention studies are warranted to clarify whether health literacy-enhancing approaches can contribute to suicide prevention.

Keywords : depressive symptoms, health literacy, suicidal ideation, suicide prevention



Mental health support pathways in the era of conversational artificial intelligence: Roles of self-stigma, self-concealment, and trust among young adults in South Korea

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Purpose : Depression and suicide risk remain major public health concerns among South Korean young adults. Yet many hesitate to seek professional mental health support due to self-stigma surrounding emotional difficulties and a tendency toward self-concealment. This tendency may be more pronounced in sociocultural contexts where concerns about social image (face) discourage disclosure of psychological difficulties and hinder support access. Recently, conversational AI has emerged as an accessible resource providing diverse information and emotional support. However, it remains unclear whether acceptance of AI-based counseling and emotional support is associated with more positive attitudes toward professional help-seeking or instead reflects a pathway separate from professional services. It is also unknown whether these associations vary according to individuals' AI trust.

Methods : A cross-sectional online survey was conducted among young adults aged 18–34 years in South Korea through an online survey panel provider. After six low-quality responses were excluded, the final sample comprised 234 participants. Data were analyzed using IBM SPSS Statistics version 31.0 and PROCESS macro version 4.2. Indirect effects and moderated mediation were tested using 5,000-resample bootstrapping with 95% confidence intervals.

Results : The proposed mediation and moderated mediation models were not supported. Exploratory analyses showed that self-stigma was directly associated with more negative attitudes toward seeking professional help. In contrast, self-concealment showed a preliminary indirect association with acceptance of artificial intelligence-based counseling and emotional support through trust in artificial intelligence.

Conclusions : These findings suggest that conversational AI is best understood not as a direct replacement for professional services or an automatic pathway to care, but as one component of a broader and more differentiated mental health help-seeking system. Future research should examine the conditions under which the pathway from self-concealment to AI acceptance through AI trust facilitates the transition to professional mental health services, particularly among young adults experiencing emotional difficulties and high self-disclosure concerns.

Keywords : Artificial intelligence-based counseling, Help-seeking attitudes, Self-concealment, Self-stigma



The Effect of Job Stress on Attitudes toward the Mental Illness in Psychiatric Mental Health Nurses: The Mediating Effect of Self-compassion and Empathy

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Purpose : This study aimed to investigate the levels of job stress, self-compassion, empathy, and attitudes towards mental illness in psychiatric mental health nurses, and to identify the mediating effects of self-compassion and empathy between job stress and attitudes towards mental illness in psychiatric nurses.

Methods : This study employed a predictive correlational research design. The participants were 200 psychiatric nurses currently working in psychiatric hospitals and mental health facilities in South Korea, all of whom had provided direct care to patients with mental illnesses for over one year. Data were collected from July 17 to August 9, 2024, using self-reported questionnaires. The questionnaires included items on the participants' general characteristics, job stress, self-compassion, empathy, and attitudes toward mental illness. The collected data were analyzed using descriptive statistics, independent t-tests, one-way ANOVA, Scheffé post-hoc tests, Welch's test, Games-Howell post-hoc tests, Pearson correlation analysis, multiple regression analysis, SPSS/WIN 25.0, and SPSS PROCESS macro 4.2.

Results : Job stress among psychiatric nurses significantly influenced their self-compassion ($B = -0.30$, $p = .001$). Both self-compassion ($B=0.10$, $p=.001$) and empathy ($B=0.24$, $p<.001$) significantly affected attitudes toward mental illness. The mediating effect of self-compassion in the relationship between job stress and attitudes toward mental illness was statistically significant ($B=-0.03$, Boot 95% CI=-0.06 to -0.01). However, the mediating effect of empathy in the same relationship was not statistically significant ($B = -0.02$, Boot 95% CI = -0.05 to 0.01).

Conclusions : Self-compassion among psychiatric nurses helps reduce the negative effects of job stress on their attitudes toward mental illness. To foster more positive attitudes in psychiatric nurses, it is essential to implement strategies that enhance self-compassion. Additionally, future research should investigate other internal resources that may influence the relationship between job stress experienced by psychiatric nurses and their attitudes toward mental illness.

Keywords : Occupational stress, Self-Compassion, Empathy, Attitude of health personnel, Psychiatric nursing



Factors Associated with the Impostor Phenomenon Among Newly Graduated Nurses: Focus on Perfectionistic Self-Presentation and Colleague Solidarity

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Purpose : The Impostor Phenomenon is frequently observed among newly graduated nurses and has been shown to influence their decreased job satisfaction and increased turnover intention. This study aimed to identify the effects of perfectionistic self-presentation and colleague solidarity on the impostor phenomenon among newly graduated nurses in tertiary general hospitals.

Methods : In this cross-sectional study, data were collected from January to February 2026 from 249 newly graduated nurses with less than 12 months of clinical experience working at tertiary general hospitals. Perfectionistic self-presentation, colleague solidarity, and the impostor phenomenon were measured using the Korean versions of the Perfectionistic Self-Presentation Scale, Colleague Solidarity Scale for Nurses, and Impostor Profile, respectively. Multiple regression analysis was performed to identify factors influencing the impostor phenomenon among newly graduated nurses.

Results : Multiple regression analysis revealed that colleague solidarity had the strongest negative association ($\beta = -.54, p < .001$), indicating that higher colleague solidarity was significantly associated with a lower level of the impostor phenomenon. The next most significant factor was perfectionistic self-presentation ($\beta = .35, p < .001$), where higher levels significantly increased the impostor phenomenon. Regarding demographic variables, nurses aged 25 or older experienced higher levels of the impostor phenomenon than those aged 20-24 ($\beta = -.21, p < .001$), and those living with others experienced higher levels of the phenomenon than those living alone ($\beta = -.21, p < .001$).

Conclusions : Age, living arrangement, perfectionistic self-presentation, and colleague solidarity can serve as key predictors of the impostor phenomenon among newly graduated nurses. To enhance job satisfaction and reduce turnover intention in newly graduated nurses, it is essential to develop diverse intervention strategies aimed at mitigating perfectionistic self-presentation and strengthening colleague solidarity.

Keywords : Colleague Solidarity, Impostor phenomenon, Newly Graduated Nurses, Perfectionistic self-presentation



Deepfake Sexual Violence as an Emerging Mental Health Threat: Understanding Public Discourse Through Twitter Topic Modeling

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Purpose : Deepfake sexual violence is an emerging form of technology-facilitated image-based sexual abuse that can cause significant psychological harm, including shame, anxiety, depression, social isolation, and suicidal ideation. Despite growing concerns, little is known about how the public understands and discusses the mental health implications of deepfake victimization. This study explored the thematic characteristics of online discourse surrounding deepfake sexual violence in South Korea and examined its implications for mental health nursing.

Methods : Following institutional review board approval, Twitter data were collected over a two-month period beginning August 19, 2024, when deepfake sexual crimes received extensive public attention in South Korea. Using keywords related to deepfake sexual abuse and digital sexual violence, 50,569 posts were initially retrieved. After removing duplicates and irrelevant entries, 26,109 valid posts were analyzed. Natural language processing was conducted using Python 3.12, KoNLPy, and BERTopic with a Korean-specific BERT model. Word-frequency analysis, semantic network analysis, topic modeling, and hierarchical clustering were performed to identify major themes and discourse structures.

Results : Public discourse was primarily organized around crime, gender, victimization, and institutional accountability. Topic modeling identified ten major themes, including gender conflict, media coverage, educational policy, legal responses, investigation and prosecution, platform misuse, privacy concerns, and feminist activism. Hierarchical clustering revealed two overarching discourse domains: institutional responses and civic/social conflict. Discussions consistently framed deepfake sexual violence as a systemic social issue rather than an isolated cybercrime. Concerns regarding psychological harm, stigma, privacy violations, adolescent victimization, and gender inequality were frequently embedded within broader discussions of policy and social responsibility.

Conclusions : Findings suggest that deepfake sexual violence is widely perceived as a form of technology-facilitated trauma with significant psychosocial consequences. Mental health nurses have an important role in identifying psychological distress, supporting survivors, and developing trauma-informed interventions for emerging forms of digital sexual violence.

Keywords : Deepfake Sexual Violence, Mental Health, Topic Modeling



A study of relationship between self-esteem and smartphone overdependence in middle school students

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Purpose : This study aimed to examine the relationship between self-esteem and mobile phone overdependence in middle school students.

Methods : This cross-sectional survey study included 376 participants at two middle school located in two cities. Data on general characteristics, self-esteem, and smartphone overdependence were collected. For data collection, an explanation of the study's purpose and intent was provided to the heads of participating schools to ensure their cooperation. Subsequently, questionnaires were distributed to the participants who consented to participate in the study. The participants completed the questionnaires and submitted them in sealed envelopes. The collected data were analyzed using IBM SPSS 31.0 program.

Results : Of the 376 participants, 189 (50.3%) were boy, and 187 (49.7%) were girls. In terms of daily smartphone usage, 207 (55.1%) participants reported using their smartphones over 3 hours per day. 253 (67.3%) participants reported the primary purpose of smartphone utilization was watching videos (e.g., YouTube, Shorts). Regarding the classification of smartphone overdependence, 275 participants (73.1%) belonged to the general user group, 82 (21.8%) to the potential risk group, and 19 (5.1%) to the high-risk group. The participants' average smartphone overdependence score was 1.99 ± 0.59 out of 4 points. The participants' average self-esteem score was 2.88 ± 0.61 out of 4 points. Finally, a significant negative correlation was confirmed between the participants' smartphone overdependence and self-esteem ($r = -.27, p < .001$).

Conclusions : To prevent smartphone overdependence among adolescents, it is necessary to activate activities within homes and schools that allow them to experience achievements and positive feedback. Furthermore, an educational approach centered on Social and Emotional Learning is required to enhance their self-esteem.

Keywords : addiction, adolescent, internet, self-esteem



Depressive Symptoms, Cardiometabolic Disease, and Changes in Disability in Instrumental Activities of Daily Living in Later Life

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Purpose : This study examined the independent and joint associations of depressive symptoms and cardiometabolic disease with changes in disability in instrumental activities of daily living among middle-aged and older adults in China.

Methods : This nationwide longitudinal study used China Family Panel Studies data from 2012 to 2020. A total of 16,780 adults aged 45 years and older who participated in at least two survey waves and had no instrumental activities of daily living disability at baseline were included. Cardiometabolic disease was defined by self-reported ischemic heart disease, stroke, hypertension, and diabetes. Depressive symptoms were assessed using the eight-item Center for Epidemiologic Studies Depression Scale. Disability transitions and trajectory patterns were examined using longitudinal regression, time-to-event analysis, and multinomial regression.

Results : Depressive symptoms and cardiometabolic disease were each associated with greater disability in instrumental activities of daily living over time. Participants with both cardiometabolic multimorbidity and depressive symptoms showed the most vulnerable disability pattern, including higher risk of disability onset and persistence and lower likelihood of recovery. Disability trajectories also differed by combined physical and mental health status. Participants with both cardiometabolic multimorbidity and depressive symptoms showed the most unfavorable pattern.

Conclusions : Depressive symptoms and cardiometabolic disease are important factors associated with functional decline in later life. Integrated nursing assessment combining mental health, chronic disease status, and functional ability may help identify adults at high risk of disability progression and support early preventive care.

Keywords : Cardiometabolic disease, depressive symptoms, unctional disability, middle-aged and older adults



Interplay of Mental Health, Risk Behaviors, and Socioeconomic Factors in Drug Use Among Korean Adolescents: A Nationally Representative Study Using KYRBS 2022–2024

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Purpose : This study aimed to examine the associations between sociodemographic characteristics, mental health factors, and risk behaviors and lifetime drug use among Korean adolescents using nationally representative survey data.

Methods : This secondary analysis used pooled cross-sectional data from the Korea Youth Risk Behavior Survey conducted from 2022 to 2024. A total of 159,383 adolescents were included. Sociodemographic characteristics, mental health variables, and health-risk behaviors were assessed using self-reported questionnaires. Descriptive statistics, chi-square tests, and multivariate logistic regression analyses were performed to identify factors associated with lifetime drug use.

Results : Among the participants, 2,408 adolescents reported lifetime drug use. Female sex, middle school age, low economic status, living without family or siblings, and multicultural family status were significantly associated with lifetime drug use. Mental health factors including high perceived stress, anxiety, sadness or despair, and suicide attempts were also significantly associated with higher odds of drug use. In addition, several risk behaviors, including heavy drinking, lifetime smoking, heated tobacco use, sexual intercourse experience, and violence exposure, showed significant associations with lifetime drug use. Violence exposure and suicide attempts demonstrated particularly strong associations.

Conclusions : Mental health vulnerabilities and multiple risk behaviors were significantly associated with lifetime drug use among Korean adolescents. Adolescents experiencing anxiety, emotional distress, social disadvantage, or engagement in other high-risk behaviors may be particularly vulnerable to substance use. These findings underscore the need for a multifaceted prevention framework integrating mental health promotion, early psychosocial risk screening, and concurrent prevention of high-risk behaviors.

Keywords : Adolescent; Mental health; Risk behavior; Substance use



Experiences of Non-Suicidal Self-Injury in Early Adulthood

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Purpose : This study aimed to describe the essential structure and meaning of the experiences of individuals who first engaged in non-suicidal self-injury (NSSI) during early adulthood, applying Colaizzi's (1978) phenomenological method.

Methods : Participants included seven adults (five women, two men) aged 19 to 39 who first experienced NSSI during early adulthood, selected via purposive sampling. Data were collected from July 2025 to January 2026 through one to two in-depth interviews per participant. Data were analyzed following Colaizzi's (1978) framework, and the trustworthiness of the study was established based on member checking and Lincoln and Guba's (1985) criteria.

Results : A total of 131 significant statements were extracted, which were integrated into 25 formulated meanings, six themes, and three theme clusters: "Pain that began unnoticed and was expressed through the body," "A self that shut out others and isolated itself," and "Agentic effort toward breaking free and seeking help." Self-injury typically began unintentionally from an accidental wound and was recognized belatedly through others or external information. Uncontrollable negative emotions were released through physical actions. Fearing negative perceptions, participants concealed the act and withdrew from communication. Severe shame prevented them from disclosing their self-injury, fostering a deep sadness over enduring their struggles alone. Eventually, participants confronted the futility of self-injury as merely temporary relief and voluntarily pursued cessation. This desperate striving to break free was accompanied by a strong desire to be accepted unconditionally by a trusted individual.

Conclusions : By elucidating the essential structure of NSSI experiences among individuals in early adulthood, this study provides a foundation for comprehensive assessment and non-judgmental nursing approaches in clinical and community mental health practice. Additionally, these findings can inform the development of specialized assessment tools and educational materials.

Keywords : Colaizzi's method, Early adulthood, Non-suicidal self-injury (NSSI), Phenomenology



Effect of Functional Disability, Social Support, and Recovery Orientation on Quality of Life among Users of Community-Based Housing Services for People with Mental Illness

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Purpose : Community-based housing services play an important role in promoting recovery and independent living among individuals with mental illness. This study aimed to identify factors associated with quality of life by examining the effects of functional disability, social support, and recovery orientation among individuals receiving Independent Living Housing and Supported Housing services.

Methods : A cross-sectional descriptive correlational study was conducted with 106 adults with mental illness residing in independent living housing or supported housing in Seoul, South Korea. Data were collected between March and May 2026 using structured questionnaires. Functional disability, social support, recovery orientation, and quality of life were assessed using validated instruments. Data were analyzed using descriptive statistics, Pearson's correlation coefficients, and multiple regression analyses.

Results : Functional disability was negatively correlated with quality of life ($r = -.34, p < .001$), whereas social support ($r = .54, p < .001$) and recovery orientation ($r = .75, p < .001$) were positively correlated with quality of life. Functional disability was negatively associated with recovery orientation ($r = -.24, p = .014$), while social support was positively associated with recovery orientation ($r = .66, p < .001$). Multiple regression analysis identified recovery orientation ($\beta = .63, p < .001$) and functional disability ($\beta = -.17, p = .013$) as significant factors associated with quality of life. The final model explained 58% of the variance in quality of life (adjusted $R^2 = .58$).

Conclusions : Recovery orientation and functional disability were identified as important factors associated with quality of life among individuals with mental illness receiving community-based housing services. Strengthening recovery orientation and functional abilities should be considered an essential component of recovery-oriented housing services to improve quality of life.

Keywords : Functional disability; Mental illness; Quality of life; Recovery orientation; Social support



An Embodied Account of Psychiatric Restraint: A Merleau-Pontian Philosophical Inquiry

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Purpose : Psychiatric restraint is commonly framed as a safety-oriented intervention that temporarily limits dangerous movement, risking treating the patient primarily as an objective body. This philosophical inquiry aimed to develop a Merleau-Pontian account of psychiatric restraint through the interconnected concepts of body schema, sedimentation, and intercorporeality.

Methods : Utilizing a theoretical and phenomenological approach, this inquiry drew critically on Maurice Merleau-Ponty's philosophy of embodiment. The concepts of body schema, sedimentation, and intercorporeality were applied to analyze how mechanical restraint is structurally undergone by the patient's lived body as the subject of perception and action.

Results : The inquiry argued, first, that mechanical restraint forcibly uncouples bodily intention from possible action, disrupting the lived body's prereflective field of "I can." Second, coercive experience persists beyond explicit recollection as a sedimented bodily orientation conditioning subsequent perception; clinical configurations—including touch, proximity, spatial enclosure, and staff approach—acquire significance inflected by coercion. Third, because bodily orientation is relational, restraint alters the intercorporeal field, meaning the caregiver's body may be anticipated simultaneously as a source of care and renewed coercion.

Conclusions : Recovery after restraint cannot be reduced to physical release or symptom stabilisation. Psychiatric nursing should attend to the reopening of bodily possibilities through relational and institutional practices that preserve agency, distance, movement, refusal, and embodied trust.

Keywords : Body schema; Intercorporeality; Psychiatric nursing; Restraint



Group Home Experiences among Socially Withdrawn and Isolated Young Adults: A Narrative Inquiry

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Purpose : To explore the meaning of group home experiences among socially withdrawn and isolated young adults through their life narratives.

Methods : Using Clandinin and Connelly's narrative inquiry methodology, three in-depth interviews were conducted with each of four young adults who had completed a four-week group home residence between October and November 2025. Interviews were conducted face-to-face or via Zoom between April and June 2026 to retrospectively explore participants' experiences. Data were analyzed within the three-dimensional narrative inquiry space of temporality, sociality, and place, followed by across-case analysis to identify themes shared across the narratives.

Results : Four themes ran across participants' narratives. First, cumulative adversity in family and school relationships preceded prolonged social withdrawal, and re-engagement was typically triggered by incidental contact rather than a deliberate decision. Second, the home was consistently narrated as a place where rest was impossible, whereas the group home became, often for the first time, a place they could call their own, marked by both anticipation and conflict. Third, conflicts within the group home repeatedly functioned as catalysts for emotional expression and self-reflection, while staff and counselors served as stable relational anchors throughout the experience. Fourth, although peer relationships were reconfigured rather than sustained after the program ended, participants ultimately reconstructed their relationship with themselves, reflected in greater self-expression, self-efficacy, and self-acceptance.

Conclusions : For socially withdrawn and isolated young adults, group home experiences functioned not as the endpoint of relational belonging but as a transitional relational space in which new roles and opportunities, together with relational support, enabled participants to renegotiate their relationship with themselves. Mental health nursing should support not only interpersonal connectedness but also the self-relational dimension of recovery that develops through such experiences.

Keywords : Social withdrawal, Group homes, self-relationship, Narrative inquiry



Factors Related to Suicidal Ideation in Middle-Aged Adults in Korea

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Purpose : Intentional self-harm (suicide) is one of the leading causes of death among middle-aged adults in Korea. Suicidal ideation, which precedes suicide, serves as a key indicator for predicting suicide. The purpose of this study was to examine the status of suicidal ideation among middle-aged adults using the 2023 Korea Health Panel data and to provide a baseline for developing suicide prevention strategies by analyzing related factors.

Methods : The 2023 Korea Health Panel data, collected from March to July 2023 by the Korea Institute for Health and Social Affairs and the National Health Insurance Service, were analyzed using descriptive statistics, chi-square tests, and multiple logistic regression with SPSS 26.0 program. The study subjects included 2,315 middle-aged adults who responded to a question regarding their experience of suicidal ideation over the past year.

Results : The rate of suicidal ideation among middle-aged adults in Korea was 1.9%. Among middle-aged adults, the risk of suicidal ideation was 9.78 times higher for those with depression (CI = 3.70-25.89, $p < .001$), 5.18 times higher for those with anxiety (CI = 1.96-13.70, $p = .001$), and 4.06 times higher for those with unmet healthcare needs (CI = 1.77-9.26, $p = .001$) compared to their respective counterparts.

Conclusions : Healthcare providers should consider depression, anxiety, and unmet healthcare needs when developing targeted suicide prevention programs for middle-aged adults in Korea.

Keywords : Korea, Middle-aged adults, Suicidal ideation



Factors Associated with Health-Related Quality of Life in Female Second Baby Boomers in Korea

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Purpose : Second baby boomers, who require social attention, account for approximately 18.6% of the entire population in Korea. It is predicted that these second baby boomers will begin reaching retirement age from 2024. Female second baby boomers are expected to experience a significant impact on their health-related quality of life (HRQoL) as they approach retirement. The purpose of this study was to measure HRQoL and investigate the factors associated with HRQoL among female second baby boomers in Korea using the 2023 Korea Health Panel data.

Methods : The 2023 Korea Health Panel data were collected from March to July 2023 by the Korea Institute for Health and Social Affairs and the National Health Insurance Service. Data were analyzed using descriptive statistics, t-tests, ANOVA, and multiple linear regression with the SPSS 26.0 program. The study participants included 816 female second baby boomers who responded to questions regarding their HRQoL.

Results : The mean HRQoL score of female second baby boomers in Korea was 0.97 ± 0.59 . The factors significantly associated with HRQoL were poor self-rated health status ($\beta = -0.41, p < .001$), fair self-rated health status ($\beta = -0.11, p = .004$), a lack of economic activity ($\beta = -0.14, p < .001$), anxiety ($\beta = -0.14, p < .001$), bedridden experience ($\beta = -0.10, p = .003$), unmet healthcare needs ($\beta = -0.08, p = .022$), and chronic illness ($\beta = -0.07, p = .048$). These variables explained 28.8% of the total variance in the HRQoL of female second baby boomers in Korea.

Conclusions : Healthcare providers and public health policymakers should consider self-rated health status, economic activity, anxiety, bedridden experience, unmet healthcare needs, and chronic illness when designing targeted programs to improve the HRQoL of female second baby boomers in Korea.

Keywords : Female, Korea, Quality of life, Second baby boomers



Learning Experiences of Children with Borderline Intellectual Functioning: Shining at Their Own Pace

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Purpose : Children with borderline intellectual functioning (BIF; IQ 71–84) do not meet the diagnostic criteria for intellectual disability but frequently experience cognitive, emotional, and learning difficulties. Despite affecting an estimated 10–15% of children, most BIF children are educated in mainstream schools, yet little is known about how they experience learning and the challenges they face in their daily school lives. This study explored the learning experiences of children with BIF from their own perspectives and within their everyday lives.

Methods : A qualitative content analysis was conducted. Thirteen children with BIF participated in individual in-depth interviews between December 2025 and April 2026. All participants were formally enrolled in mainstream schools but received full-time education at a specialized educational center for BIF children through Korea's entrusted education system. Data were analyzed inductively following the approach of Graneheim and Lundman.

Results : Five categories emerged: Left Behind in Mainstream Schools, reflecting academic struggles and social exclusion; Finding Belonging Among Peers with Similar Experiences, describing how learning alongside other BIF children fostered a sense of belonging, renewed confidence, and motivation to learn; Navigating Academic and Everyday Challenges, illustrating persistent difficulties in both schoolwork and daily living, such as using public transportation and managing money; Learning Through Repetition and Real-Life Experiences, highlighting preferences for individualized, repetitive, and experiential learning that fostered confidence; and Growing Together, Shining Together, describing the sense of achievement, pride, and belonging developed through shared experiences with peers who also had BIF. These categories converged into the overarching theme, "Shining at Their Own Pace", illustrating how children pursued meaningful growth and achievement despite cognitive challenges.

Conclusions : The experiences of children with BIF extend beyond academic difficulties to encompass emotional and social challenges. These findings highlight the need for educational and welfare systems that provide individualized, pace-adjusted, and experience-based learning opportunities to support their long-term development.

Keywords : Child, Intellectual Disability, Learning, Qualitative Research



Associations of Smartphone Use and Overdependence with Suicide-Related Behaviors among Korean Adolescents

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Purpose : This study examined the associations of smartphone use duration and smartphone overdependence with suicidal ideation, suicide planning, and suicide attempts among Korean adolescents, before and after adjustment for mental health factors.

Methods : Data were obtained from the 2023 Korea Youth Risk Behavior Survey, including 47,482 middle and high school students with complete data. Suicide-related outcomes were self-reported experiences during the previous 12 months. Daily smartphone use time was classified as less than 4 hours or 4 hours or more, and smartphone overdependence as normal, potential risk, or high risk. Complex-samples logistic regression accounting for stratification, clustering, and sampling weights was used to estimate adjusted odds ratios (aORs), with sequential adjustment for sociodemographic characteristics, health behaviors, smartphone-related factors, and mental health factors.

Results : The weighted prevalence of suicidal ideation, suicide planning, and suicide attempts was 12.9%, 4.7%, and 2.7%, respectively. Before adjustment for mental health factors, both potential-risk and high-risk overdependence were significantly associated with all three outcomes (aOR range 1.28–1.62 and 2.50–2.71, respectively). After further adjustment for perceived stress, depression, loneliness, and anxiety, these associations were substantially attenuated: potential-risk overdependence remained significant only for suicidal ideation (aOR 1.12), and high-risk overdependence was no longer significant for any outcome. Smartphone use of 4 hours or more per day remained significant only for suicide attempts (aOR 1.17). In contrast, depression (aOR 3.15–3.97) and severe generalized anxiety (aOR 4.79–5.55) were strongly and consistently associated with all three outcomes after full adjustment.

Conclusions : Associations between smartphone overdependence and suicide-related behaviors were largely attenuated once mental health factors were accounted for, suggesting that they may be substantially explained by co-occurring psychological distress. Adolescent suicide prevention should extend beyond smartphone-use management to include early identification and integrated management of depression, anxiety, stress, loneliness, and violence exposure.

Keywords : Adolescents, Smartphone overdependence, Smartphone use, Suicide-related behaviors



The Impact of Violence Exposure on Burnout among Paramedics: Mediating Role of Post-Traumatic Stress and Moderating Roles of Social Support and Resilience

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Purpose : This study examined whether post-traumatic stress (PTS) mediates the relationship between workplace violence exposure and burnout among paramedics and whether social support and resilience moderate these relationships.

Methods : A cross-sectional descriptive correlational study was conducted among 211 paramedics working in fire station-based emergency medical services under a metropolitan fire headquarters in South Korea. Participants completed self-report questionnaires assessing workplace violence exposure, PTS, burnout, social support, and resilience. Data were analyzed using descriptive statistics, Pearson's correlation analysis, and PROCESS macro (Model 8) while controlling for demographic and occupational characteristics.

Results : Violence exposure had significant direct effects on both PTS and burnout, and PTS partially mediated the relationship between violence exposure and burnout. Social support significantly moderated both the pathway from violence exposure to PTS and the direct pathway from violence exposure to burnout, indicating an early protective effect against trauma development. In contrast, resilience significantly moderated only the direct pathway from violence exposure to burnout and did not moderate the violence exposure–PTS pathway.

Conclusions : Violence exposure contributes to burnout both directly and indirectly through PTS among paramedics. Social support appears to protect against burnout by buffering the early development of trauma symptoms, whereas resilience primarily reduces burnout after violence exposure regardless of trauma severity. These findings highlight the importance of implementing both early post-incident psychological support and resilience-building interventions to prevent burnout among paramedics.

Keywords : burnout, paramedics, resilience, social support



Associations of Secondary Traumatic Stress and Emotional Labor with Suicidal Ideation among Emergency Dispatch Personnel in South Korea

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Purpose : This study examined the associations of secondary traumatic stress and emotional labor with suicidal ideation among 119 emergency dispatch personnel in South Korea. Specifically, the study investigated whether depression mediated these associations and whether perceived social support moderated the relationship between depression and suicidal ideation.

Methods : A cross-sectional descriptive correlational study was conducted among 211 personnel working in 119 emergency dispatch centers in Busan and Gyeongnam, South Korea. Data were collected using a self-administered online questionnaire between May and June 2026. Secondary traumatic stress, emotional labor, depression, suicidal ideation, and perceived social support were measured using standardized Korean instruments. Data were analyzed using descriptive statistics, correlation analyses, and conditional process analysis with bootstrapping to examine mediation and moderated mediation effects while controlling for demographic characteristics.

Results : Secondary traumatic stress was significantly associated with higher levels of depression, whereas emotional labor did not independently predict depression after adjustment for secondary traumatic stress. Depression was significantly associated with suicidal ideation. Perceived social support significantly moderated the association between depression and suicidal ideation, indicating that the relationship became weaker as perceived social support increased. In addition, the indirect association between secondary traumatic stress and suicidal ideation through depression was significantly moderated by perceived social support. Exploratory analyses demonstrated similar buffering patterns across family support, friend support, and support from significant others.

Conclusions : Secondary traumatic stress appears to be a more important psychological correlate of suicidal ideation than emotional labor among 119 emergency dispatch personnel. Depression plays a central role in this relationship, while perceived social support weakens the association between depression and suicidal ideation. These findings suggest that routine screening for secondary traumatic stress and depression, together with interventions that strengthen social support, may contribute to suicide prevention among emergency dispatch personnel.

Keywords : Depression, Secondary Traumatic Stress, Social Support, Suicidal Ideation



Nurse-led lifestyle interventions for the prevention and management of metabolic syndrome in people with severe mental illness: A systematic review

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Purpose : People with severe mental illness develop metabolic conditions at markedly higher rates than the general population, contributing to premature mortality. Nurses are well placed to deliver lifestyle interventions, yet the evidence for nurse-led approaches has not been consolidated. This review evaluates the effectiveness of nurse-led lifestyle interventions for the prevention and management of metabolic syndrome in people with severe mental illness.

Methods : This systematic review followed the PRISMA 2020 guidelines and was prospectively registered with PROSPERO (CRD420251162944). Six databases (CENTRAL, CINAHL, Embase, Ovid MEDLINE, PsycInfo, and PubMed) were searched from inception to 31 October 2025, supplemented by citation searching. Eligible studies were peer-reviewed, English-language randomized controlled trials and quasi-experimental studies of nurse-led lifestyle interventions addressing at least one of six lifestyle medicine domains in adults with severe mental illness and reporting metabolic syndrome outcomes. Two reviewers independently screened studies, extracted data, and assessed risk of bias.

Results : Of 2,943 records, seventeen studies (eighteen articles) were included, with 1,576 participants across ten countries: eight randomized controlled trials, eight quasi-experimental studies, and one mixed-methods study, mostly in community or outpatient settings. All studies addressed nutrition and sixteen addressed physical activity, whereas substance avoidance (n=8), sleep (n=7), stress management (n=3) and social connection (n=0) were seldom targeted. Effects on all five metabolic syndrome components were inconsistent, and no study improved all five. Where between-group comparisons were made, improvements were found in only a minority of studies, and two studies.

Conclusions : This review synthesized nurse-led lifestyle interventions for people with severe mental illness within the framework of the six lifestyle medicine domains and the five metabolic syndrome components. The most consistent benefit was a reduction in body weight and BMI; whether it extends to metabolic syndrome itself has yet to be established. This uncertainty reflects inconsistent findings, uncontrolled designs, and incomplete measurement of the five components.

Keywords : lifestyle intervention, metabolic syndrome, nurse-led care, severe mental illness



Mediating Role of Depression in the Relationship Between Stress, Sleep Duration, and Health-Related Quality of Life in Older Adults

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Purpose : Stress, sleep duration, depression, and health-related quality of life (HRQoL) have emerged as important health issues among older adults in Korea. This study examined the effects of stress and sleep duration on HRQoL in Korean adults aged 65 years and older, and tested the mediating role of depression in this relationship.

Methods : This secondary analysis used data from the 2024 Korea National Health and Nutrition Examination Survey (KNHANES), 9th cycle, 3rd year. A total of 1,677 community-dwelling adults aged ≥ 65 years with complete data on perceived stress, sleep duration, depression, and HRQoL were included in the analysis. To account for the complex sampling design, Complex Samples General Linear Models incorporating stratification, clustering, and sampling weights were applied. After adjusting for sex, age, education level, household income, presence of chronic disease, and self-rated health, the effects of stress and mean sleep duration on depression, the effects of stress and sleep duration on quality of life without depression included in the model, and the effects of stress and depression on HRQoL (EQ-5D index) with depression included were analyzed sequentially to evaluate the mediating effect of depression.

Results : Stress significantly increased depression and reduced health-related quality of life (EQ-5D), and depression partially mediated the relationship between stress and quality of life. In contrast, mean sleep duration was not significantly associated with either depression or quality of life, and no mediating effect was observed.

Conclusions : Stress in older adults was found to partially reduce health-related quality of life through depression, while also exerting a direct negative effect on quality of life even after controlling for depression. In contrast, mean sleep duration showed no significant association with either depression or HRQoL in this study, indicating that sleep duration did not function as a significant mediator or independent explanatory factor in the relationship between stress and quality of life.

Keywords : Depression; Health-related quality of life; Older adults; Stress



Distinct Mental Health Risk Profiles Among Firefighters Based on PTSD, Sleep Quality, and Alcohol Use: A Latent Profile Analysis

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Purpose : This study aimed to identify latent mental health risk profiles among firefighters based on posttraumatic stress disorder (PTSD), sleep quality, and alcohol use, and to compare demographic, occupational, and psychosocial characteristics across the identified profiles.

Methods : A secondary analysis was conducted using an existing mental health survey dataset of 600 firefighters in Busan, South Korea. Latent profile analysis (LPA) was performed using PTSD symptoms, sleep quality, and alcohol use as profile indicators. Differences in demographic characteristics, occupational characteristics, perceived social support, and drinking motives were compared across the identified profiles.

Results : A four-profile solution was selected as the optimal model. The identified profiles consisted of a low-risk group (74.5%), a PTSD-risk group (7.3%), a multiple-risk group characterized by high PTSD symptoms, problematic alcohol use, and poor sleep quality (7.5%), and a sleep-risk group characterized by severe sleep disturbance despite relatively low PTSD symptoms (10.7%). Notably, the identification of a distinct sleep-risk group highlighted the heterogeneity of firefighters' mental health profiles, suggesting that PTSD severity alone may not fully capture mental health risk among firefighters. Significant differences were observed among the four profiles in demographic characteristics, occupational characteristics, perceived social support, and drinking motives.

Conclusions : Firefighters exhibited heterogeneous mental health risk profiles that could not be adequately explained using conventional variable-centered approaches. These findings demonstrate the value of a person-centered approach in identifying distinct mental health subgroups with different intervention needs. Profile-based assessment may facilitate the development of tailored mental health interventions that address PTSD symptoms, sleep quality, alcohol use, and psychosocial characteristics to promote firefighters' mental health.

Keywords : Firefighters, Latent profile analysis, Mental health, Sleep quality



The Lived Work Experiences of Emergency Dispatch Center Personnel in South Korea: A Descriptive Phenomenological Study

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Purpose : Emergency dispatch center personnel serve as the first point of contact during emergencies by receiving calls, interpreting rapidly evolving situations, and coordinating emergency responses. Despite their critical role, their occupational experiences have received relatively little research attention. A nationwide mental health survey of Korean firefighters identified emergency dispatch personnel as the occupational group with the highest prevalence of depression, suicidal ideation, and sleep problems. This study aimed to describe the essence of the lived work experiences of emergency dispatch center personnel in South Korea.

Methods : A descriptive phenomenological study was conducted through individual in-depth interviews with 14 personnel working in Korean fire and emergency dispatch centers between June and July 2026. Semi-structured interviews addressed difficult work experiences, the effects of work on health and daily life, coping, professional meaning, and perceived support needs. Data were analyzed using Giorgi's descriptive phenomenological method.

Results : Preliminary analysis suggested that the essential structure of participants' experiences was carrying responsibility for unseen lives amid uncertainty and incomplete closure. This structure comprised four interrelated constituents: interpreting life-threatening situations from fragmented verbal and auditory cues; making consequential decisions without directly witnessing the scene; moving immediately to the next emergency without knowing the outcome of the previous call; and enduring an often-unrecognized psychological burden while sustaining work through professional duty and meaning. Participants experienced particular distress when calls ended without confirmation of whether the caller had survived or received appropriate help. The absence of visible outcomes did not diminish their sense of responsibility; rather, unresolved uncertainty often persisted beyond the end of the call and into their daily lives.

Conclusions : Emergency dispatch center personnel occupy an invisible frontline where responsibility for life is carried without direct access to the scene or its outcome. Their distinctive experiences should be reflected in occupation-specific mental health interventions, post-call recovery systems, and organizational recognition and support.

Keywords : Emergency dispatch, Mental health, Phenomenology, Qualitative research



Psychometric Properties of the Posttraumatic Growth Inventory: A Systematic Review Based on the COSMIN Guideline

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Purpose : Posttraumatic growth refers to positive, enduring psychological changes after trauma, objectively measured via the Posttraumatic Growth Inventory (PTGI). This systematic review synthesizes the literature on the measurement properties of the original PTGI and its derived versions using COSMIN standards.

Methods : Studies evaluating the measurement properties of the PTGI published up to July 2026 were identified across eight electronic databases (including PubMed and Embase) and manual searches. Methodological quality, measurement properties, and overall certainty of evidence were synthesized using COSMIN standards and a modified GRADE framework.

Results : The review synthesized 123 studies evaluating 9 outcome measurement instruments across five major versions (PTGI, PTGI-SF, PTGI-X, PTGI-C, PTGI-X-SF) and four regional variants. Convergent and known-groups validity met established criteria across all versions with High evidence certainty. Measurement invariance demonstrated High certainty for PTGI, PTGI-SF, and PTGI-C. Structural validity certainty varied across measures: High for PTGI-C and PTGI-X; Moderate for PTGI-SF; and Low for original PTGI and PTGI-X-SF. Content validity was supported across versions (Moderate-to-Low certainty). Notably, PTGI-C successfully met all COSMIN criteria for full recommendation, earning Category A classification through positive ratings in content validity (+, Moderate certainty) and internal consistency (+, Low certainty), while other evaluated versions were categorized as Category B.

Conclusions : Existing PTGI versions offer a valuable foundation with strong convergent validity and structural stability across diverse populations. Among these, PTGI-C represents the most comprehensively validated instrument, satisfying all COSMIN criteria for full recommendation (Category A). Therefore, PTGI-C is highlighted as a highly reliable primary option for clinical and research applications, while other versions provide a promising baseline for future re-validation and enhancement in target populations.

Keywords : COSMIN, Posttraumatic growth, Posttraumatic Growth Inventory, Systematic review

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Physical Activity Interventions and Depressive Symptoms in Children and Adolescents: A Preliminary Updated Systematic Review and Meta-Analysis

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Purpose : To present preliminary findings from an update of a 2023 systematic review and meta-analysis examining the effect of physical activity interventions on depressive symptoms in children and adolescents, incorporating trials published after the original review's search cutoff.

Methods : A preliminary search of PubMed was conducted for randomized and non-randomized trials published from March 2022 onward, using search terms identical to those of the original review. Eligible studies enrolled children and adolescents younger than nineteen years and tested an aerobic-type physical activity intervention against a non-exercise comparator, measuring depressive symptoms with a validated scale. Three newly eligible randomized trials were identified and combined with the twenty-one studies from the original review using a random effects model. Effect sizes were expressed as standardized mean differences. Search and screening were supported by an artificial intelligence assistant (Claude, Anthropic); all screening decisions were independently verified by the authors.

Results : The three new trials enrolled a combined 163 participants and showed a large reduction in depressive symptoms (standardized mean difference, -1.23; 95% confidence interval, -2.26 to -0.21). Combining these with the original twenty-one studies (24 studies in total, 2,604 participants) yielded a moderate overall effect (standardized mean difference, -0.42; 95% confidence interval, -0.63 to -0.20), with substantial heterogeneity across studies. This combined estimate was numerically larger than the original review's estimate of -0.29. The overall certainty of this evidence remains very low, reflecting downgrades for risk of bias, inconsistency, and suspected publication bias.

Conclusions : These preliminary findings support and strengthen previous evidence that physical activity interventions reduce depressive symptoms in children and adolescents, with a numerically larger effect after incorporating newly published trials. A full update spanning multiple databases, with reassessed risk of bias for non-randomized studies, is underway to confirm these preliminary findings.

Keywords : Adolescents, Depression, Physical Activity, Systematic Review



Preliminary Analysis of Predictors of Occupational Burnout Among Nurses in Northern Taiwan

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Purpose : Occupational burnout among nurses has become a critical issue affecting workforce retention, quality of care, and patient safety. Identifying factors associated with burnout is essential for developing effective prevention strategies. This study aimed to identify preliminary predictors of occupational burnout among clinical nurses in northern Taiwan.

Methods : A cross-sectional survey was conducted among clinical nurses from hospitals in northern Taiwan. Data collection is ongoing. The present abstract reports a preliminary analysis of the first 150 completed questionnaires. Variables included demographic characteristics (e.g., years of nursing experience), job control, nursing job stress, and occupational burnout. Occupational burnout was measured using the Copenhagen Burnout Inventory (CBI), nursing job stress was assessed using the Nursing Stress Scale (NSS), and job control was evaluated using a validated job control questionnaire. Descriptive statistics, correlation analyses, and multiple linear regression were performed to examine factors associated with occupational burnout.

Results : Among the first 150 participants, occupational burnout demonstrated significant correlations with nursing job stress, job control, and years of nursing experience. Preliminary regression analyses suggested that higher nursing job stress, lower job control, and shorter nursing experience were associated with increased occupational burnout. These variables explained a substantial proportion of the variance in burnout.

Conclusions : Preliminary findings indicate that occupational burnout among nurses is associated with both work-related and individual factors, particularly nursing job stress and job control. Completion of data collection and further analyses will provide more robust evidence for developing targeted interventions to reduce burnout and promote nurses' psychological well-being.

Keywords : Occupational burnout; Nursing job stress; Job control



Non-Pharmacological Interventions for Depression in Military Populations: A Systematic Review of Randomized Controlled Trials

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Purpose : Depression is one of the most prevalent mental health conditions among military populations and is associated with reduced operational readiness and poorer quality of life. Although previous systematic reviews have primarily focused on post-traumatic stress disorder (PTSD), synthesized evidence regarding non-pharmacological interventions for depression remains limited. This review aimed to systematically examine the characteristics and effectiveness of non-pharmacological interventions for depression in military populations.

Methods : A systematic review was conducted in accordance with the PRISMA guidelines. Five electronic databases (CINAHL, Cochrane Library, EMBASE, PsycINFO, and PubMed) were searched, yielding 5,415 records. After removing 1,553 duplicates, 3,862 titles and abstracts were screened. Fifty-five full-text articles were assessed for eligibility, and 12 randomized controlled trials evaluating non-pharmacological interventions for depression in military populations were included.

Results : All included studies were conducted in the United States. Participants had a sample size-weighted mean age of 43.1 years, and 79.7% were male. Cognitive behavioral therapy (CBT) was the predominant intervention (9 of 12 studies), typically delivered over a mean of 8.9 sessions across approximately 10.7 weeks. Among six studies comparing CBT-based interventions with inactive controls (wait-list, usual care, or enhanced usual care), five reported significantly greater reductions in depressive symptoms in the intervention group. Three studies comparing CBT-based interventions with active psychological treatments reported no significant between-group differences; however, all demonstrated significant within-group improvements following treatment.

Conclusions : The evidence synthesized in this review supports CBT-based interventions as the most consistently effective non-pharmacological approach for reducing depressive symptoms in military populations, particularly compared with inactive control conditions. Comparable findings from studies using active psychological comparators suggest that several structured psychotherapeutic interventions may provide similar clinical benefits. Further research involving diverse military populations and healthcare systems is needed to strengthen the generalizability of the evidence and support the development of culturally appropriate mental health interventions.

Keywords : Cognitive behavioral therapy; Depression; Military populations; Systematic review



Development and Effects of a Generative Artificial Intelligence-Based Recovery-Oriented Program for Psychiatric Inpatients: A Quasi-Experimental Study

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Purpose : Recovery-oriented mental health care emphasizes living a meaningful life despite persistent symptoms. Recovery-oriented interventions are also needed in psychiatric inpatient settings, and generative artificial intelligence (AI) may facilitate such care. This study developed a generative AI-based recovery-oriented program for psychiatric inpatients and evaluated its effects on personal recovery, internalized stigma, and depression.

Methods : A non-randomized controlled pretest-posttest design was used with 62 participants (experimental group, n=29; control group, n=33). The intervention comprised 6 weekly 1-hour sessions based on the CHIME framework. The program was developed through a literature review and pilot-testing and was refined based on evaluations by eight experts using a Content Validity Index threshold of 0.75. To address participants' difficulties with emotional expression and verbal communication, ChatGPT, Google Gemini and Runway were used to create scenarios, images, and videos based on interview data. All AI-generated content was reviewed and verified by the researchers before implementation. Data was analyzed using descriptive statistics, chi-squared tests, independent t-tests and analysis of covariance adjusted for baseline scores.

Results : After adjustment for baseline scores, the experimental group demonstrated a greater improvement in personal recovery than the control group, although the between-group difference did not reach statistical significance ($\eta^2_p=.063, p=.051$). The experimental group also showed nonsignificant reductions in internalized stigma ($\eta^2_p=.050, p=.084$) and depression ($\eta^2_p=.019, p=.294$). The effect size was medium for personal recovery and approached a medium magnitude for internalized stigma. In contrast, personal recovery decreased in control group, while internalized stigma and depression remained unchanged.

Conclusions : The generative AI-based recovery-oriented program showed promising trends toward enhancing personal recovery and reducing internalized stigma but had no significant effect on depression. Future large-scale randomized controlled trials are needed to establish clinical efficacy.

Keywords : Generative Artificial Intelligence; Hospitals, Psychiatric; Inpatients; Mental Health Recovery



Digital Health–Based Counseling Interventions for Adults with Substance Use Disorders: A Systematic Review

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Purpose : Substance use disorder (SUD) is a growing global health concern, and integrative care combining pharmacological treatment with counseling is increasingly emphasized. This systematic review aimed to identify digital health–based counseling interventions for patients with SUD, evaluate their effectiveness, and clarify the role of nurses in addiction care

Methods : This review followed PRISMA 2020 guidelines and was prospectively registered in PROSPERO (CRD42025626561). Five databases (PubMed, CINAHL, Embase, Web of Science, and PsycInfo) were searched on August 3, 2024, supplemented by ResearchRabbit and manual searching. Eligible studies delivered digitally mediated counseling to adults (≥ 18 years) with illicit drug–related SUD. Randomized and non-randomized studies were included; alcohol- or tobacco-only studies and grey literature were excluded. Title and abstract screening achieved 80.6% agreement, with disagreements resolved by consensus; final inclusion was based on full-text review. The methodological quality of included studies was appraised by RoB 2.0 and ROBINS-I.

Results : Eleven studies were included. Digital counseling was delivered to samples of 37–667 participants through telephone, web-based videoconferencing, text chat, interactive voice response systems, and avatar-based virtual environments. Interventions lasted 4 weeks to 9 months and were mostly delivered by trained counselors using motivational interviewing, cognitive behavioral therapy, or continuing-care approaches. Target substances included cannabis, stimulants, opioids, alcohol, and multiple substances. Outcomes included substance use frequency or quantity, abstinence, dependence severity, treatment engagement, satisfaction, and therapeutic alliance. Several studies reported short-term reductions in substance use, dependence symptoms, or relapse, whereas others found no significant advantage over face-to-face counseling, usual care, or less intensive digital conditions.

Conclusions : Digital health–based counseling is a feasible alternative or adjunct to conventional SUD counseling, but evidence for long-term effectiveness and for opioid and stimulant use disorders remains limited. The absence of nurse-led interventions highlights opportunities for nurses to expand their role in delivering and coordinating digital addiction care.

Keywords : Digital Counseling; Digital Health-based Intervention; Substance Use Disorders



Emotion dysregulation and professional help-seeking attitudes among Generation Z: The moderated mediating role of maladaptive self-focused attention and health locus of control

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Purpose : Despite experiencing considerable emotional distress, young adults in Generation Z often avoid professional psychological help due to a strong preference for digital, non-face-to-face communication. This study examined how emotion dysregulation is associated with professional help-seeking attitudes, focusing on the moderated mediating roles of maladaptive self-focused attention and health locus of control.

Methods : In this descriptive cross-sectional study, data were collected from 148 South Korean young adults aged 19 to 29 through self-reported questionnaires. Data were analyzed using IBM SPSS Statistics 31.0 and Hayes' PROCESS Macro v5.0. Pearson's correlation analyses were conducted, and PROCESS Model 14 was performed controlling for sociodemographic covariates, with HC4 heteroscedasticity-consistent standard errors. Conditional indirect effects were tested with 5,000 bootstrap samples (95% CI).

Results : Emotion dysregulation (EDR) was positively associated with maladaptive self-focused attention (MSF) ($B=1.75, p<.001$). The interaction between MSF and health locus of control (HLC) significantly predicted professional help-seeking attitudes (PHSA) ($B=.82, t=4.54, p<.001$), contributing a 19.0% increase in explained variance ($\Delta R^2=.19, F=20.61, p<.001$). The conditional indirect effect of EDR on PHSA via MSF was significantly negative at low HLC (-1 SD; Effect $=-.62$, 95% Boot CI $[-1.04, -0.18]$), non-significant at the mean (Effect $=.01$, 95% Boot CI $[-0.24, 0.26]$), and significantly positive at high HLC ($+1$ SD; Effect $=.65$, 95% Boot CI $[0.36, 0.92]$). The index of moderated mediation was significant (1.43, 95% Boot CI $[0.82, 2.03]$).

Conclusions : When emotion dysregulation sparked maladaptive self-focused attention, Gen Z individuals with weak health locus of control beliefs became less favorable toward professional help, whereas those with strong beliefs became more favorable. Health locus of control may shape whether self-focused distress leads toward or away from professional help. Nursing programs should identify those with weak health control beliefs early and strengthen their trust in professional help.

Keywords : Emotional Regulation; Help-Seeking Behavior; Internal-External Control; Young Adult



Nursing Care of an Older Adult with a History of Multiple Suicide Attempts and Risk of Loneliness: A Case Report from Taiwan

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Background/Introduction : This case report is about the nursing experience of a 92-year-old with a history of multiple suicide attempts. During the patient's hospitalization from June 3, 2025 to June 20, 2025, the author collected data through medical record review, observation, interview, direct care, etc. Aim: This sharing of care experience will help increase clinical medical staff's understanding of similar patient care and potential danger loneliness, risk for adult and older populations.

Design/Methods : A four-major-aspects of physical, psychological, social, and spiritual assessment is applied and conduct a holistic nursing assessment. The patient's health problems are established as: "Risk for loneliness", " Risk for suicide", "Impaired Swallowing", and "Ineffective coping ". The author established a good therapeutic relationship with the patient with a caring, accepting, empathetic, and non-critical attitude, and formulated a nursing plan that was in line with individuality and integrity.

Results and Conclusion : By guiding the patient to be aware of and accept the current situation, the author assisted the patient in finding meaning in life. The suicidal thoughts were improved and coping ability was enhanced. In the end, the patient was discharged home smoothly.

Keywords : Loneliness, Nursing experience, Suicide, Taiwan



Needs Assessment of a Mobile App-Based Post-Traumatic Growth Program for Nurses

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Purpose : This study aimed to identify nurses' needs for a mobile app-based post-traumatic growth program and to explore their perceptions of program content, delivery methods, and expected effects.

Methods : This study employed an explanatory sequential mixed-methods design. Quantitative data were collected from 153 nurses and qualitative data from 20 nurses at a tertiary university hospital in Korea. Nurses' needs for a mobile app-based post-traumatic growth program were assessed using an instrument developed for this study. Data were collected from December 15, 2025, to January 25, 2026. Quantitative data were analyzed using descriptive statistics, and qualitative data through content analysis.

Results : The nurses' mean age was 36.43 years, with mean clinical experience of 12.58 years. Most participants (97.8%) had experienced traumatic or psychologically distressing situations at work, and all recognized the need for a post-traumatic growth program. In the qualitative analysis, all 20 participants reported traumatic experiences at work and perceived the need for a mobile app-based program. Four themes emerged: difficulties associated with traumatic experiences, consequences of traumatic experiences in daily life, coping strategies for trauma, and awareness of post-traumatic growth and the need for mobile app-based programs. Nurses described traumatic patient-care and workplace experiences, leading to emotional exhaustion, helplessness, fear, pressure, and turnover thoughts. Some reported positive changes, including self-directed learning and greater attentiveness. Coping strategies included passive approaches, such as enduring and distancing, and active approaches, such as exercise, music, and social support. Participants expected the program to support emotional regulation, trauma coping, organizational culture, and retention.

Conclusions : The findings provide a basis for developing a mobile app-based post-traumatic growth program tailored to nurses' traumatic work experiences and practical needs. The results may contribute to enhancing nurses' psychological recovery, emotional regulation, and resilience, ultimately improving the quality of nursing care and supporting a healthier organizational culture.

Keywords : Mobile app, nurses, post-traumatic growth, psychological trauma



Development and Randomized Controlled Trial of an Integrated Digital Platform-Based Intervention (HAVEN) for Nurses' Mental Health: Study Protocol

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Purpose : Nurses face elevated mental health risks, yet Korea lacks infrastructure linking risk screening to accessible support suited to shift work. This study aims to develop and evaluate the efficacy of HAVEN (Healing, Awareness, Vitality, Empowerment, Network), an intervention program embedded within an integrated digital platform that supports continuity from screening to intervention, in reducing psychological distress among nurses at risk for mental health problems through a randomized controlled trial.

Methods : The integrated platform was developed as a unified responsive web-based platform. It integrates participant enrollment and consent, the Korean Nurses' Mental Health Cohort Study panel survey conducted within the same project, risk screening, randomization, and intervention delivery. Each step is automatically linked, enabling nurses to move seamlessly from screening to intervention while remaining anonymous. Eligibility for HAVEN is determined based on the first panel survey: nurses screened as being moderate- or high risk are automatically randomized to either HAVEN or a general health-education program, with 106 participants per group. Grounded in acceptance and commitment therapy and mindfulness, HAVEN was developed using the Rapid Prototyping Model and refined through a pilot study. HAVEN comprises four sessions incorporating videos, interactive activities, meditation audio, and journaling. Outcomes are measured at baseline, post-intervention, and 12 weeks later; the primary outcomes are perceived stress, depression, and anxiety. Planned analyses include generalized estimating equations, latent class analysis, and content analysis of text responses.

Results : The integrated platform and HAVEN have been finalized and recruitment will begin following ethics approval and trial registration.

Conclusions : If shown to be effective, HAVEN may contribute to promoting mental health among nurses. By integrating assessment, risk classification, and intervention delivery within a single platform, this approach may support timely screening and intervention while ensuring anonymity, accessibility, and convenience for nurses at risk for mental health problems.

Keywords : Digital health, Mental health, Nurses, Randomized controlled trial



Levels and Relationships of Critical Thinking Disposition, Creative Self-Efficacy, and Academic Inquiry Competency among Second-Year Nursing Students Transitioning to Major Nursing Education

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Purpose : The second year of nursing education marks the transition from foundational courses to major nursing coursework, requiring students to develop critical thinking, creative problem-solving, and academic inquiry competencies. However, few studies have examined the relationships among critical thinking disposition, creative self-efficacy, and academic inquiry competency during this transition. This study aimed to identify the levels of these variables and examine their relationships.

Methods : A descriptive cross-sectional study was conducted among second-year nursing students recruited through convenience sampling. Data were collected using an online survey with validated instruments assessing critical thinking disposition, creative self-efficacy, and academic inquiry competency. Data were analyzed using descriptive statistics, independent t-test, Mann-Whitney U test, and Pearson's correlation coefficients in SPSS version 28.0.

Results : The mean scores were 3.69 ± 0.41 for critical thinking disposition, 3.29 ± 0.68 for creative self-efficacy, and 3.75 ± 0.41 for academic inquiry competency. Male students showed significantly higher critical thinking disposition than female students ($p=.023$), whereas no gender differences were found in creative self-efficacy or academic inquiry competency. Academic inquiry competency was positively correlated with critical thinking disposition ($p<.001$), creative self-efficacy ($p<.001$), and major satisfaction ($p<.001$). Critical thinking disposition and creative self-efficacy were positively correlated with each other and with major satisfaction but negatively correlated with perceived difficulty of major coursework. No significant correlation was found between perceived difficulty of major coursework and academic inquiry competency.

Conclusions : Higher critical thinking disposition and creative self-efficacy were associated with higher academic inquiry competency among second-year nursing students. Educational strategies that strengthen these competencies may help improve academic inquiry competency during the transition to major nursing education.

Keywords : Critical Thinking, Education, Nursing Students, Self Efficacy



A Five-Year Longitudinal Evaluation of a Spiritual Workshop: Enhancing Spiritual Sensitivity and Psychological Resilience among Junior Nursing Students

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Aim(s) : Holistic nursing highlights spiritual care as a core component of patient well-being, yet it remains underrepresented in undergraduate curricula. This study aimed to identify the impact of an annual spiritual workshop on spiritual sensitivity, psychological resilience, and professional identity among junior nursing students.

Methods : This longitudinal observational study involved first- and second-year undergraduate nursing students at Hong Kong Baptist University from 2021 to 2026. The intervention comprised structured, face-to-face spiritual workshops delivered annually, supported by group discussion, creative arts, and guided reflection activities. Academic staff, university and hospital spiritual care leaders served as facilitators. Participant attendance was recorded. Quantitative data were collected via post-activity Likert scale surveys evaluating psychological empowerment and professional identity, and qualitative data were analyzed using thematic content analysis of open-ended reflection responses.

Results : A total of over 300 students participated annually by the final year. The post-workshop survey indicated high levels of psychological empowerment (mean score: 4.7 out of 5) and reinforced professional identity (mean score: 4.6 out of 5). Qualitative analysis revealed that the spiritual workshop fostered personal growth with self-understanding, reduced anxiety, enhanced peer support, and deepened awareness of holistic care and spiritual sensitivity.

Conclusions : The annual spiritual workshop effectively promoted spiritual awareness, psychological resilience, and professional development among junior nursing students. Embedding structured spiritual care initiatives within the curriculum is recommended to bridge existing gaps in holistic nursing education and better prepare future nurses for comprehensive, compassionate practice.

Keywords : Holistic nursing, psychological resilience, spiritual care, undergraduate students



Nursing students' clinical judgment development through CJMM-based concept mapping with ChatGPT-assisted coaching and World Café: a qualitative content analysis of reflective journals

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Purpose : New graduate nurses frequently struggle to recognize and respond to complex clinical situations, and undergraduate programs need innovative, resource-efficient strategies beyond simulation to strengthen clinical judgment. To explore nursing students' learning experiences in case-based learning integrating Clinical Judgment Measurement Model (CJMM)-based concept mapping, ChatGPT-supported self-directed learning, and World Café discussion, and to derive course improvements for clinical judgment education.

Design : A qualitative study using inductive qualitative content analysis, conducted as a quality improvement initiative.

Settings : A four-year nursing program at one university in South Korea.

Participants : Twenty-six of 35 fourth-year students in their final semester (74.3%) consented to the use of their reflective journals.

Methods : Students completed a course using five clinical scenarios, each comprising team-based CJMM concept mapping, ChatGPT-assisted self-directed learning with an SBAR-based prompt template, a three-round World Café, and reflective writing. Reflective journals were analyzed using three-phase inductive content analysis.

Results : Twelve sub-categories and four main categories were derived: (1) concept mapping: structuring clinical judgment and gradual growth; (2) ChatGPT activity: expanding thinking through a virtual coach; (3) World Café activity: broadening clinical perspectives through interaction; and (4) course operation: areas needing improvement. Concept mapping promoted metacognitive identification of weak clinical-judgment steps and cognitive structuring; ChatGPT coaching led students to confront knowledge gaps and expand reasoning through Socratic questioning while recognizing the need for critical, proactive AI use; the World Café broadened perspectives through inter-team interaction. Students requested richer cases, rebalanced activity time, and stable digital infrastructure.

Conclusions : This integrated, low-cost approach was perceived to strengthen metacognition, questioning skills, and multi-perspective clinical judgment. Effective implementation may depend on the instructor's facilitator role in scaffolding students' question generation, and controlled studies with validated measures are warranted.

Keywords : artificial intelligence, concept mapping, clinical judgment, nursing students



Nursing Students' Reflection on Clinical Judgment in Complex Case Simulation Debriefing Reports: An Interpretive Description Approach

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Purpose : This study aimed to investigate how nursing students develop and experience clinical judgment within complex case simulations, focusing on how they interpret clinical data, recognize patterns of difficulty, and reflect on their reasoning through post-simulation debriefing reports.

Methods : This qualitative study applied Thorne's (2025) Interpretive Description (ID) methodology to generate clinically applicable educational knowledge. The sample consisted of structured debriefing reports submitted by 53 senior nursing students at a single university following their participation in a team-based complex case simulation within an adult health nursing course. The complex case scenarios were comprehensively integrated and linked with core competencies learned throughout the semester, including fluid, electrolyte, and acid-base imbalances, oncological and surgical nursing care, and genitourinary and endocrine system disorders. The collected textual data were analyzed using Thorne's (2025) four-step iterative protocol: (1) Data Immersion & Disciplinary Reflection, (2) Establishing Broad Conceptual Categories, (3) Constant Comparative Analysis: Patterns & Variations, and (4) Interpretive Inferences & Data Transformation.

Results : The analysis revealed three overarching patterns. First, "Meaningful Clinical Conjunction of Fragmented Assessment Data" captured how students distinguished abnormal data and established pathophysiological priorities by grasping underlying mechanisms. Second, "Building Clinical Resilience Through Cognitive Dissonance" illustrated critical reflection on procedural shortcomings, marking a paradigm shift from a task-oriented focus to an evaluation-centered mindset. Finally, "Transition to Future Clinical Practice and Professional Identity Formation" highlighted the evolution toward patient safety-centered advocacy, proactive nursing assessment, and a broader clinical perspective.

Conclusions : Complex case simulation education provides a virtuous learning cycle—moving from data interpretation to priority-based execution and self-improvement through rigorous reflection. These findings offer practical pedagogical insights for developing competency-based nursing curricula.

Keywords : Clinical judgment, Simulation, Nursing education, Nursing students, Qualitative research

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Effects of Clinical Practicum Incivility and Resilience on Nursing Students' Intention to Leave a Clinical Nursing Career

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Purpose : This study examined the effects of clinical practicum incivility and resilience on nursing students' intention to leave a clinical nursing career and identified factors associated with this intention. The findings are intended to provide evidence for developing interventions to improve the clinical practicum environment and facilitate nursing students' transition into the clinical nursing workforce.

Methods : A cross-sectional descriptive study was conducted among 120 third- and fourth-year nursing students with clinical practicum experience. Data were collected using an online self-administered questionnaire between April 29 and May 19, 2026. Descriptive statistics, independent t-tests, one-way analysis of variance, Pearson's correlation coefficients, and hierarchical multiple regression analysis were performed using IBM SPSS Statistics version 26.0.

Results : Hierarchical multiple regression analysis revealed that clinical practicum incivility ($\beta=.279$, $p=.001$) was the strongest predictor of intention to leave clinical nursing. Compared with students reporting moderate satisfaction with their nursing major, those who were dissatisfied were more likely to report intention to leave clinical nursing ($\beta=.274$, $p=.002$), whereas those who were satisfied were less likely to report intention to leave clinical nursing ($\beta=-.245$, $p=.007$). Resilience was not significantly associated with intention to leave clinical nursing ($\beta=.015$, $p=.858$). The final model explained 32.5% of the variance in intention to leave clinical nursing ($F=10.531$, $p<.001$).

Conclusions : Clinical practicum incivility was identified as a significant predictor of nursing students' intention to leave clinical nursing. Reducing incivility in clinical practicum settings and enhancing nursing students' satisfaction with their nursing major may help decrease their intention to leave clinical nursing. Further studies are needed to identify effective interventions for strengthening resilience among nursing students.

Keywords : Clinical Practicum; Incivility; Nursing Students; Resilience; Intention to Leave Clinical Nursing



Immersive Smartphone-Based Home Safety Assessment Learning in Community Nursing Education: Enhancing Flow Experience and Self-Efficacy

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Purpose : This study developed a learning module that uses immersive, smartphone-based visual technology to enhance nursing students' skills in conducting home environment safety assessments in community settings

Methods : Based on home environment safety checklists, the module incorporated smartphone-accessible images and videos depicting home environments. A two-hour intervention combined preparatory instruction with hands-on practice. Using a cross-sectional design, outcomes were evaluated through a home safety assessment scale and a five-point Likert-type questionnaire measuring system quality, usefulness, immersion, and flow experience.

Results : Ninety-eight undergraduate nursing students participated in the study. The module demonstrated strong educational effectiveness, with a mean home safety assessment score of 85.84 (SD = 10.85). Students reported high ratings for perceived ease of use (M = 4.25) and perceived usefulness (M = 4.24), as well as notable presence (M = 3.95) and flow experience (M = 4.05). Flow experience correlated strongly with self-efficacy ($r = .86, p < .001$) and system quality ($r = .77, p < .001$). Self-efficacy ($r = .23, p = .023$) and learning satisfaction ($r = .20, p = .048$) were significantly and positively correlated with actual assessment scores. Regression analysis indicated that flow experience, self-efficacy, and perceived system quality jointly predicted learning performance, suggesting that psychological engagement and technology quality are key mechanisms through which immersive modules influence competency. Qualitative feedback further highlighted that the module offered practice-aligned, experiential learning by simulating real home environments, while also revealing technical and accessibility challenges, such as device compatibility and connectivity issues.

Conclusions : Immersive smartphone-based visual technology can effectively bridge classroom instruction and community nursing practice by increasing student engagement, strengthening contextual understanding, and enhancing perceived readiness for real home visits. Presence and flow experience fostered deeper cognitive and emotional involvement, supporting the value of well-designed immersive learning tools in transforming passive learning into authentic assessment experiences. By integrating national safety

Keywords : flow; home safety; immersive technology; nursing education



Trends in AI-Related Themes in Japanese Nursing Research Article Titles: A Quantitative Text Analysis Using KH Coder

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Purpose : Artificial intelligence (AI), generative AI, and ChatGPT have recently been introduced rapidly into healthcare and nursing. In nursing research, these technologies are expected to support research activities, statistical analysis, education, clinical judgment, and the use of medical information. This study aimed to clarify trends and temporal changes in AI-related themes in Japanese nursing research article titles.

Methods : A search was conducted using Ichushi-Web with the keywords "AI (Artificial Intelligence)" and "nursing research." Sixty-eight articles were identified, and 42 article titles published between 1995 and 2026 were included after excluding conference abstracts. Each article title was treated as one document. Quantitative text analysis was performed using KH Coder, including frequent word analysis, co-occurrence network analysis, and correspondence analysis to examine characteristics by publication period.

Results : Frequent words included "nursing," "nursing research," "data," "AI," "utilization," "ChatGPT," "nursing science," and "future." Major co-occurrence relationships included AI–utilization, AI–nursing research, ChatGPT–nursing research, ChatGPT–statistical analysis, data–medical information, and science–social implementation. Keyword mapping identified four thematic groups: application of robotic and engineering technologies to nursing, utilization of medical information and electronic health record data, use in statistical analysis, and research support using AI and ChatGPT. Correspondence analysis showed that AI-related themes shifted from technological introduction to data utilization and then to practical application of generative AI and ChatGPT.

Conclusion : AI-related themes in Japanese nursing research have developed from technological introduction to data utilization and practical application of generative AI and ChatGPT. Future nursing research should promote AI literacy, research support, and nursing digital transformation while addressing ethical issues, privacy protection, legal risks, AI dependence, and quality assurance of nursing judgment.

Keywords : AI, Artificial Intelligence, nursing research, KH Coder



Ageism in Nursing Research : A Scoping Review

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Purpose : This study aimed to map research on ageism involving nurses and nursing students and to examine how ageism has been conceptualized, which instruments have been used to measure it, and what research trends and methodological characteristics have emerged in the nursing literature.

Methods : A scoping review was conducted following the PRISMA-ScR guidelines. Eight Korean and international databases were searched from inception to March 2026. After title, abstract, and full-text screening, 47 studies met the inclusion criteria. Study selection and data extraction were performed independently by two reviewers, based on the Population–Concept–Context (PCC) framework.

Results : Of the 1,752 records screened, 47 studies on ageism involving nurses and nursing students were included. Most studies focused on nursing students, with additional work examining clinical nurses, new graduate nurses and outpatient nurses. Cross-sectional quantitative surveys predominated, with only a small number of randomized trials, quasi experimental studies and reviews. Research was conducted in countries such as Korea, China, Turkey, Jordan, Iran, Portugal, Brazil and Romania, and was largely concentrated in high and upper middle income settings. Ageism was conceptualized using diverse terms; international studies primarily referred to “ageism” and “age discrimination,” whereas Korean studies more often used “ageism” together with “attitudes toward older adults.” The Fraboni Scale of Ageism (FSA) was the most frequently used instrument, alongside Korean adaptations and other tools such as KAOP, AAS, PNAS and ROPE.

Conclusions : Although research on ageism in nursing has increased, Korean evidence remains limited compared with the international literature. Greater conceptual and measurement consistency is needed to clearly define and operationalize ageism within nursing contexts. Future research should include more clinical nurses, longitudinal and intervention studies, and cross-cultural comparisons to strengthen the evidence base.

Keywords : Ageism, Nurses, Nursing students, Scoping Review



Changes in Health Behavior Practices and Perceptions of First-Year Nursing Students Performing Stress Coping Tasks Included in the Curriculum

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Purpose : Nursing students struggle to maintain healthy lifestyle habits under academic stress. This study aimed to describe students' resilience and health behaviors attempted during curriculum-based stress coping tasks, and to compare confidence in practicing health behaviors and perceptions of lifestyle habits between the beginning and end of the semester.

Methods : This descriptive study included first-year nursing students taking a psychology and behavioral science course at a university in Korea. Anonymous researcher-developed questionnaires were administered at the beginning (n=137) and end (n=129) of the semester, measuring health habit maintenance, the most difficult lifestyle domain, confidence in practicing health behaviors, and health-related beliefs; the final questionnaire also assessed attempted behaviors, self-assessed practice, and perceived change. The two time points were compared as independent groups using Mann-Whitney U and chi-square tests (IBM SPSS Statistics 32). Resilience was measured at week 9 using the Korean Resilience Quotient-53 (n=130, Cronbach's $\alpha=.94$). Questionnaires were unlinked, so respondent numbers varied.

Results : Nearly half (46.9%) demonstrated below-average resilience, and positivity was the weakest area. During task performance, 98.4% attempted at least one health behavior, with the most common being emotional connection (49.6%), daily physical activity (43.4%), and psychological rest (31.8%). Additionally, 69.8% rated their practice of health behaviors favorably. While confidence in practicing health behaviors significantly decreased by the end of the semester ($z=-4.26$, $p<.001$), health-related beliefs remained unchanged. The rate of maintaining regular sleep decreased from 51.8% to 12.4%, and the proportion of students who cited sleep as the most difficult area increased (from 32.1% to 57.4%). Overall, 78.3% felt that their habits had improved.

Conclusions : Students participated actively, yet sleep habits deteriorated most under academic stress. While confidence in practicing health behaviors decreased, health-related beliefs remained stable, suggesting realistic readjustment after the practice experience. Health behavior activities in nursing education should include strategies for forming sustainable habits.

Keywords : Health behavior, Nursing students, Resilience



Effects of an ABCDEF-Based Virtual Reality and Standardized Patient Simulation Program on Early-Career Nurses' Confidence and Neurological Assessment

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Purpose : Altered consciousness is a time-sensitive clinical condition associated with high mortality and adverse outcomes. Nurses are often the first healthcare professionals to recognize changes in consciousness; however, neurological assessment and protocol-based responses remain challenging due to the complexity of evaluation and limited training opportunities.

Methods : This quasi-experimental, single-group pretest–posttest study included 74 early-career nurses with up to 24 months of clinical experience at a tertiary academic medical center in South Korea. Participants completed the altered consciousness simulation (AC Sim) program, which consisted of a protocol-based lecture, a computer-based virtual reality (VR) training module, and one standardized patient simulation scenario comprising three sequential phases (assessment, deterioration, and escalation of care), all delivered on the same day in a fixed sequence. The VR component provided repeated practice and an objective performance score for GCS-related neurological examination tasks, ranging from 0 to 100. Outcomes included confidence in caring for patients with altered consciousness, objectively measured neurological assessment ability, and satisfaction with the simulation experience.

Results : Confidence in caring for patients with altered consciousness increased significantly from 14.86 ± 4.12 to 22.18 ± 2.86 (mean change $\approx +7.32$; $p < .001$). Objectively measured neurological assessment scores also improved, from 34.05 ± 27.14 to 82.01 ± 18.04 (mean change $\approx +47.96$; $p < .001$). Satisfaction with the simulation experience was high, with an overall mean score of 4.88 ± 0.24 on a 5-point scale.

Conclusions : The AC Sim program was associated with improved confidence in caring for patients with altered consciousness, higher objectively measured GCS-related neurological assessment scores, and high learner satisfaction among early-career nurses.

Keywords : Consciousness disorders, Neurologic examination, Clinical decision-making, Simulation training, Patient simulation



Development and Validation of a Real-World, Data-Driven Simulation Case for the Nursing Care of Patients After a Suicide Attempt: An Integrative Approach

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Aim(s) : Nurses are frontline responders for patients after a suicide attempt, yet report inadequate preparedness, apprehension, and stigmatizing attitudes impeding therapeutic engagement. This study aimed to develop and validate a real-world, data-driven simulation case for standardized-patient (SP) and virtual-reality (VR) delivery, anchored in nationwide emergency-care data.

Methods : The methodological study used a four-phase development-and-validation approach. Data collection (September 2025-July 2026) comprised a PRISMA 2020-guided systematic review ($n = 31$), an educational-needs assessment of clinical nurses (survey, $n = 32$, and in-depth interviews, $n = 5$), analysis of nationwide 2024 National Emergency Department Information System (NEDIS) indicators for self-harm/suicide attempters ($N = 35,170$), and expert content-validity appraisal of a draft single-persona scenario set (complex; medical [poisoning]; surgical [wrist injury]) built per the INACSL Standards and the NLN/Jeffries framework. Data were analyzed in Stata 19.0 using descriptive statistics, priority-needs ranking, and content-validity indices.

Results : The needs assessment identified suicide-risk assessment and early recognition, therapeutic communication with suicide-attempt patients, and decision-making in ethical dilemmas as the highest-priority competencies. In the 2024 NEDIS data, women constituted 61.1% of attempters and adults in their thirties the second-largest adult band (14.7%); poisoning (women, 69.8%) and cutting/piercing (19.5%) predominated; 65.3% of women arrived by 119 ambulance, 48.5% within 30 minutes to 2 hours, and 30.9% were admitted (women, 29.4%). These distributions substantiated an epidemiologically representative persona—a woman in her thirties, living alone, with a prior attempt and self-discontinued antidepressants, admitted from the ED to a general ward—operationalized as SP and VR scenarios that deliberately excluded any method, substance, dose, or lethality information.

Conclusions : Integrating an educational-needs assessment with nationwide registry evidence and expert validation yielded an ecologically representative, safety-bounded, and reusable simulation case for post-attempt nursing care, providing a transferable model and a validated foundation for the planned SP-versus-VR usability and effectiveness evaluation.

Keywords : Emergency Nursing; Patient Simulation; Suicide, Attempted; Virtual Reality



Visual Thinking Strategies in Women's Health Nursing Education for Nursing Students: A Pilot Study

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Purpose : The purpose of this study was to evaluate the feasibility of implementing Visual Thinking Strategies (VTS) into undergraduate women's health nursing and explore students' learning experiences on VTS.

Methods : A one-group pre-post design was used. We implemented VTS into a women's health nursing course, across two sessions (nursing care for pregnancy and childbirth, gynecological health). These activities involved guided observation, discussion, and reflection. While the VTS was a mandatory activity for the course, participation in the study was voluntary and informed consent was obtained. Out of 85 students, a convenience sample of 37 undergraduate nursing students participated in pre-/post measurements. Learner-centeredness was measured before and after the VTS activities via on-line survey and participants' experiences with VTS were assessed after the VTS activities. Additionally, focus groups are planned to further explore participants' evaluation of VTS. Data were analyzed using descriptive statistics and paired t-tests with SPSS. Conventional content analysis will be done for the focus group data.

Results : The average age of participants was 22.8 ± 2.1 years. A total of 62 students completed the pretest, and 37 completed the posttest. For the 37 participants, the total learner-centered score increased significantly from 20.57 ± 3.08 to 25.57 ± 3.79 (range 6-30, $t=5.28$, $p<.001$) after VTS sessions. Significant increases were found for evidence-based reasoning ($p=.029$), perception of the instructor as a facilitator ($p<.001$), emphasis on expressing opinions over memorization ($p=.002$), and preference for inquiry-based instruction ($p=.005$). Regarding VTS experience, students reported positive learning experiences, particularly in terms of interest (4.27 ± 0.90) and concentration (4.16 ± 0.96).

Conclusions : VTS was associated with a significant shift toward learner-centered teaching orientation among nursing students. These findings support its potential value in fostering learner-centered attitudes in undergraduate nursing education.

Keywords : Visual Thinking Strategies, Women's Health Nursing, Nursing Education, Undergraduate Nursing Students, Learning Outcomes



The Influence of Preceptor Nurses' Teaching Efficacy and Workload on Clinical Teaching Behaviors

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Purpose : Clinical teaching behaviors of preceptor nurses are essential for facilitating newly graduated nurses' transition to clinical practice and ensuring the quality of clinical education. However, balancing patient care responsibilities with educational duties may influence their clinical teaching behaviors. This study aimed to examine the effects of preceptor nurses' teaching efficacy and workload on clinical teaching behaviors.

Methods : This descriptive cross-sectional study included 178 preceptor nurses working in direct patient care units at two university-affiliated hospitals in Seoul, Korea. Participants had served as preceptors for newly graduated nurses at least once within the previous year. Data on teaching efficacy, workload, and clinical teaching behaviors were collected using an online self-administered questionnaire. Hierarchical multiple regression analysis was conducted to identify factors associated with clinical teaching behaviors.

Results : Teaching efficacy significantly predicted clinical teaching behaviors, whereas workload was not a significant predictor. Intention to continue in the preceptor role was also a significant predictor. The final regression model explained 30.2% of the variance in clinical teaching behaviors.

Conclusions : Teaching efficacy was the strongest predictor of clinical teaching behaviors among preceptor nurses, and intention to continue in the preceptor role was also a significant predictor. These findings suggest that enhancing preceptors' teaching efficacy and supporting nurses' intention to continue in the preceptor role may improve clinical teaching behaviors. Educational programs focusing on instructional strategies, communication, and feedback skills should be developed to strengthen preceptors' teaching efficacy. In addition, organizational support systems should be established to encourage nurses to continue serving as preceptors.

Keywords : Clinical teaching behaviors, Preceptor nurses, Teaching efficacy, Workload



A Comparative Analysis of Military Nursing Curricula in Korea and Thailand: Implications for Future Military Nursing Education

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Purpose : This study aimed to compare the military nursing curricula of the Korea Armed Forces Nursing Academy (KAFNA) and the Royal Thai Air Force Nursing College (RTAFNC) and to identify educational implications for strengthening military nursing education in response to evolving healthcare and security environments.

Methods : A qualitative comparative study was conducted using Bereday's comparative analysis framework. Official curriculum documents, accreditation standards, and published literature related to the nursing education systems of KAFNA and RTAFNC were reviewed. The analysis focused on institutional missions, educational objectives, program outcomes, curriculum structures, and military nursing components through the four stages of description, interpretation, juxtaposition, and comparison.

Results : Both institutions integrated professional nursing education with military training and emphasized leadership, evidence-based practice, professionalism, and ethical responsibility as core competencies for nursing officers. KAFNA allocated 15 credits to military nursing and 25 credits to military science, highlighting military readiness, disaster response, trauma care, combat stress management, and population health. In contrast, RTAFNC incorporated military nursing within a 5-credit military curriculum while emphasizing aeromedical nursing, midwifery, primary healthcare, cultural competence, and multilingual communication. Although both curricula reflected international nursing education standards, each demonstrated distinctive educational priorities shaped by national military healthcare systems, professional roles, and sociocultural contexts.

Conclusions : This study highlights that military nursing education should extend beyond standardized nursing competencies to reflect the operational roles, healthcare systems, and security priorities of each nation. Comparative curriculum analysis provides valuable evidence for developing context-responsive military nursing education and identifying shared competencies that can support international collaboration. These findings may inform curriculum innovation, global educational partnerships, and competency-based military nursing education that prepares nursing officers for increasingly complex clinical, military, and global health challenges.

Keywords : Curriculum; Military nursing; Nursing education; Program outcomes



Trends in Self-Regulated Learning Research in Nursing Education: A Review of Domestic Literature

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Purpose : In recent years, fostering students' proactive learning abilities has been emphasized in nursing education, and Self-Regulated Learning (SRL) has attracted attention as a theoretical framework. However, evaluation methods and measurement scales for SRL have not been systematically organized in domestic nursing education research. This study aimed to overview the trends in SRL research within Japanese nursing education and clarify the characteristics of the evaluation scales and research content used.

Methods : A literature search was conducted using Ichushi-Web (Japan Medical Abstracts Society database) and CiNii(Citation Information by National Institute of Informatics). Original articles targeting Japanese nursing students and related to self-regulated learning were included. After scrutinizing titles, abstracts, and full texts, 21 articles were selected for analysis. Research designs, scales used, research content, and primary findings were extracted and descriptively organized based on research objectives and scale characteristics.

Results : The target articles were primarily published from 2017 onward, and cross-sectional quantitative studies accounted for the majority of research designs. For evaluating SRL, multiple scales were used according to research objectives, including general learning strategy scales, as well as scales measuring motivation, metacognition, self-efficacy, approaches to learning, and SRL in nursing skill acquisition or clinical practice settings. Educational intervention studies utilizing e-learning, virtual reality (VR) materials, rubrics, and student-generated questioning were also observed. SRL was associated with academic performance, confidence in nursing skill acquisition, adaptability to clinical practice, and career readiness. However, variations were found among studies regarding the conceptualization of SRL and the selection of evaluation scales.

Conclusions : Although SRL research in Japanese nursing education has increased in recent years, consistency in measurement concepts and evaluation scales remains insufficient. Future research needs to further validate SRL evaluation scales suitable for nursing education and accumulate educational intervention studies utilizing them.

Keywords : literature review, nursing education, nursing students, self-regulated learning



Psychometric Evaluation of the Korean Version of the Students' Artificial Intelligence Dependence Questionnaire in Korean Nursing Students

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Purpose : This study aimed to evaluate the psychometric properties of the Korean version of the Students' Artificial Intelligence Dependence Questionnaire (K-SAID) among Korean nursing students.

Methods : The original English version of SAID, consisting of 13 items across three factors (trust in AI, informative exclusivity with AI, and AI literacy) was translated into Korean following established cross-cultural adaptation guidelines. Data were collected from 218 Korean nursing students who had experience using artificial intelligence (AI) tools for academic tasks. Construct validity was evaluated using confirmatory factor analysis. Convergent validity was assessed using composite reliability (CR), average variance extracted (AVE), and correlations with the Korean version of the General Attitudes towards Artificial Intelligence Scale (GAAIS-K) and the Scale for Non-Expert AI Literacy (SNAIL). Discriminant validity was examined using inter-factor correlations, and reliability was evaluated using Cronbach's α .

Results : The initial 13-item model showed acceptable model fit (CFI = .92, TLI = .90, RMSEA = .08, SRMR = .09); however, CR (.68-.87), and AVE (.41-.54) for some factors were below the recommended criteria. Following research team review, two poorly performing items were removed, and the final 11-item, three-factor model showed improved psychometric properties (CFI = .93, TLI = .91, RMSEA = .08, SRMR = .09), CR (.67-.87) and AVE (.51-.61). Cronbach's α increased from .76 to .79 for the overall scale and from .61-.86 to .67-.86 for the subscales. Inter-factor correlations were below .85, supporting discriminant validity. The K-SAID showed significant positive correlations with the GAAIS-K for factor 1 and 2 and with the SNAIL for factor 3, supporting convergent validity.

Conclusions : The K-SAID is a valid and reliable instrument for assessing AI dependence among Korean nursing students across three dimensions. It may be used to identify AI dependence and inform the development and evaluation of educational programs that promote the appropriate use of AI in nursing education.

Keywords : AI literacy, Artificial intelligence, Dependence, Nursing students



Analysis of irrigation fluid flow rate for optimal pressure in syringe-based wound irrigation under variable gravity conditions

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Purpose : This study aimed to analyze irrigation flow rates for optimal syringe-based wound irrigation under varying gravitational conditions and to provide baseline data for syringe based wound irrigation.

Methods : In this study, a mathematical model was constructed by combining the Continuity Equation and Bernoulli's Equation to macroscopically analyze the fluid behavior inside the syringe. Syringe-based Wound irrigation was analyzed in the environment of the Earth ($g=9.8\text{m/s}^2$), Mars ($g=3.71\text{m/s}^2$), the Moon ($g=1.62\text{m/s}^2$), and microgravity ($g=10^{-6}\text{m/s}^2$). Catheter size (22G, 19G), syringe angle (90° , 60° , 45° , 30°), distance from the wound surface (2-20 cm), and flow rate (0.1–5.0 cc/s) were set as variables, and data were calculated using Microsoft Excel.

Results : Based on the results of this study, considering the clinically recommended irrigation pressure of 8–15psi, the 22G syringe had the same flow range satisfying the target irrigation pressure under all gravitational conditions, with flow rates of 1.3–1.7cc/s at 90° , 1.5–1.9cc/s at 60° , 1.8–2.4cc/s at 45° , and 2.5–3.4cc/s at 30° . Similarly, the 19G syringe had the same flow range under all gravitational environments: 3.5–4.7cc/s at 90° , 4.0–5.0cc/s at 60° , and 4.9–5.0cc/s at 45° .

Conclusions : The results of this study indicate that the flow rate required to achieve the appropriate pressure for cleaning a wound surface using a syringe-based method does not vary with gravity. This suggests that existing wound-cleaning pressure protocols established based on Earth's environment can be applied directly in environments with different gravitational fields; furthermore, by leveraging the fact that kinetic energy is conserved in microgravity (unlike on Earth), it is anticipated that effective syringe-based wound cleaning can be achieved in space environments.

Keywords : Hydrodynamic, Microgravity, Surgical wound infection, Therapeutic irrigation



Preliminary Analysis of Arteriovenous Fistula Wall Pressure Influenced by Cannulation Angle, Blood Flow Rate, and Structural Characteristics in Hemodialysis Nursing

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Purpose : This pilot study was conducted prior to computational fluid dynamics simulations to generate evidence for safe arteriovenous fistula (AVF) cannulation in hemodialysis nursing.

Methods : Using a radiocephalic AVF model and a 15G needle (20 mm or 25 mm), we calculated clinically applicable cannulation angles and vascular wall pressure according to AVF inner diameter (2, 4, 6, 8 mm), subcutaneous depth (3, 6 mm), cannulation angle (1° – 45°), and blood flow rate (200–400 mL/min). Pressure was calculated using a characteristic equation derived from Bernoulli's equation.

Results : No safe cannulation method was identified for a 2-mm AVF. Blood flow rates ≥ 300 mL/min produced excessive wall pressure, indicating increased stenosis risk. For AVFs with inner diameters of 4–8 mm, pressure remained relatively stable despite variations in cannulation angle and blood flow rate: 7,027.2–12,918.8 Pa (52.7–96.8 mmHg) for 4mm, 6,066–11,153.4 Pa (45.4–83.6 mmHg) for 6mm, and 5,772.1–10,597.1 Pa (43.2–79.4 mmHg) for 8mm. These findings indicate that selecting an appropriate cannulation angle and blood flow rate based on the AVF diameter is a crucial for prolonging AVF's lifespan. In clinical settings where changing the cannulation site at each hemodialysis session is difficult, varying the cannulation angle may help preserve long-term vascular access patency.

Conclusions : By applying fluid dynamics to nursing science, this study provides foundational data to guide safe AVF cannulation and support future research aimed at reducing cannulation-related stenosis in patients undergoing hemodialysis.

Keywords : Arteriovenous fistula, Bernoulli's equation, Hemodialysis, Nursing



Computational Fluid Dynamics Analysis of Pressure Distribution and Effective Cleansing Area in Syringe-Based Wound Irrigation

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Purpose : This study utilizes computational fluid dynamics to analyze the pressure distribution and effective cleansing area during syringe-based wound irrigation, aiming to provide baseline data for effective and safe wound irrigation conditions.

Methods : The study model consisted of system components commonly recommended for syringe-based wound irrigation. These included a 30 mm wound surface, 19-gauge syringe needle, 0.9% sodium chloride for irrigating solutions, the vertical distance between the wound surface and needle tip (2 cm), the irrigation angle (45°), and the set flow rate. The flow rate of the irrigating solution was established in the range of 0.5–5.0 cc/sec. The Ansys SpaceClaim program was used to construct the fluid dynamics domain and analyze pressure and spray characteristics of the irrigating fluid as it exited the syringe and reached the wound surface. To apply the Navier–Stokes equations to the fluid dynamics domain, the region was divided into numerous small volume elements, forming a mesh. The Ansys Meshing program was used for this purpose. Simulations were performed using the Ansys CFX program.

Results : The results of this study indicated that when performing wound irrigation using a 19-gauge syringe needle at a flow rate of 3.0 to 5.0 cc/sec, the pressure on the wound surface ranged from 4.14 to 10.92 psi, which satisfies the recommended wound irrigation pressure range of 4 to 15 psi. Furthermore, the findings revealed that the effective single-irrigation area of the 19-gauge syringe needle was limited to a narrow zone of approximately 0.09% relative to the total wound surface area of 30 mm.

Conclusions : By employing computational fluid dynamics, this study provides a quantitative analysis of the pressure distribution and effective cleansing area in syringe-based wound irrigation, a procedure conventionally driven by empirical practice in clinical settings.

Keywords : Computational Fluid Dynamics, Pressure Distribution, Wound Irrigation



ATLS-Based Virtual Patient Simulation Improves Trauma Nurses Knowledge and Clinical Judgment

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Purpose : Traumatic shock remains one of the leading causes of preventable trauma death, making early recognition and timely intervention critical for improving patient outcomes. The recently updated 11th edition of Advanced Trauma Life Support (ATLS) emphasizes the xABCDE approach, prioritizing the early identification and control of life-threatening hemorrhage during the initial assessment. Accordingly, trauma nurses require advanced clinical judgment and rapid decision-making skills. This study aimed to evaluate the effects of an ATLS-based Body Interact virtual patient simulation program on trauma shock management knowledge, clinical judgment, and simulation performance among trauma center nurses.

Methods : This single-group repeated-measures quasi-experimental study included 42 emergency department and intensive care unit nurses from two regional trauma centers in South Korea. Participants completed a 120-minute educational program consisting of an ATLS-based lecture, two Body Interact virtual trauma shock scenarios, and structured debriefing. Trauma shock management knowledge and clinical judgment were measured before the intervention, immediately afterward, and two weeks later. Simulation performance was evaluated using Body Interact global and domain-specific performance scores. Data were analyzed using repeated-measures analysis of variance.

Results : Among the 42 participants, trauma shock management knowledge significantly improved from 11.74 ± 2.69 at baseline to 13.26 ± 2.38 immediately after the intervention and 14.12 ± 3.02 at the two-week follow-up ($F=15.63$, $p<.001$). Clinical judgment scores also increased from 25.26 ± 4.91 to 30.76 ± 5.20 and 31.31 ± 5.08 , respectively ($F=41.39$, $p<.001$). The Body Interact global performance score significantly improved from 28.80 ± 16.36 during the first scenario to 52.93 ± 18.57 during the second scenario ($p<.001$). Significant improvements were also observed in communication, clinical assessment, and management performance.

Conclusions : An ATLS-based Body Interact virtual patient simulation program effectively improved trauma shock management knowledge, clinical judgment, and simulation performance among trauma center nurses. Virtual patient simulation may provide an effective educational strategy for strengthening trauma nursing competency and improving the quality of early trauma care.

Keywords : Body Interact, Virtual patient simulation, Clinical judgment, Advanced Trauma Life Support



Psychological Resources in First-Year Nursing Students: Emotional Intelligence, Self-Esteem, and Self-Efficacy

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Purpose : The transition to university presents first-year nursing students with various academic, interpersonal, and psychological challenges. Emotional intelligence, self-esteem, and self-efficacy are key psychological resources that support adaptation and psychological well-being. However, these resources have rarely been examined together in first-year nursing students. This study aimed to examine the levels of emotional intelligence, self-esteem, and self-efficacy and to identify the associations among these psychological resources.

Methods : A descriptive cross-sectional study was conducted with 89 first-year nursing students who had recently graduated from high school. Participants were recruited through convenience sampling, and data were collected using an online survey administered via Google Forms. Emotional intelligence, self-esteem, and self-efficacy were measured using validated questionnaires. Data were analyzed using descriptive statistics and Pearson's correlation coefficients with IBM SPSS Statistics version 28.0.

Results : The mean score for emotional intelligence was 5.10 ± 0.63 . Among its subdomains, recognition of others' emotions and self-emotional awareness had the highest scores, whereas emotional utilization had the lowest. The mean scores for self-esteem and self-efficacy were 3.80 ± 0.61 and 3.10 ± 0.14 , respectively. Emotional intelligence showed significant positive correlations with self-esteem ($p < .001$) and self-efficacy ($p < .001$). Self-esteem was also positively correlated with self-efficacy ($p < .001$).

Conclusions : First-year nursing students demonstrated generally positive psychological resources, and emotional intelligence, self-esteem, and self-efficacy were significantly associated with one another. Emotional utilization showed the lowest score among the emotional intelligence subdomains, suggesting a potential target for educational intervention. These findings provide foundational evidence for developing educational programs to strengthen psychological resources and support successful adjustment to university life.

Keywords : Emotional Intelligence, Nursing Students, Self Concept, Self Efficacy



Clinical Insight in Nursing: A Narrative Review

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Purpose : This narrative review aimed to examine the developmental process of clinical insight in nursing and to clarify its conceptual relationships with clinical reasoning, clinical judgment, clinical decision making, and clinical intuition.

Methods : Theoretical and empirical literature was searched using PubMed, Web of Science, EMBASE, and CINAHL. A total of 138,240 records were identified, and after screening according to predefined inclusion and exclusion criteria, 46 articles were included in the final review.

Results : Analysis of related concepts demonstrated that clinical reasoning, clinical judgment, clinical decision making, and clinical intuition are not independent constructs but interconnected cognitive processes representing different levels of cognition. Clinical insight emerged as an overarching professional competence that integrates these cognitive processes. Its development follows a dynamic and cyclical process in which accumulated clinical experience and knowledge integration facilitate pattern recognition, leading to clinical intuition, clinical reasoning, clinical judgment, and clinical decision making. Through subsequent reflection and reinterpretation of clinical meaning, clinical insight continues to evolve and deepen. Thus, clinical insight should be understood not as a discrete outcome but as an integrative professional competence that is continuously developed and refined throughout the progression of professional expertise.

Conclusions : Clinical insight extends beyond the traditional concept of illness insight and should be understood as a professional competence that integrates multiple cognitive processes through clinical experience, reflection, and metacognition. This review provides a theoretical foundation for strengthening clinical insight in nursing practice and education. Furthermore, it offers directions for future research on conceptual clarification, the application of reflective learning and simulation-based educational strategies, instrument development, and the evaluation of educational programs designed to enhance clinical insight.

Keywords : Clinical insight; Clinical reasoning; Clinical intuition; Nursing.



Natural language processing-based automated scoring of written responses in health professions education: A scoping review

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Purpose : Written responses are increasingly recognized as a valuable assessment format in health professions education, capturing complex competencies such as clinical reasoning and decision-making that are difficult to measure with multiple-choice questions. This scoping review aimed to map existing evidence on natural language processing (NLP)-based automated assessment of written responses in health professions education.

Methods : This scoping review was conducted following the five-stage framework proposed by Arksey and O'Malley and reported in accordance with the PRISMA-ScR guidelines. A comprehensive literature search was conducted across six databases—PubMed, CINAHL, PsycARTICLES, ERIC, Web of Science, and KCI—on May 19, 2026. Studies were eligible if they involved undergraduate health professions students, utilized learner-generated written responses for assessment, and applied NLP techniques for automated scoring or assessment. Data were extracted using a hybrid AI-assisted, researcher-led approach.

Results : A total of 28 studies published between 2014 and 2026 were included, with publications increasing markedly in recent years. Most studies were conducted in the United States, employed a retrospective cross-sectional design, and focused on medical students. Generative AI was the most frequently employed NLP approach, with GPT-based models predominating. Explainability was reported in approximately half of the included studies. System performance was predominantly evaluated through system-versus-human comparisons. According to the classification of text-based automated assessment systems (TBAAS), automatic grading systems were the most prevalent, followed by automatic feedback systems and automatic classifiers.

Conclusions : NLP-based automated assessment of written responses in health professions education is a rapidly growing field, with generative AI emerging as the predominant approach. However, the evidence remains concentrated in medical education, predominantly relies on retrospective cross-sectional designs, and reports explainability in less than half of studies. Future research should expand to other health professions disciplines such as nursing, dentistry, and pharmacy, adopt prospective designs, and prioritize transparency in automated assessment systems.

Keywords : Artificial Intelligence, Educational Measurement, Health Occupations Students, Natural Language Processing



Evaluation of an Online Platform–Based Flipped Learning Program in a Human Structure and Function Course

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Purpose : Anatomy and Physiology (A&P) is often challenging because of its high learning difficulty. Flipped learning has shown educational benefits in A&P education and may promote self-directed learning. Online platform–based flipped learning may further support students in developing effective learning strategies. This study aimed to evaluate the effectiveness of an online platform-based flipped learning program in an A&P course.

Methods : A one-group pretest-posttest study was conducted among undergraduate nursing students at a nursing college located in South Korea. The six-week flipped learning program was implemented in Human Structure and Function I, a required first year nursing course, using the online platform (Osmosis Nursing). Because in-class activities were linked to pre-class activities through the platform, students were required to complete self-directed preparation and follow-up learning. Learning engagement, academic achievement, critical thinking, and self-directed learning skills were assessed before and after the program. Of 74 eligible students, data from 70 voluntary participants were analyzed using descriptive statistics and paired t-tests.

Results : Among the participants, 14 students (19.7%) were male, and job stability (40.8%) was the most common reason for choosing nursing. Most students had no prior experience using an online learning platform (80.3%), and 27 students (38.0%) regularly engaged in preparation and review. No statistically significant differences were observed in learning engagement, academic achievement, critical thinking, or self-directed learning skills after the implementation of the program. However, learning engagement and learning satisfaction showed an increasing trend.

Conclusions : The six-week online platform–based flipped learning program did not significantly improve the measured learning outcomes. Nevertheless, the positive trends in learning engagement and learning satisfaction suggest the potential value of this approach. Further studies are needed to examine the effects of online platform–based flipped learning programs with longer intervention periods and enhanced platform features that support adaptive self-directed learning.

Keywords : flipped learning, online platform, self-directed learning



Relationships Among Generative AI Use, Self-Directed Learning, and AI Ethical Awareness Among Nursing Students

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Purpose : This study aimed to examine the relationships among generative artificial intelligence (Gen AI) use, self-directed learning, and AI ethical awareness and to identify factors associated with AI ethical awareness among nursing students.

Methods : A descriptive cross-sectional study was conducted among 183 nursing students from universities in Jeonnam and Jeonbuk, South Korea. Data were collected using self-administered questionnaires between April 6 and April 10, 2026. Descriptive statistics were used to summarize participant characteristics and study variables. Pearson's correlation coefficients were used to examine relationships among variables, and multiple linear regression analysis was conducted to identify factors associated with AI ethical awareness. Statistical analyses were performed using Jamovi.

Results : The mean scores for Gen AI use, self-directed learning, and AI ethical awareness were 3.40, 3.81, and 3.37, respectively (5-point scale). Gen AI use was positively correlated with self-directed learning ($r = .17, p = .020$) and AI ethical awareness ($r = .42, p < .001$). Self-directed learning was also positively correlated with AI ethical awareness ($r = .47, p < .001$). In the multiple linear regression model, self-directed learning ($\beta = .42, p < .001$) and Gen AI use ($\beta = .35, p < .001$) were identified as significant predictors of AI ethical awareness. The final model explained 36.9% of the variance in AI ethical awareness ($F = 9.08, p < .001$).

Conclusions : Self-directed learning and Gen AI use were identified as significant factors associated with AI ethical awareness among nursing students. These findings suggest that nursing education should promote self-directed learning while fostering responsible and ethical use of Gen AI. Educational strategies that integrate AI literacy and AI ethics may help prepare future nurses to use AI appropriately in academic and clinical settings.

Keywords : Generative artificial intelligence, AI ethical awareness, Self-directed learning, Nursing students, Nursing education



The Lived Experiences of Career Choice among Nursing Students Who Witnessed Workplace Bullying

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Purpose : This study aimed to describe the lived experiences of nursing students who witnessed workplace bullying among nurses during clinical practicums and to understand how these experiences shaped their career choices, professional identity, and expectations for future clinical practice.

Methods : A phenomenological qualitative design using Colaizzi's method was employed. Participants were 13 nursing students who had witnessed workplace bullying among nurses during clinical practicums and subsequently made or reoriented their career choices. Data were collected through individual in-depth interviews from October 2024 to March 2025. The analysis followed Colaizzi's seven-step process to derive meanings and themes.

Results : Four theme clusters emerged: pre-practicum career expectations and initial perceptions of workplace bullying; shock and internal conflict after witnessing workplace bullying; career reorientation and adaptation strategies after witnessing workplace bullying; and structural reflection toward a safer nursing organizational culture. After witnessing workplace bullying, participants experienced emotional distress, questioned their professional identity and career fit, and adjusted their career plans while calling for organizational reforms. The fundamental structure was "a precarious compromise between professional ideals and clinical reality."

Conclusions : Educational and organizational interventions, including student protection systems, improved staffing and workload management, and fair and proactive leadership, are needed to ensure safe clinical learning environments and promote retention of the future nursing workforce.

Keywords : Career choice, Clinical practicum, Qualitative research, Workplace bullying



Simulation-Based Interprofessional Education in Hospice and Palliative Care: A Scoping Review

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Purpose : This scoping review aimed to systematically map, analyze, and synthesize the research trends, educational intervention components, and outcomes of simulation-based interprofessional education (Sim-IPE) programs in hospice and palliative care involving nursing personnel, thereby providing evidence-based insights to shift domestic nursing curricula from single-discipline task training to collaborative, practice-ready multidisciplinary education.

Methods : This scoping review followed the JBI methodology and PRISMA-ScR guidelines. PubMed, Embase, CINAHL, Scopus, and Web of Science were searched for studies published between 2012 and 2026. Studies addressing hospice and palliative or end-of-life care, interprofessional education, and simulation-based education were reviewed. Studies involving simulation-based education with two or more health professions were included. Fifteen studies were analyzed for study characteristics, simulation program characteristics, and educational outcomes.

Results : A total of 15 studies were included. Most studies were conducted in the United States and employed quasi-experimental, mixed-methods, qualitative, or program evaluation designs. Participants were predominantly undergraduate health professions students, with nursing most frequently represented alongside medicine, pharmacy, social work, physical therapy, occupational therapy, and spiritual care. Simulation scenarios primarily addressed end-of-life communication, family meetings, symptom management, ethical decision-making, and team-based collaborative care. Various simulation modalities were used, including high-fidelity simulation, standardized patients, virtual simulation, and hybrid approaches. Overall, the studies reported positive educational outcomes, including improvements in interprofessional collaboration, communication, role understanding, teamwork, self-efficacy, confidence, and attitudes toward interprofessional education.

Conclusions : Simulation-based interprofessional education in hospice and palliative care was identified as an effective educational strategy for enhancing interprofessional collaborative competencies. Future research should focus on developing standardized educational models and evaluation frameworks and conducting longitudinal studies involving diverse professions and real-world clinical settings to examine long-term educational outcomes and clinical effectiveness.

Keywords : Hospice, Palliative Care, Interprofessional, Education, Simulation Training, Review



Effects of Team-Based Learning and Gamification on Learning Self-Efficacy and Learning Flow in a Pathophysiology Course for Nursing Students

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Purpose : This study aimed to develop and implement an instructional program that integrates team-based learning and gamification for undergraduate nursing students and to evaluate its effects on nursing students' learning self-efficacy and learning flow.

Methods : This study used a single-group pretest–posttest design with 28 first-year nursing students enrolled in a pathophysiology course at a university. The instructional program, systematically developed using the Analysis, Design, Development, Implementation, and Evaluation instructional design model, was implemented as a 15-week blended course incorporating online learning, team-based learning activities, and gamified quizzes to promote active learning and continuous engagement. Learning self-efficacy and learning flow were measured before and after the intervention using validated self-report questionnaires. Data were analyzed using jamovi version 2.6.44, and paired t-tests were conducted after assessing the normality of the difference scores.

Results : Learning self-efficacy significantly increased from 5.30 ± 0.65 before the intervention to 5.80 ± 0.78 after the intervention ($t = -2.18, p = .038$). Learning flow also improved significantly from 2.97 ± 0.45 to 3.37 ± 0.79 ($t = -4.03, p = .001$).

Conclusions : The instructional approach integrating team-based learning and gamification effectively enhanced nursing students' learning self-efficacy and learning flow in a pathophysiology course. This learner-centered instructional approach provides a practical framework for promoting student engagement and improving learning outcomes in conceptually challenging foundational nursing courses.

Keywords : Learning flow, Learning self-efficacy, Nursing students, Teaching methods



Educational Impact of Experts by Experience Participating in Nursing Education

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Purpose : While nursing students show interest in people with illnesses, many also hold implicit biases or biases stemming from limited knowledge, which may contribute to stigma-related attitudes. Traditional teaching provides biomedical information but often fails to convey how illnesses are experienced in daily life. To address this gap, people living with illness participate in classes as experts by experience, sharing narratives from illness onset through recovery. Their experiential knowledge helps students connect theoretical concepts with the lived meaning of illness. The aim of this study is to clarify the impact of involving people living with illness in nursing education.

Methods : This study employed Arksey and O'Malley's scoping review methodology. Four online databases were searched using the keywords "Nursing student," "Attitude," "Experts by experience," and "Nursing education."

Results : Thirteen articles were identified. The majority involved people with mental illness in lectures. Experiential narratives supported students in integrating biomedical knowledge with real-life experiences, promoting more person-centered understanding. Participation of experts by experience contributed to reductions in implicit biases, stigma-related attitudes, and misconceptions stemming from limited knowledge, while fostering increased empathy and awareness of the importance of supportive and respectful attitudes. Students also began to recognize illness as a familiar human experience rather than an exceptional condition, and positive shifts were observed in their attitudes toward individuals with lived experience as educators.

Conclusions : Class sessions involving people living with illness helped reduce implicit and knowledge-based biases and stigma-related attitudes, enhanced empathy, and supported the development of person-centered perspectives among nursing students. Integrating experiential knowledge with theoretical learning produced positive changes in students' perceptions and attitudes, demonstrating the educational value of involving experts by experience.

Keywords : Attitude, Experts by experience, Nursing education, Nursing student



Development and Evaluation of an Interpersonal Caring Educational Program for Nursing Students in Clinical Practice

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Purpose : This study aimed to develop a caring educational program based on Kim's Interpersonal Caring Theory and evaluate its effects on nursing students' caring competence.

Methods : This quasi-experimental study used a nonequivalent control group pretest-posttest design. The participants were 60 third-year nursing students who were divided into intervention (n = 30) and control (n = 30) groups. The control group received conventional clinical practice with regular conferences, whereas the intervention group participated in a 10-session interpersonal caring educational program.

Results : The intervention group showed significant improvements in emotional intelligence, empathy, and interpersonal caring behaviors compared with the control group. No significant differences were observed in communication competence.

Conclusions : The interpersonal caring educational program effectively enhanced nursing students' emotional intelligence, empathy, and interpersonal caring behaviors in clinical practice, providing an educational strategy to strengthen their caring competence.

Keywords : Clinical competence; education; interpersonal caring; nursing; students



Analysis of generative artificial intelligence literacy, perceptions of its use, and hallucination detection competence among nursing students

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Purpose : This study examined levels of generative artificial intelligence (AI) literacy, perceptions of its use, and hallucination detection competence among nursing students, and analyzed their relationships to inform nursing education.

Methods : A descriptive correlational survey was conducted with 84 fourth-year nursing students at one university who had completed diabetes-related content in an adult health nursing course. Generative AI literacy was measured with a validated Korean scale (7-point), perception of use with a technology acceptance model-based scale (5-point), and hallucination detection competence with a test of 15 diabetes nursing scenario items developed by the research team and validated through content and face validity. Data were collected in person using self-report questionnaires in April 2026 and analyzed using t-test, one-way analysis of variance with Scheffé post hoc test, and Pearson correlation.

Results : Generative AI literacy averaged 5.6 ± 0.9 out of 7 and perception of AI use 4.0 ± 0.5 out of 5, both moderately high, whereas hallucination detection competence averaged 6.6 ± 2.5 out of 15 (55.9% correct), a somewhat insufficient level. Generative AI literacy differed significantly by cumulative grade point average ($F=5.00$, $p=.009$) and adult health nursing course grade ($F=2.63$, $p=.040$), and perception by age ($F=3.62$, $p=.031$). However, hallucination detection competence showed no significant group differences. Generative AI literacy and perception of its use were positively correlated ($r=.554$, $p<.001$); however, hallucination detection competence correlated with neither literacy ($r=.005$, $p=.963$) nor perception ($r=.073$, $p=.512$).

Conclusions : Despite high literacy and positive perceptions of use, nursing students could identify only about half of the clinical errors. Being skilled with generative AI does not ensure detection of its erroneous clinical information, a disconnect that poses a direct threat to patient safety. Curricula should move beyond efficient tool use to embed context-based critical appraisal and simulation scenarios containing intentional hallucination errors.

Keywords : Artificial Intelligence, hallucinations, students, Nursing



Where Does the Cognitive Load Go? Learning Immersion in Hybrid Simulation Education

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Purpose : Clinical practicum in nursing education has been limited largely to observation because of nursing workforce shortages and patient safety concerns. Grounded in cognitive load theory, this study examined the effects of Hybrid Simulation Education (HSE), which combines virtual reality simulation (VRS) as pre-education with high-fidelity simulation (HFS), on nursing students' problem-solving process, communication skills, clinical competence, and learning immersion.

Methods : A quasi-experimental, non-equivalent control group pre-post-test design was used with 56 fourth-year nursing students (experimental group, n=28; control group, n=28). The experimental group received HSE, comprising theoretical pre-study and VRS pre-education, whereas the control group received theoretical pre-study only. Both groups then completed the identical HFS scenario ("Nursing Care for Patients with Lower Gastrointestinal Bleeding") and a structured debriefing. Data were analyzed with repeated-measures ANOVA and t-tests using SPSS 28.0.

Results : Significant group $\times$ time interactions were found for problem-solving process ($F=6.37$, $p=.015$) and communication skills ($F=18.88$, $p<.001$), indicating greater improvement in the experimental group than the control group. Learning immersion was also significantly higher in the experimental group ($t=3.15$, $p=.003$). Clinical competence improved significantly in both groups, but the interaction effect was not significant ($F=0.30$, $p=.589$). This was attributed to both groups receiving the same scenario review and structured debriefing.

Conclusions : HSE enhanced nursing students' problem-solving process, communication skills, and learning immersion by promoting schema formation through a cycle of prediction, experience, and reflection. As a component of HSE, VRS pre-education contributed to cognitive and affective learning rather than to direct gains in clinical competence. Longitudinal studies are needed to confirm long-term effects and learning transfer.

Keywords : Virtual reality, High-fidelity simulation, Cognitive load theory, Nursing education, Simulation



Structuring Empathic Processes through AI-Generated Backstories in Nursing Simulation: An Explanatory Sequential Mixed-Methods Study

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Purpose : To develop AI-generated backstory videos grounded in the Simulation Artificial Empathy Framework (SAEF) and to examine their effects on nursing students' empathic processes in nursing simulation.

Methods : A quasi-experimental mixed-methods study using a nonequivalent control group pretest-posttest design. A total of 105 senior nursing students participated. The experimental group received SAEF-based AI-generated backstory videos for presimulation preparation, whereas the control group used conventional text-based materials. SAEF integrates the Artificial Empathy Framework (Feeling-Infering-Imagining) with the Prehospital Journey concept. Data were analyzed using χ^2 -tests, independent t-tests, and content analysis of reflective journals.

Results : No statistically significant between-group differences were found in posttest scores for empathy, emotional intelligence, or learning flow. However, qualitative findings revealed meaningful differences in learning processes. The experimental group demonstrated a structured empathy process involving emotional internalization, inference of patient meaning, and future-oriented imagination, whereas the control group emphasized procedural description and accuracy-oriented thinking.

Conclusions : Although short-term quantitative effects were not statistically significant, SAEF-based AI-generated backstories demonstrated potential to support the structuring of empathic processes. Integrating generative AI with theory-driven narratives may serve as an effective presimulation strategy. Further longitudinal studies with objective performance measures are warranted.

Keywords : artificial empathy framework, generative AI, simulation education, empathy, emotional intelligence, learning flow



From Overwhelm to Professional Identity: Nursing Students' Learning Experiences in Adult Nursing

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Purpose : This study aimed to explore how nursing students experience learning adult nursing during the introductory stage of their major coursework and to examine how these experiences contribute to the early formation of professional identity.

Methods : A qualitative exploratory study using photovoice was conducted with 10 second-year nursing students at one university in South Korea who were taking adult nursing for the first time and had no prior clinical practice experience. Data were collected over one semester from March to June 2026 through participant-generated photographs, reflective journals, and individual in-depth interviews. Interview questions were guided by the SHOWeD framework. The data were analyzed using Braun and Clarke's six-step thematic analysis.

Results : Students' learning experiences evolved markedly over time. In the first half of the semester, three themes emerged: uncertainty and overwhelm, distance between theory and practice, and emerging possibilities for growth. In the second half, three themes were identified: structuring knowledge, deepening empathy, and growing professional identity with a commitment to continued learning. Across the semester, participants shifted from fragmented understanding and self-focused anxiety to more organized knowledge, greater sensitivity to patients' lives and emotions, and a clearer recognition of themselves as future nurses. Their learning experience was transformed from merely coping with a difficult subject into constructing meaning, understanding patients more holistically, and envisioning professional growth.

Conclusions : Learning adult nursing was not simply a process of acquiring knowledge, but also a process of organizing complex knowledge, developing patient-centered understanding, and forming an early professional identity. These findings highlight adult nursing as a critical site of early professional socialization rather than a knowledge-heavy course alone. Photovoice may be a valuable reflective educational strategy for supporting academic adjustment and professional socialization in nursing students during the early stage of major coursework.

Keywords : Education, Nursing, Baccalaureate; Professional Identity; Qualitative Research; Students, Nursing



Ethical Sensitivity, Confidence of Ethical Decision Making, and Knowledge about Advance Directives as Predictors of Attitudes Toward Advance Directives Among Nursing Students

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Purpose : This study aimed to examine the effects of ethical sensitivity, confidence of ethical decision-making, and knowledge about advance directives on attitudes toward advance directives among nursing students.

Methods : A descriptive cross-sectional survey was conducted with 119 nursing students enrolled at a university in Gyeonggi Province, South Korea. The data were collected using structured questionnaires and analyzed with t-test, ANOVA, Pearson's correlation coefficients, and multiple linear regression.

Results : Attitudes toward advance directives showed significant positive correlations with confidence in ethical decision-making ($r=.29$, $p<.001$) and knowledge of advance directives ($r=.41$, $p<.001$). Knowledge of advance directives was also positively correlated with confidence in ethical decision-making ($r=.32$, $p<.001$), and confidence in ethical decision-making was positively correlated with ethical sensitivity ($r=.46$, $p<.001$). In the multiple regression analysis, confidence in ethical decision-making ($\beta=.20$, $p=.043$) and knowledge of advance directives ($\beta=.34$, $p=.001$) were identified as significant predictors of attitudes toward advance directives. The explanatory power of the model was 22.4%.

Conclusions : Positive attitudes toward advance directives among nursing students were significantly influenced by confidence in ethical decision-making and knowledge of advance directives. These findings suggest that nursing education should include systematic and practice-oriented ethics education programs that strengthen both ethical decision-making confidence and knowledge of legal and institutional aspects of advance directives. Such efforts may help prepare nursing students to support patient autonomy and participate effectively in end-of-life decision-making in clinical practice.

Keywords : Students-Nursing, Advance Directives, Health Knowledge- Attitudes- Practice, Ethics-Nursing, Decision Making



Research Trends in Communication Simulation Education for Undergraduate Nursing Students in Korea: A Scoping Review

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Purpose : Communication competence is a core competency for undergraduate nursing students to provide patient-centered nursing care. This scoping review aimed to systematically examine research trends in communication simulation education for undergraduate nursing students in Korea by identifying the characteristics and educational outcomes of communication simulation programs, thereby providing foundational evidence to inform future program development and research.

Methods : A scoping review was conducted using five Korean databases (KCI, KISS, KMBASE, RISS, and DBpia). Studies published between January 2016 and December 2025 were identified using the keywords nursing students, communication, and simulation education. After applying the inclusion and exclusion criteria, 12 studies were included. The selected studies were analyzed according to study characteristics, simulation intervention characteristics, outcome variables, measurement instruments, and research findings.

Results : Twelve studies were included. Most targeted third- and fourth-year undergraduate nursing students. SBAR-based communication and patient handoff communication were the most common educational topics, while recent studies increasingly addressed collaborative communication, including team communication for patient safety, interprofessional conflict management, and interprofessional communication. Standardized patients, high-fidelity simulation, and virtual reality were the primary simulation modalities. Frequently reported outcomes included communication competence, self-confidence in communication, problem-solving ability, self-efficacy, and clinical decision-making ability. Most studies reported improvements in communication competence and related communication outcomes.

Conclusions : Communication simulation education for undergraduate nursing students in Korea has become increasingly diverse in both educational content and simulation modalities. Future research should focus on developing programs for diverse clinical settings, standardizing educational content and evaluation methods, and establishing evidence for their educational effectiveness.

Keywords : Communication; Simulation Training; Students, Nursing



Collaborative Debriefing versus Repeated Simulation-Based Self-Reflection on Nursing Students' Clinical Reasoning Competency and Problem-Solving Process

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Purpose : Debriefing is a core element of virtual simulation (vSim) learning, but facilitator-led collaborative debriefing requires trained facilitators and synchronized scheduling, limiting its scalability. Structured self-reflection with repeated simulation has emerged as a learner-centered alternative, yet few studies have directly compared it with collaborative debriefing. This study compared the effects of the two approaches on nursing students' clinical reasoning competency and problem-solving process.

Methods : This study used a quasi-experimental design with a nonequivalent control group and a pretest, posttest, and 4-week follow-up. Participants were 55 nursing students at a university in Busan, South Korea, assigned to a collaborative reflective debriefing group (n=27) or a repeated simulation-based self-reflection group (n=28). Both groups completed two vSim cases, myocardial infarction and chronic obstructive pulmonary disease. After a common sequence of pre-briefing, a first vSim run, and a structured reflection journal, the debriefing group underwent facilitator-guided collaborative debriefing, whereas the self-reflection group performed a second vSim run with feedback analysis and individual reflection for equal total time. Outcomes were measured at baseline (T0), post-intervention (T1), and 4 weeks later (T2), and analyzed using repeated measures ANOVA.

Results : Clinical reasoning competency ($F=88.96$, $p<.001$) and problem-solving process ($F=45.61$, $p<.001$) improved significantly over time in both groups. Neither the between-group difference nor the group by time interaction was significant. Scores at T1 and T2 were significantly higher than baseline ($p<.001$), whereas the T1-T2 difference was not significant, indicating that gains were maintained at 4 weeks.

Conclusions : Both strategies significantly improved clinical reasoning competency and problem-solving process, with gains maintained at 4 weeks. No significant difference was found between them, suggesting that repeated simulation with structured self-reflection can efficiently complement or substitute for facilitator-led debriefing, especially in online or resource-limited settings.

Keywords : Simulation Training, Students, Nursing, Clinical Reasoning, Problem Solving, Education, Nursing



Factors Influencing Readiness for Interprofessional Education among Korean Undergraduate Nursing Students: A Cross-Sectional Study

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Purpose : As healthcare becomes increasingly complex, effective interprofessional collaboration is essential for delivering high-quality patient-centered care. Preparing nursing students for collaborative practice through interprofessional education (IPE) has therefore become a key priority in nursing education. This study aimed to identify factors influencing readiness for IPE among Korean undergraduate nursing students.

Methods : A cross-sectional study was conducted using convenience sampling of undergraduate nursing students from two universities in South Korea. Data were collected using structured questionnaires assessing perceptions of IPE, attitudes toward IPE, and readiness for IPE. Descriptive statistics, Pearson's correlation analysis, and multiple regression analysis were performed using SPSS version 30.

Results : A total of 179 nursing students were included in the analysis, and approximately half had previous experience with IPE. Readiness for IPE was positively correlated with both perceptions of IPE ($r = .39, p < .001$) and attitudes toward IPE ($r = .71, p < .001$). Multiple regression analysis identified attitudes toward IPE ($\beta = .69, p < .001$) as the only significant predictor of readiness for IPE. The regression model was statistically significant ($F = 89.79, p < .001$) and explained 50.0% of the variance in readiness for IPE.

Conclusions : These findings suggest that fostering positive attitudes toward interprofessional collaboration, rather than simply increasing awareness of IPE, is critical to enhancing nursing students' readiness for IPE. Integrating authentic interprofessional learning experiences into undergraduate nursing curricula may help achieve this goal.

Keywords : Students, nursing; Interprofessional education; Attitude of Health Personnel; Professional Competence



Analysis of Research Trends in Nursing Simulation Education: A BERTopic-Based Topic Modeling Approach

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Purpose : This study aimed to analyze global research trends in nursing simulation education and to explore differences in topic interests between nurses and nursing students, thereby identifying potential research gaps.

Methods : A total of 17,284 English-language abstracts related to nursing simulation education were retrieved from PubMed, Web of Science, Scopus, and CINAHL. Topic modeling was conducted using BERTopic to extract major themes. The first analysis identified overall research trends, while the second compared topic distributions between nurses and nursing students.

Results : Fifty topics (coherence score = 0.65) were identified and hierarchically clustered into four categories: (1) clinical skills (e.g., CPR, neonatal resuscitation, medication safety), (2) human-centered care (e.g., dementia, empathy, cultural competence), (3) healthcare environment and disease management (e.g., COVID-19, oncology, infection control), and (4) educational innovation and technological integration (e.g., VR, AR, AI, teamwork, ethics). Both groups emphasized patient-centered care, safety, and ethical values. Nursing students focused on debriefing (23.25%), immersive technologies such as VR (8.03%), and interprofessional teamwork (6.17%), reflecting interest in educational innovation. Nurses concentrated on medication safety (6.62%), neonatal resuscitation (6.29%), disaster preparedness (4.97%), and CPR (4.72%), highlighting clinical practice priorities. These findings reveal a transition gap between student-centered educational innovations and nurse-centered clinical demands, with limited research bridging the two.

Conclusions : Nursing simulation education is evolving along two axes: technological innovation and clinical practice, underpinned by shared values of patient safety and ethical care. Future research should strengthen the integration between educational innovations and clinical practice to ensure that simulation-based learning effectively enhances real-world nursing competencies.

Keywords : Nursing Education, Simulation Training, Topic Modeling



Redesigning a Generative AI Chatbot to Support Reflective Thinking in Nursing Students After Their First Clinical Practicum

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Aim(s) : This study aimed to redesign an initial generative AI chatbot, originally developed as a philosophical dialogue-based tool to support reflection among nursing students, into a reflective support chatbot for students after completing their first clinical practicum. Students at this stage may experience mixed feelings of achievement, anxiety, and uncertainty, and may still lack a framework for organizing clinical experiences.

Methods : We conducted a researcher-led redesign of the initial chatbot by reviewing its target users, dialogue structure, and conceptual clarity. The initial chatbot was developed as a custom GPT in ChatGPT and theoretically grounded in nursing theories and nursing philosophy, including perspectives on care, personhood, and the environment, as well as Schön's theory of reflective practice, learning theories, and generative AI dialogue design. While retaining this theoretical foundation, we redefined the target users as nursing students after completing their first clinical practicum and reconstructed the prompt to adapt philosophical dialogue into a reflective dialogue structure grounded in concrete clinical experiences and students' readiness for reflection.

Results : The redesign resulted in a refined prompt that clarified the chatbot's target users, dialogue purpose, and response boundaries. The revised chatbot was designed to support students in verbalizing practicum experiences, articulating emotions, and connecting patient understanding with self-understanding. It also incorporated response rules to avoid repetitive questioning, directive advice, evaluative feedback, excessive sympathy, and counseling-oriented responses.

Conclusions : Redefining the target users as students after their first clinical practicum enabled a chatbot design more closely aligned with their concrete experiences and readiness for reflection. The redesigned chatbot may serve as a design foundation for helping early-stage nursing students organize clinical experiences and develop reflective understanding of patients, themselves, and nursing practice. Further formative evaluation is needed to examine its usability and educational appropriateness.

Keywords : artificial intelligence, chatbot, nursing education, reflection



Sleep Quality and Its Associated Factors among Nursing Students with Clinical Practicum Experience

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Purpose : Nursing students are vulnerable to insufficient sleep and poor sleep quality due to early clinical schedules, the need to balance academic coursework with clinical practicum, and the burden of assignments and evaluations. Poor sleep quality may adversely affect academic performance, clinical competence, and physical and mental health. This study aimed to assess the level of sleep quality among nursing students with clinical practicum experience and to examine its associations with general characteristics, clinical practicum stress, and smartphone overdependence.

Methods : This descriptive correlational study included 116 third- and fourth-year nursing students with clinical practicum experience from two universities located in Gyeongsangbuk-do, South Korea. Data were collected through an online survey conducted from April 28 to May 8, 2026. Data were analyzed using descriptive statistics, independent t-tests, one-way ANOVA, and Pearson's correlation coefficients with SPSS/WIN version 31.0.

Results : The mean Korean version of Pittsburgh Sleep Quality Index (PSQI-K) score was 8.07 ± 3.29 out of 21, and 77.6% of participants were classified as poor sleepers ($PSQI-K > 5$). Insufficient sleep duration and daytime dysfunction were prominent, with 68.9% of participants sleeping less than 6 hours per night and 50.8% reporting daytime dysfunction. Poorer sleep quality was observed among fourth-year students and those with poor self-rated mental health. The PSQI-K score was positively correlated with clinical practicum stress ($r = .30, p < .001$), but was not significantly correlated with smartphone overdependence.

Conclusions : Nursing students with clinical practicum experience demonstrated poor sleep quality, with a high prevalence of insufficient sleep and daytime dysfunction. Self-rated mental health and clinical practicum stress were significantly associated with sleep quality. These findings suggest the need to regularly assess sleep health and implement interventions to reduce clinical practicum stress in order to promote healthy sleep among nursing students.

Keywords : Nursing students, Sleep quality, Clinical practicum stress, Smartphone overdependence



Development and Psychometric Evaluation of a Handoff Competency Scale for Nursing Students

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Purpose : Handoff is a core nursing competency that ensures patient safety and continuity of care. However, no standardized instrument is currently available to comprehensively assess nursing students' handoff competency across knowledge, skills, and attitudes. This study aimed to develop a handoff competency scale for nursing students and evaluate its psychometric properties.

Methods : This methodological study was conducted in two phases. Preliminary items were generated through a literature review and in-depth interviews with nurse educators and experienced clinical nurses involved in handoff education. The preliminary scale was refined through content validity, face validity, and pilot testing. A total of 330 nursing students from five universities in South Korea participated in the psychometric evaluation. The sample was randomly divided for exploratory factor analysis ($n = 165$) and confirmatory factor analysis ($n = 165$). Construct validity, convergent validity, and internal consistency reliability were examined.

Results : The final scale consisted of 22 items across four factors: Nursing Knowledge, Information Literacy, Interaction, and Respect and Attitude. Exploratory factor analysis supported the four-factor structure, explaining 60.3% of the total variance. Confirmatory factor analysis demonstrated an acceptable model fit ($\text{CMIN}/\text{df} = 1.58$, $\text{CFI} = .91$, $\text{TLI} = .90$, $\text{RMSEA} = .06$). Convergent validity was established, and the overall internal consistency was excellent (Cronbach's $\alpha = .90$).

Conclusions : The developed scale demonstrated satisfactory validity and reliability for assessing nursing students' handoff competency. It provides a standardized instrument for evaluating nursing students' handoff competency and may support the development and evaluation of handoff education programs in undergraduate nursing education.

Keywords : Handoff, Nursing Education, Nursing Students, Psychometrics



Lived Experiences of Adaptation Among Nontraditional Male Nursing Students: A Phenomenological Study

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Purpose : Men who enter nursing later in life occupy dual minority positions as males in a female-dominated field and as nontraditional students among younger peers, however their experiences remain underexplored. The purpose of this study is to explore the lived experiences and the meaning of adaptation among nontraditional male nursing students.

Methods : Seven nontraditional male students(aged 27 tp 38 years) enrolled in the nursing program at a university in a metropolitan city in Korea, who participated in individual in-depth interviews in September 2025. Participants were recruited through purposive and snowball sampling until data saturation was reached. Data collection and analysis were performed simultaneously using Colaizzi's phenomenological method.

Results : The final analysis yielded 11 themes and 4 theme clusters. The four clusters were as follows: "A life turning toward stability," which captured how repeated job insecurity and family influence led participants to choose nursing; "Shifting learning and motivation," which described how an initially practical choice grew into genuine interest through relationships and small achievements, "Identity and adjustment," which reflected the tension of dual minority status and the reconstruction of masculinity within a care-oriented profession; and "Building relationships and belonging," which demonstrated how peer relationships and shared activities transformed early distance into a sense of belonging.

Conclusions : For nontraditional male nursing students, adapting to a nursing program involves reconstructing identity, negotiating difference, and finding a sense of belonging. The findings of this study highlight the need for inclusive teaching strategies and peer support systems that reflect the growing diversity of students entering nursing education.

Keywords : Adaptation, Male, Nursing, Qualitative Research



Hospital Nurses' Clinical Teaching Competence: A Job Demands–Resources Perspective

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Purpose : This study aimed to examine the associations among the nursing work environment, job demands, and clinical teaching competence among hospital nurses.

Methods : This descriptive cross-sectional study included 249 nurses working in general and tertiary hospitals in South Korea. Eligible participants were nurses who provided direct inpatient care and had experience teaching nursing students during their clinical practicum. Data were collected from September to October 2025 using an online self-report questionnaire. The questionnaire assessed general characteristics, the nursing work environment, job demands, and clinical teaching competence. Descriptive statistics, independent-samples t-tests, analysis of variance, and hierarchical regression analysis were conducted to identify factors associated with clinical teaching competence.

Results : Clinical teaching competence was higher among nurses who perceived the teaching role as more important. Nurses in their 30s reported higher competence than those in other age groups. In the hierarchical regression analysis, individual characteristics, the nursing work environment, and job demands were associated with clinical teaching competence. Among the nursing work environment subdomains, foundations for quality of care and collegial nurse–physician relations were positively associated with clinical teaching competence, whereas greater quantitative demands were negatively associated with competence.

Conclusions : Hospital nurses' clinical teaching competence is influenced by individual characteristics, organizational resources, and job demands. Therefore, strategies to enhance clinical practicum education should focus on strengthening collaborative work environments and reducing excessive workloads.

Keywords : Clinical practicum, Job demands, Nurses, Work environment



Artificial intelligence literacy among nurse educators: A concept analysis

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Purpose : This study aimed to clarify the concept of artificial intelligence (AI) literacy among nurse educators by identifying its defining attributes, antecedents, consequences, and empirical referents.

Methods : Walker and Avant's concept analysis method was used. A literature search was conducted in accordance with PRISMA guidelines across RISS, KCI, PubMed, CINAHL, Web of Science, ERIC, and Scopus. Peer-reviewed studies published up to March 2026 that addressed AI literacy or AI-related competencies in relation to nurse educators' roles, educational contexts, or scholarly activities were reviewed. Of the 2,149 records identified, 22 studies were included in the final analysis.

Results : AI literacy among nurse educators was found to have four defining attributes: understanding of AI, review and evaluation of AI outputs, AI applications in nursing education and research, and ethical sensitivity regarding AI use. The antecedents of AI literacy among nurse educators were categorized into individual, organizational, and institutional factors. The consequences were classified as educator-related and learner-related consequences. Based on these findings, AI literacy among nurse educators was defined as the capacity of nurse educators to understand the basic concepts of AI and its possibilities and limitations in nursing education and clinical practice; critically review and evaluate AI outputs; appropriately use AI in teaching, learning, and scholarly activities; and demonstrate the ethical sensitivity required for AI use.

Conclusions : AI literacy among nurse educators is a multidimensional and context-specific competency that extends beyond technical knowledge to include educational judgment, professional responsibility, and ethical awareness. This concept provides a foundation for developing AI literacy education, faculty development programs, institutional guidelines, and measurement tools in nursing education.

Keywords : Artificial Intelligence, Literacy, Faculty, Nursing, Education, Nursing



Effectiveness of artificial intelligence integrated mixed reality-based high-alert medications management simulation program: A randomized controlled trial

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Purpose : To evaluate the effectiveness of an artificial intelligence (AI)-integrated mixed reality-based high-alert medication (AIMR-HAM) simulation program.

Methods : A randomized controlled pretest-posttest design was employed with 56 nurses (n=28 per group). The experimental group participated in the AIMR-HAM featuring AI-driven standardized patients and doctors, based on situated learning theory in mixed reality. The intervention included pre-briefing, two repeated simulation sessions, and structured debriefing . The control group received a traditional lecture. Primary (High-alert medication clinical performance) and secondary outcomes (clinical reasoning, communication, and medication safety competence) were analyzed using Mann-Whitney U, Wilcoxon signed-rank, and independent t-test.

Results : The experimental group demonstrated significantly higher high-alert medication clinical performance compared to the control group (Effect size [ES]=0.71). Sub-domain analysis showed significant improvements in medication administration (ES=0.78) and patient assessment (ES=0.43). Regarding secondary outcomes, both groups showed improved clinical reasoning and communication; however, the experimental group exhibited a significantly greater increase in medication safety competence (ES=0.35), whereas the control group showed no significant change.

Conclusions : The AIMR-HAM is more effective than traditional lectures in enhancing clinical performance and medication safety competence. Integrating AI-driven interactive agents within a mixed-reality environment provides a realistic, effective pedagogic strategy for high-risk clinical training, ultimately potentially reducing medication errors in practice.

Keywords : Artificial Intelligence. High-Alert Medication Error. Mixed Reality. Randomized Controlled Trial. Simulation Training.



Employment Preparation During Healthcare Workforce Disruption: Newly Graduated Nurses and Nursing Students

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Purpose : This study explored how unemployed newly graduated nurses and final-year nursing students prepared for employment during a period of healthcare workforce disruption in South Korea. It also compared how the two groups made sense of the same structural crisis at different points in their transition to practice.

Methods : A qualitative comparative design was used. Participants were eight unemployed newly graduated nurses and twelve fourth-year nursing students from two nursing schools. Individual in-depth interviews were conducted between October and December 2025. The interview data were analyzed using Ritchie and Spencer's Framework Analysis.

Results : Four analytical domains were identified: perceptions of workforce disruption, employment uncertainty, coping strategies, and evolving career perspectives. Newly graduated nurses described the situation as an immediate and prolonged crisis, marked by reduced recruitment, delayed appointments, and the need to maintain livelihood stability. By contrast, nursing students tended to understand the disruption as a future risk and focused mainly on licensure examination preparation and controllable academic tasks. Graduates also considered alternative career pathways beyond hospital employment, whereas students still viewed hospital employment as the expected first step in their nursing careers.

Conclusions : The findings suggest that employment difficulties during healthcare workforce disruption should be understood as a structural issue rather than as individual inadequacy. Nursing education programs need to provide stage-sensitive career guidance before graduation and structured transition support for graduates experiencing delayed employment.

Keywords : Career development, Employment, Nurses, Nursing Students, Transition to Practice



The Effects of Disaster Awareness and Safety Control on Disaster Response Confidence among Nursing Students

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Purpose : This study aimed to examine the levels of disaster awareness, safety control, and disaster response confidence among nursing students and to identify the effects of disaster awareness and safety control on disaster response confidence.

Methods : A descriptive correlational study was conducted with 139 nursing students. Data were collected using structured self-report questionnaires measuring disaster awareness, safety control, and disaster response confidence. Data were analyzed using descriptive statistics, Pearson's correlation coefficients, and multiple regression analysis. Disaster response confidence was entered as the dependent variable, while disaster awareness and safety control were entered as independent variables. Regression assumptions, including autocorrelation and model fit, were examined before interpreting the results.

Results : The mean scores were 76.86 ± 10.62 for disaster awareness, 25.89 ± 4.39 for safety control, and 58.75 ± 10.22 for disaster response confidence. Disaster response confidence was significantly positively correlated with disaster awareness ($r = .427, p < .001$) and safety control ($r = .592, p < .001$). Disaster awareness was also significantly positively correlated with safety control ($r = .525, p < .001$). In the multiple regression analysis, the regression model was statistically significant ($F = 39.826, p < .001$) and explained 36.9% of the variance in disaster response confidence. Safety control was the strongest influencing factor ($\beta = .508, p < .001$), followed by disaster awareness ($\beta = .161, p = .047$). The Durbin-Watson statistic was 2.204, indicating no serious autocorrelation problem.

Conclusions : Disaster awareness and safety control were significant factors influencing disaster response confidence among nursing students. These findings suggest that nursing education should include structured disaster nursing education strategies that enhance students' disaster awareness and strengthen their perceived safety control. Educational programs designed to improve safety control may be particularly important for increasing nursing students' confidence in disaster response.

Keywords : Disaster Awareness; Disaster Response Confidence; Nursing Students; Safety Control



The Effect of Simulation-Based Disaster Nursing Education on Disaster Nursing Competency of Nursing Students: A Systematic Literature Review and Meta-Analysis

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Purpose : This study aimed to systematically review and quantitatively synthesize the effects of simulation-based disaster nursing education on disaster nursing competency among undergraduate nursing students. The outcomes included disaster knowledge, disaster performance skills, disaster attitudes, disaster preparedness, and self-efficacy.

Methods : This study was a systematic literature review and meta-analysis of experimental and quasi-experimental studies. International journal articles published between 2016 and May 2026 were searched using major health science databases. Studies were included when they examined simulation-based disaster nursing education for undergraduate nursing students and reported sufficient statistical data for quantitative synthesis. After removing duplicates and screening titles, abstracts, and full texts, 12 studies met the inclusion criteria and were included in the final analysis. Data were extracted on publication year, country, study design, sample size, simulation type, intervention content, and outcome variables. The methodological quality of the included studies was assessed independently by two researchers. Hedges' standardized mean difference was calculated as the effect size using Comprehensive Meta-Analysis version 3.0. A random-effects model was applied because substantial heterogeneity was identified across studies.

Results : The 12 studies included 1,145 nursing students. The overall effect of simulation-based disaster nursing education on disaster nursing competency was large and statistically significant, with a Hedges' standardized mean difference of 1.42 and a 95% confidence interval of 1.15 to 1.69. Among the subdomains, the largest effect was found for self-efficacy, followed by disaster performance skills, disaster attitudes and preparedness, and disaster knowledge. Subgroup analysis showed that disaster-chain scenarios and standardized patient-based simulation produced larger effects than other simulation types.

Conclusions : Simulation-based disaster nursing education is an effective educational intervention for improving disaster nursing competency among undergraduate nursing students. These findings support the integration of complex disaster scenarios and standardized patient-based simulation into undergraduate nursing curricula.

Keywords : Disaster Nursing; Education, Nursing; Simulation Training; Students, Nursing



Nursing Students' Perceptions of a Good Death, Attitudes Toward End-of-Life Care, and Educational Needs: A Mixed-Methods Study

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Purpose : This study aimed to examine the relationships among nursing students' perceptions of a good death, attitudes toward end-of-life care, and educational needs for end-of-life care, and to gain an in-depth understanding of their experiences caring for dying patients during clinical practice.

Methods : An explanatory sequential mixed-methods design was employed. Quantitative data were collected from 110 third- and fourth-year nursing students with clinical practice experience and analyzed using descriptive statistics, independent t-tests, one-way analysis of variance, and Pearson correlation coefficients. Qualitative data were obtained through semi-structured interviews with 12 nursing students and analyzed using Braun and Clarke's thematic analysis. Quantitative and qualitative findings were integrated to provide a comprehensive understanding of end-of-life care educational needs.

Results : Participants reported high levels of educational needs for end-of-life care. Perceptions of a good death were positively correlated with attitudes toward end-of-life care ($r=.272$, $p=.004$) and educational needs for end-of-life care ($r=.209$, $p=.028$). Attitudes toward end-of-life care were also positively correlated with educational needs ($r=.316$, $p=.001$). Five themes emerged: emotional distress, uncertainty in caregiving roles, perceived limitations of clinical end-of-life care, professional growth through experiences with patient death, and the need for practical and emotional support in education. Integrated findings revealed that nursing students' high educational needs were closely linked to emotional distress, role uncertainty, and inadequate preparation for end-of-life care encountered during clinical practice, highlighting the need for practical and emotionally supportive educational programs.

Conclusions : Nursing students experience substantial emotional and professional challenges when caring for dying patients during clinical practice. The findings support the development of comprehensive end-of-life care curricula that incorporate simulation-based learning, therapeutic communication training, emotional coping strategies, family-centered care education, and reflective learning opportunities to enhance students' preparedness and competence in end-of-life care.

Keywords : Attitudes toward End-of-Life Care; End-of-Life Care Education; Good Death; Nursing Students



Relationships Among Artificial Intelligence Literacy, Self-Directed Learning Ability, and Academic Self-Efficacy in Nursing Students

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Purpose : This study aimed to identify the levels of artificial intelligence literacy, self-directed learning ability, and academic self-efficacy among nursing students, and to examine the relationships among these three learning-related variables in the context of nursing education.

Methods : A descriptive correlational study was conducted with nursing students enrolled in a nursing program at one university in Korea. Participants were recruited through convenience sampling. Of 117 collected questionnaires, 105 were included in the final analysis after excluding incomplete, inconsistent, or unsuitable responses. Data were collected from December 28, 2025, to January 7, 2026, using structured self-report questionnaires. The instruments measured artificial intelligence literacy, self-directed learning ability, and academic self-efficacy on five-point scales. Data were analyzed using descriptive statistics, independent t-tests, one-way analysis of variance with Scheffé post hoc tests, and Pearson's correlation coefficients.

Results : The mean scores were 3.48 ± 0.59 for artificial intelligence literacy, 3.57 ± 0.50 for self-directed learning ability, and 3.16 ± 0.55 for academic self-efficacy. Significant differences in all three variables were found according to learning planning frequency and task performance confidence. Students with higher learning planning frequency and stronger task performance confidence tended to report higher levels of the three variables. In contrast, artificial intelligence use frequency did not show significant differences in any of the three variables. Artificial intelligence literacy was positively correlated with self-directed learning ability ($r = .530, p < .001$) and academic self-efficacy ($r = .378, p < .001$). Self-directed learning ability was also positively correlated with academic self-efficacy ($r = .693, p < .001$).

Conclusions : AI literacy was significantly associated with self-directed learning ability and academic self-efficacy among nursing students. These findings suggest that AI literacy education in nursing curricula should extend beyond frequent AI use and include critical evaluation, ethical use of AI, and self-directed learning strategies to strengthen students' learning competencies.

Keywords : Artificial Intelligence; Self Efficacy; Self-Directed Learning as Topic; Students, Nursing



Prioritizing Disaster Nursing Education for Nurse Managers Based on the ICN Core Competencies in Disaster Nursing (CCDN) Version 2.0

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Purpose : Nurse managers play a pivotal role in organizational disaster preparedness and response. However, evidence-based disaster nursing education tailored to their responsibilities remains limited. This study aimed to identify and prioritize educational needs related to disaster nursing competencies among nurse managers using the Borich Needs Assessment and the Locus for Focus Model (LfFM).

Methods : A cross-sectional descriptive survey was conducted among 138 nurse managers working in clinical settings. The survey instrument was developed based on the International Council of Nurses (ICN) Core Competencies in Disaster Nursing (CCDN) Version 2.0 and consisted of 33 competency items across eight domains. Participants rated both the perceived importance and current performance level of each competency. Educational needs were calculated using the Borich Needs Assessment formula, and priority competencies were identified through LfFM analysis.

Results : The mean overall performance score was 3.9 out of 5.0, indicating relatively high self-reported competency. Nevertheless, significant gaps between importance and performance were identified. Fourteen of the 33 competency items (42.4%) were classified within the High Importance–High Discrepancy quadrant of the LfFM, and 12 of these overlapped with the highest-ranked Borich items, representing the primary educational priorities. Two additional competencies in the Low Importance–High Discrepancy quadrant also overlapped with Borich priority items and were identified as secondary priorities. Priority competencies spanned seven of the eight CCDN domains, including preparedness and planning, communication, incident management systems, safety and security, assessment, intervention, and law and ethics. Despite relatively high levels of self-reported competency, substantial educational needs were identified across most CCDN domains.

Conclusions : Comprehensive, role-specific disaster nursing education programs are needed to address priority competency gaps among nurse managers. The findings provide an evidence base for developing structured educational interventions that strengthen disaster preparedness and response capacity.

Keywords : disaster nursing, educational needs, ICN Core Competencies in Disaster Nursing, nurse managers



Nursing students' retrospective meaning-making of narrative-enhanced problem-based learning: a narrative inquiry

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Purpose : To explore how nursing students retrospectively reconstructed the meaning of narrative-enhanced problem-based learning from different temporal and experiential positions.

Methods : Design. Retrospective narrative inquiry informed by Clandinin and Connelly's three-dimensional inquiry space of temporality, sociality, and place.

Settings. Two nursing education institutions in South Korea.

Participants. Sixteen nursing students: 12 third-year and four fourth-year students who had completed the focal course in their second year.

Methods. Five group interviews were conducted between 29 May and 6 July 2025. Within-participant narrative readings and cross-narrative comparison examined recalled classroom experiences, subsequent encounters, and interpretations at interview. Students were interviewed once, approximately 6–7 or 17–19 months after the course.

Results : Two extended narrative accounts and five cross-narrative threads described initial uncertainty, retrospective interpretations of feedback, comparison with peers and clinical practice, perceived tensions between creativity and standardisation, and professional meaning. Several students reconsidered difficult feedback as useful, whereas one continued to describe it negatively. Fourth-year participants described perceived gains in clinical correctness alongside a narrowing of exploratory thinking. The participant without clinical placement interpreted learning through changes in study practices and expectations of future practice.

Conclusions : Participants described subsequent experiences as reference points for recognising and reassessing the meaning of earlier learning. Differences between accounts cannot be attributed to elapsed time alone. Retrospective qualitative enquiry may complement immediate course evaluation by examining perceived benefits, continuing difficulties, and tensions in professional learning.

Keywords : narrative inquiry; nursing education; problem-based learning; professional identity



Assessing Clinical Safety Threats and Student Coping: Scale Development and Initial Validation of the CP-STECS

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Purpose : The purpose of this study was to develop the Clinical Practice Safety Threat Experience and Coping Scale (CP-STECS) for nursing students and evaluate its psychometric properties.

Methods : A total of 493 third- and fourth-year nursing students from six universities in South Korea participated in this study from April 2025 to February 2026 were enrolled.

Content validity and construct validity were evaluated. Internal consistency was assessed using Cronbach's α coefficients and composite reliability (CR). All statistical analyses were conducted using SPSS version 23.0 and Mplus version 8.10.

Results : The CP-STECS comprises two subscales: Safety Threat Experiences (12 items, 3 factors: Threat exposure; Clinical safety support; Pre-practice preparation) and Coping Responses to Safety Threats (10 items, 3 factors: Inhibited coping; Active help-seeking; Coping readiness), explaining 62.0% and 69.6% of the total variance, respectively. CFA confirmed acceptable model fit for both subscales (Safety Threat Experiences: CFI = .96, TLI = .95, RMSEA = .08, SRMR = .05; Coping Responses: CFI = .97, TLI = .96, RMSEA = .09, SRMR = .05). Internal consistency was acceptable across samples, with overall Cronbach's α values ranging from .79 to .83 and composite reliability values meeting acceptable criteria.

Conclusions : The CP-STECS demonstrated adequate validity and reliability and may support the development of educational interventions to promote safe clinical practice among nursing students.

Keywords : Clinical practice, Coping, Safety, Scale development



The Effectiveness of Interprofessional Education for Healthcare Students: Do Structural Program Characteristics Matter? A Systematic Review, Meta-Analysis, and Meta-Regression

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Purpose : Interprofessional education (IPE) has been widely adopted to prepare healthcare students for collaborative practice, and previous studies have consistently demonstrated its educational benefits. However, little is known about whether structural program characteristics influence intervention effectiveness. Therefore, this study aimed to synthesize the effectiveness of IPE among pre-licensure healthcare students and to examine whether instructional approach, intervention duration, delivery modality, and the number of participating professions are associated with variations in educational outcomes.

Methods : A systematic review and meta-analysis were conducted in accordance with the PRISMA 2020 guidelines. PubMed, Embase, Cochrane Library, and CINAHL were searched for studies published between January 2000 and April 2026. Randomized controlled trials and quasi-experimental studies involving pre-licensure healthcare students were included. A random-effects meta-analysis using Hedges' g was performed, followed by subgroup analysis and meta-regression to examine the effects of structural program characteristics on intervention effectiveness.

Results : Twenty-four studies were included in the meta-analysis. IPE demonstrated significant positive effects across all educational outcome domains, including attitudes/perceptions ($g = 0.406$), competence/skills ($g = 0.571$), teamwork/collaboration ($g = 0.504$), and knowledge ($g = 0.703$). However, meta-regression revealed that instructional approach, intervention duration, delivery modality, and the number of participating professions were not significantly associated with variations in intervention effectiveness.

Conclusions : Interprofessional education consistently improves educational outcomes among healthcare students regardless of structural program characteristics. These findings suggest that the educational value of IPE may arise from authentic interprofessional interaction itself rather than from how programs are structurally designed. Future research should focus on identifying the interaction processes that drive effective collaborative learning to better inform the design of IPE programs.

Keywords : Interprofessional education, Healthcare students, Collaborative learning, Meta-analysis, Meta-regression



Using AI-Powered Virtual Clients to Strengthen Empathic Communication in Nursing Education

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Purpose : To develop and conduct expert validation of AI driven clinical scenarios designed to enhance empathic communication among undergraduate nursing students.

Methods : This methodological study followed a structured, multi phase development process. First, empathic communication competencies and common student challenges were identified through a review of relevant literature and consultations with clinical and academic nurse educators. Next, draft AI driven scenarios were created to represent typical clinical situations, each with multiple empathic opportunity points and AI generated client responses to prompt students' recognition and expression of empathic communication skills. Content validity was evaluated by an expert panel of 10 nursing clinicians and educators using a structured 15 item rating form. Item level content validity indices (I CVI) and the average scale level CVI (S CVI/Ave) were calculated. Qualitative comments from experts were used to refine scenario wording, realism, and alignment with empathy constructs.

Results : The final set comprised three AI driven clinical scenarios: (i) a mother of a paediatric client, (ii) an adult stroke client, and (iii) a geriatric client. These AI generated clients represented common clinical encounters across different clinical settings and reflected a wide range of clinical conditions and social roles. Content validity analysis indicated acceptable to excellent agreement across items (I CVI 0.80–1.00), and the overall scale demonstrated high content validity (S CVI/Ave = 0.99). Experts judged the scenarios to be realistic, clinically relevant, and appropriate for undergraduate students, and recommended their use in teaching empathic communication. These scenarios were implemented on a Unity based platform powered by a GPT based conversational agent.

Conclusions : AI driven, expert validated clinical scenarios offer a feasible and promising approach to teaching empathic communication in undergraduate nursing education. The validated scenarios will be adopted as a core component of a multicomponent training programme and will underpin a subsequent randomised controlled trial examining effects on empathic.

Keywords : Artificial intelligence, empathy, nursing education, scenario development



Factors Influencing Learning Outcomes of Nontraditional Nursing Students

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Aim : Recently, the proportion of transfer and nontraditional students in nursing education has increased significantly, necessitating tailored educational strategies. This study aimed to identify the effects of digital literacy, communication competence, and learning flow on the learning outcomes of nontraditional nursing students to provide foundational data for developing curricula that enhance academic adaptation and professional nursing core competencies.

Methods : This descriptive cross-sectional study included 185 nontraditional nursing students from three universities in G Metropolitan City and J Province. Data were collected from May 14 to May 29, 2026, using standardized self-report questionnaires. Data were analyzed using descriptive statistics, t-test, ANOVA, Pearson's correlation coefficients, and multiple regression analysis with SPSS 22.0 to identify factors influencing learning outcomes.

Results : Learning outcomes showed statistically significant differences based on general characteristics such as marital status, presence of children, and subjective academic burden. Correlation analysis revealed that learning outcomes were significantly positively correlated with digital literacy, communication competence, and learning flow. The multiple regression analysis identified 'learning flow' and 'communication competence' as the most powerful predictors of learning outcomes. The total explanatory power of this regression model was high at 64.9% ($F=170.88, p<.001$).

Conclusions : Learning flow and communication competence are critical mechanisms determining the learning outcomes of nontraditional nursing students. To enhance academic success in an environment with increasing nontraditional students, it is essential to create supportive environments that facilitate learning flow and provide practical communication training. Universities should establish flexible support systems considering students' life contexts, such as family responsibilities, and operate customized curricula to cultivate competent professional nurses.

Keywords : Nontraditional students, Learning outcomes, Digital literacy, Communication competence, Learning flow



Role conflict in nursing preceptors: A concept analysis

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Purpose : Preceptors play dual roles as clinical practitioners and educators and often fulfill multiple responsibilities. Given these demands and increasingly complex clinical settings, they are likely to experience role conflict. However, this concept remains insufficiently defined in the nursing literature. This study aimed to clarify the concept of as well as define the attributes of role conflict among preceptor nurses.

Methods : A concept analysis was conducted using the procedures outlined by Walker and Avant. A literature search was performed across six databases, and a total of 28 studies were included to identify the uses, attributes, antecedents, and consequences of the concept.

Results : Preceptor role conflict was identified as a state of ongoing psychological tension arising from performing the dual roles of clinical practitioner and educator. Three defining attributes were derived: role ambiguity, conflicting role demands, and letting-go conflict. Role ambiguity refers to a state wherein the expectations and responsibilities associated with the preceptor role are not clearly defined. Conflicting role demands refer to a state in which multiple incompatible demands and competing priorities between patient care and educational responsibilities coexist. Letting-go conflict refers to the tension between granting autonomy to preceptees and maintaining responsibility for patient safety as preceptors regulate their levels of observation and intervention. The antecedents were categorized into individual, work-related, organizational, and environmental factors. The consequences included emotional outcomes, such as burnout and stress; educational outcomes, such as reduced learning opportunities; patient-related outcomes, such as decreased quality of care and safety; and organizational outcomes, such as negative attitudes toward the organization and interpersonal relationships.

Conclusions : This study clarifies the concept of preceptor role conflict by identifying its defining attributes, antecedents, and consequences. These findings provide a theoretical foundation for understanding this phenomenon and underscore the need for targeted organizational and educational strategies to support preceptors.

Keywords : Concept Analysis, Education, Nursing, Preceptorship, Role Conflict



Factors Influencing Ageism among Nursing Students: Focus on Knowledge, Empathy, and Interpersonal Competence

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Purpose : This study aimed to investigate the impact of knowledge regarding older adults, empathy, and interpersonal competence on ageism among nursing students. The findings are intended to provide a theoretical and practical foundation for developing educational curricula designed to foster positive perceptions of aging in future nursing professionals.

Methods : A descriptive cross-sectional study was conducted with 199 nursing students recruited from four colleges in G Metropolitan City. Data were collected between May 6 and June 9, 2026, using standardized self-report questionnaires. The data were analyzed using SPSS 24.0, employing descriptive statistics, t-tests, ANOVA, Pearson's correlation coefficients, and multiple regression analysis to identify the predictors of ageism.

Results : The study revealed significant differences in ageism based on students' general characteristics, such as prior contact with the elderly, duration of cohabitation, frequency of interaction, and subjective emotions experienced during those interactions. Correlation analysis showed that ageism was significantly and negatively correlated with knowledge of older adults, empathy, and interpersonal competence. This suggests that higher levels of these attributes contribute to more favorable attitudes toward the elderly. Multiple regression analysis further identified "emotions felt during interactions" and "empathy" as the most potent predictors of ageism, collectively explaining 32.1% of the total variance ($F=47.76, p<.001$).

Conclusions : To effectively mitigate ageism among nursing students, educational interventions must transcend traditional knowledge-based instruction. It is imperative to integrate experiential learning opportunities that facilitate authentic emotional engagement and enhance empathetic capacities. Developing institutional support systems within clinical practicum and community service programs is recommended to help students internalize positive professional values toward aging populations.

Keywords : Ageism, Nursing students, Knowledge, Empathy, Interpersonal competence



Correlates of Patient Safety Competency among Nurses and Nursing Students: A Systematic Review and Meta-Analysis

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Purpose : To synthesize the associations between patient safety competency, measured by the Patient Safety Competency Self-Evaluation (PSCSE), and related factors classified into individual, unit, and organizational levels, and to compare the magnitude of these associations across levels and factors.

Methods : This systematic review and meta-analysis followed PRISMA 2020 and MOOSE guidelines and was registered in PROSPERO (CRD420251236368). Eight databases were searched for studies published between October 2014 and September 2025 that used the PSCSE and reported Pearson correlations between patient safety competency and related factors. Factors were classified a priori into individual, unit, and organizational levels. Correlations were transformed to Fisher's z and pooled using random-effects models. To compare associations, a three-level meta-analytic model with cluster-robust standard errors tested differences across the three levels, and pooled effect sizes were estimated for factors reported in at least three studies.

Results : Thirty-eight studies ($N = 7,522$) yielded 93 effect sizes from 41 factors. The overall pooled correlation was significant ($r = 0.48$, 95% CI $[0.41, 0.54]$). Pooled effect sizes did not differ significantly across individual ($r = 0.50$), unit ($r = 0.32$), and organizational ($r = 0.43$) levels ($p = .178$). At the factor level, systems thinking ($r = 0.55$) and critical thinking disposition ($r = 0.46$) showed the strongest associations among individual factors, whereas clinical experience was not significant. Patient safety culture ($r = 0.51$) was the strongest organizational factor.

Conclusions : Patient safety competency was associated with factors at all three levels, with no significant differences across levels. At the factor level, cognitive characteristics—systems thinking and critical thinking—and patient safety culture showed the strongest associations, while clinical experience did not. These findings suggest that strengthening these cognitive competencies, together with fostering a patient safety culture, may represent promising targets for interventions aimed at improving patient safety competency.

Keywords : Nurses, Patient Safety Competency, Patient Safety Culture, Systems Thinking



Usability evaluating of an educational electronic nursing record system for nursing beginners

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Purpose : Healthcare systems have transitioned from paper-based documentation to electronic nursing records (ENRs), making ENR competency an essential skill for nurses. However, variations in digital literacy influence the adoption and effective use of ENRs, highlighting the need for structured education. In nursing education, ENRs support case analysis and evidence-based nursing interventions while enhancing students' critical thinking and clinical adaptation. Despite these benefits, access to ENRs and opportunities for hands-on practice remain limited in clinical education settings. This study aimed to develop an educational e-ENR system for nursing beginners and evaluate its usability as a learning tool.

Methods : An educational ENR system was developed based on the ADDIE instructional design model using Visual Basic for Applications and the Selenium Basic framework. Ten nursing beginners, including final-year nursing students and novice nurses, participated in the usability evaluation. Data were collected through individual interviews exploring participants' experiences and perceptions.

Results : Analysis of the data yielded two overarching themes: enhancement of information management competencies through educational ENR use and facilitation of the transition from academic learning to clinical practice. Participants perceived that educational ENR improved their familiarity, confidence, and preparedness for electronic nursing documentation, contributing to their readiness for technology-enabled clinical practice.

Conclusions : The educational ENR system offers a feasible approach to integrating digital health technologies into nursing education. By providing hands-on experience with electronic documentation, it may help prepare nursing beginners for technology-enabled clinical practice. As artificial intelligence becomes increasingly integrated into healthcare, educational ENR systems could serve as a foundation for developing digital health and informatics competencies. Future development may incorporate artificial intelligence agents that support clinical reasoning, decision-making, and personalized feedback, thereby enhancing the educational value of ENR-based learning environments.

Funding : This work was supported by the National Research Foundation of Korea (NRF) grant funded by the Korea government (MSIT) (RS-2026-25472700).

Keywords : digital health competencies, nursing beginners, nursing education, electronic health records



The Effects of Mobile Application Education Before Clinical Practice on Nursing Knowledge, Academic Self-Efficacy, Clinical Practice Adaptation, and Clinical Performance Ability of Nursing Students

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Purpose : Sufficient preparation is required before clinical practice so that students can perform clinical practice without fear and with confidence in nursing. In order to help students prepare for clinical practice, we developed and applied a mobile application that can provide respiratory patient scenarios that can be experienced in an adult nursing internal medicine ward, and can learn about patient monitoring, ventilator management, occlusive suction, pain assessment, drug infusion, and nursing intervention.

Methods : This study is a quasi-experimental study using a nonequivalent control group pre- and post-test design to investigate the effects of a respiratory nursing mobile application on nursing college students by comparing the experimental group that developed and applied it with the control group that provided printed materials. The subjects of the study were 3rd year nursing students in the Department of Nursing at C University in G Metropolitan City who had not experienced clinical practice in the internal medicine ward of adult nursing. The intervention program was applied for 2 weeks before the practice, and data were collected before the intervention program was implemented for each group and at the end of the clinical practice in the internal medicine ward. The collected data were subjected to the Chi-square test and Independent t-test using the SPSS/WIN 25.0 program.

Results : The experimental group that received respiratory nursing mobile application education had statistically significant differences in nursing knowledge ($t=2.03$, $p=.048$) and clinical performance ability ($t=2.45$, $p=.018$) scores compared to the control group that did not receive the education.

Conclusions : It was confirmed that the respiratory nursing mobile application education provided before the clinical practice in the internal medicine ward of adult nursing had a positive effect on the nursing knowledge and clinical performance ability of nursing college students. Therefore, it is expected that mobile application education can be utilized as a teaching and learning method to improve the quality of clinical practice, and ultimately contribute to fostering competent nurses with expertise.

Keywords : Mobile Application, Knowledge, Self-Efficacy, Practice Adaptation, Performance Ability



Exploring the Use of AI-Generated Visual Patient Narratives for Empathy Learning among Undergraduate Nursing Students: A Mixed-Methods Study

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Purpose : Empathy is a core component of patient-centered nursing care; however, conventional text-based educational approaches have limitations in conveying patients' emotional experiences and contextual situations. AI-generated visual patient narratives may support empathy development through immersive learning experiences. This study aims to explore the potential of artificial intelligence-generated visual patient narratives as an educational strategy for enhancing empathy among undergraduate nursing students.

Methods : A total of 139 second-year nursing students participated. Participants from one university were assigned to the experimental group and those from the other university to the control group to minimize contamination. The experimental group engaged in AI-generated visual patient narrative learning with reflective activities based on Kolb's experiential learning theory, whereas the control group received conventional practice education. Empathy was measured using the Korean version of the Questionnaire of Cognitive and Affective Empathy, and reflection journals were analyzed using qualitative content analysis.

Results : The experimental group showed a significant increase in empathy after the intervention ($t = -3.31, p = .002$), although no significant between-group difference was found. Qualitative findings revealed emotional awareness, perspective-taking, patient-centered reflection, and professional identity in the experimental group.

Conclusions : AI-generated visual patient narratives may support empathy-related learning processes and reflective learning in nursing education.

Keywords : Empathy, Generative artificial intelligence, Narrative medicine, Nursing, Students



Development and Psychometric Evaluation of the Learning Agility Scale for Clinical Nurses

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Purpose : Existing learning agility instruments, developed for general organizational settings, may not capture the distinctive features of clinical nursing. This study therefore aimed to develop and psychometrically evaluate the Learning Agility Scale for Clinical Nurses.

Methods : In this methodological study following DeVellis's process, an initial item pool was generated from a literature review and focus groups and refined through expert review, cognitive interviews, and pilot testing. Of 530 clinical nurses from general hospitals, 513 valid responses were analyzed. Construct validity was examined using exploratory and confirmatory factor analysis (EFA, CFA). Convergent, discriminant, and criterion-related validity were also evaluated, and reliability was assessed using Cronbach's α , McDonald's ω , test-retest reliability, and the intraclass correlation coefficient (ICC). Item response theory (IRT) was used to evaluate item discrimination and difficulty.

Results : The final scale comprised 26 items across four factors: Rapid Response (9 items), Continuous Professional Development (6 items), Collaborative Communication (6 items), and Reflective Practice (5 items). The four-factor model showed satisfactory fit ($\chi^2/df = 1.87$, SRMR = .06, RMSEA = .06, TLI = .91, CFI = .92) and accounted for 58.50% of the total variance. Criterion-related validity was supported by a strong correlation with an established learning agility measure ($r = .72$, $p < .001$). The instrument demonstrated excellent internal consistency (Cronbach's $\alpha = .93$; McDonald's $\omega = .93$) and high test-retest reliability ($r = .86$, $p < .001$; ICC = .89, 95% CI = .82–.93). Under a graded response model, IRT showed high item discrimination ($a = 1.24$ – 3.23) and ordered difficulty parameters, indicating effective discrimination among nurses with varying learning agility.

Conclusions : The Learning Agility Scale for Clinical Nurses is a valid, reliable instrument reflecting the distinctive features of clinical nursing. It can support competency assessment and guide educational interventions and human resource development to enhance nurses' learning agility.

Keywords : Clinical Competence, Learning, Nurses, Psychometrics, Surveys and Questionnaires



Enhancing Nursing Students' Social Caring Competence Through University Social Responsibility Field Service: A Pilot Teaching Project

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Purpose : This pilot teaching project aimed to explore changes in nursing students' social caring competence after integrating University Social Responsibility field service into a community nursing practicum.

Methods : Seven senior nursing students from one community nursing practicum cohort participated in this pilot teaching project. The field service was conducted in a University Social Responsibility community service setting supporting family caregivers. A one-group before-and-after design was used. Students completed a pre-fieldwork assessment and a post-fieldwork impact assessment through the Zuvio cloud system. The teaching intervention included eight sessions of structured group guidance, peer interaction, case discussion, activity preparation, and rehearsal before field service. These sessions were designed to guide students to learn through preparation, practice, field engagement, and reflection. Outcomes included students' understanding of social caring and self-perceived social caring competence, measured using an 11-item, 5-point Likert scale, supplemented by written reflections.

Results : All seven students completed both assessments. The overall mean score for self-perceived social caring competence increased from 3.74 before field service to 4.58 after field service, with an average increase of 0.84 points. The largest improvements were observed in self-confidence, increasing by 1.71 points, and humanistic and cross-cultural competence, increasing by 1.14 points. Qualitative reflections showed that students moved beyond viewing caring mainly as helping disadvantaged groups. After the field service, they described caring as active observation, appropriate communication, timely assistance, teamwork, and reflective professional growth.

Conclusions : A structured University Social Responsibility field service teaching model may help nursing students develop social caring competence, communication readiness, and professional confidence before clinical and community practice. These preliminary findings support its potential value in nursing education.

Keywords : Community Nursing, Nursing Education, Social Caring Competence, University Social Responsibility



Effects of a Geriatric Nursing Clinical Practicum Utilizing Comprehensive Geriatric Assessment on Nursing Students' Attitudes and Behaviors toward Older Adults, Person-Centered Care, and Geriatric Nur

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Purpose : In 2025, South Korea entered a super-aged society, with its older adult population reaching 20.3%, marking the fastest aging rate among OECD nations. Along with this rapid demographic shift, the demand for geriatric healthcare is projected to increase continuously. Therefore, it is essential for nurses to possess the competence to understand and professionally address the complex needs of older adults. To enhance the geriatric nursing practice of clinical nurses, thorough preparation must begin during undergraduate geriatric nursing education. Consequently, this study aims to examine the effects of a geriatric nursing clinical practicum designed to enhance nursing students' understanding of and care competence for older adults.

Methods : This study was conducted from March to May 2025, targeting 87 nursing students practicing at a geriatric hospital. This study utilized a single-group pre-post test design in which participants completed a self-reported questionnaire after completing a two-week geriatric nursing clinical practicum.

The collected data were analyzed using the SPSS/WIN 25.0 program. A paired t-test was performed to compare the differences in participants before and after the practicum, and the correlations among the variables were analyzed using Pearson's correlation coefficients.

Results : The analysis of differences before and after the geriatric nursing clinical practicum utilizing comprehensive geriatric assessment (CGA) revealed statistically significant improvements in nursing students' attitudes toward older adults ($t=-5.215$, $p=.000$), person-centered care ($t=-5.756$, $p=.000$), and geriatric nursing practice ($t=-6.804$, $p=.000$). Regarding the correlations among the key variables, attitudes toward older adults showed significant positive correlations with behaviors toward older adults ($r=.344$, $p=.001$) and person-centered care ($r=.407$, $p=.000$). Furthermore, behaviors toward older adults were significantly and positively correlated with person-centered care ($r=.292$, $p=.006$) and geriatric nursing practice ($r=.262$, $p=.014$). Finally, a significant positive correlation was also found between person-centered care and geriatric nursing practice ($r=.355$, $p=.001$).

Conclusions : In conclusion, this study verified that the geriatric nursing clinical practicum

Keywords : Comprehensive Geriatric Assessment, Geriatric Nursing Clinical Practicum, Geriatric Nursing Practice, Nursing Student



Artificial intelligence–based communication interventions in nursing education: A scoping review

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Purpose : Effective communication competencies are essential for nurses to interact professionally in diverse clinical settings. As artificial intelligence (AI) technologies continue to evolve, AI-based communication training is increasingly being incorporated into nursing education. This scoping review synthesized the current evidence on AI-based communication training for nursing students and its educational outcomes.

Methods : This review was conducted in accordance with the methodological framework proposed by Arksey and O'Malley and further refined by Levac et al. A comprehensive literature search was conducted in four electronic databases: PubMed, Embase, CINAHL, and Scopus. A total of 15 studies were included as final studies. Quality appraisals were done using the Mixed Methods Appraisal Tool.

Results : AI-based communication training demonstrated positive educational outcomes, including improved communication competence, self-efficacy, clinical preparedness, and knowledge acquisition. Learners reported that AI-supported learning environments provided authentic and psychologically safe opportunities for communication practice, reflection, and the development of empathic awareness. Nevertheless, limitations related to the realism of AI interactions, particularly in emotional expression and human-like communication, were consistently identified across studies.

Conclusions : AI-based communication training provides a promising and innovative approach to communication education for nursing students by supporting the development of communication competence, self-efficacy, clinical preparedness, and communication-related knowledge. In addition, AI-supported learning environments may facilitate reflective learning, empathic awareness, and psychologically safe communication practice. Future developments should focus on enhancing emotional responsiveness, nonverbal interaction, and contextual realism to better support authentic communication experiences and optimize learning outcomes.

Keywords : artificial intelligence, communication, nursing education, voice



Navigating the Digital Shift: Review of Literature and Recommendations for Enhancing Nursing Informatics Education in the Philippines

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Purpose : The objective of this study was to synthesize existing literature on nursing informatics (NI) and propose updates to the Philippine Nursing Informatics curriculum that embrace current trends and integrate a globally acknowledged framework.

Methods : A literature search was conducted on PubMed and ScienceDirect. This search identified 79 articles, of which only eight met the inclusion criteria. The Technology Informatics Guiding Education Reform (TIGER) initiative provided the framework for analyzing the literature review outcomes and for developing the revised course structure for the Nursing Informatics (NI) curriculum in the Philippines.

Results : The revised course outline incorporated 31 topics across the six domains outlined by the TIGER framework. Upon comparison, it was found that numerous topics identified were absent from the existing NI curriculum in the Philippines. Key subjects identified for inclusion encompass research, examination of standards and terminologies, application in community health, cybersecurity, project management, and advocacy. These areas hold particular relevance for the Philippines, attributed to the limited recognition of NI and the ongoing advancements related to technological applications in healthcare.

Conclusions : The nursing informatics curriculum in the Philippines is not up to date, failing to align with global NI standards. It is recommended that a thorough revision and enhancement be undertaken to ensure alignment with international frameworks and current industry practices.

Keywords : Philippines, curriculum, nursing education, nursing informatics, review



Mediating Effect of Critical Thinking Disposition on the Relationship Between Ethical Nursing Competence and Clinical Performance Competence Among Nursing Students

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Purpose : This study examined the mediating effect of critical thinking disposition on the relationship between ethical nursing competence and clinical performance competence among nursing students to provide evidence for developing educational strategies to enhance clinical performance competence.

Methods : A descriptive cross-sectional survey was conducted with 194 nursing students from a university in Korea. Data were collected using structured questionnaires between November 10 and November 25, 2023. Data were analyzed using descriptive statistics, independent t-tests, one-way ANOVA, and Pearson's correlation coefficients with SPSS/WIN. The mediating effect of critical thinking disposition was examined using Hayes' PROCESS macro (Model 4) with 5,000 bootstrap samples.

Results : The mean scores for ethical nursing competence, critical thinking disposition, and clinical performance competence were 4.36 ± 0.47 , 3.97 ± 0.45 , and 3.87 ± 0.43 , respectively. Clinical performance competence significantly differed according to grade ($F=11.79$, $p<.001$), perceived health status ($F=3.68$, $p=.027$), major satisfaction ($F=10.41$, $p<.001$), college life satisfaction ($F=6.68$, $p=.002$), and academic performance ($F=5.43$, $p=.001$). Ethical nursing competence was positively correlated with critical thinking disposition ($r=.544$, $p<.001$) and clinical performance competence ($r=.490$, $p<.001$). Critical thinking disposition was also positively correlated with clinical performance competence ($r=.379$, $p<.001$). Mediation analysis showed that ethical nursing competence had a significant direct effect on clinical performance competence ($B=0.362$, 95% CI [0.244, 0.481]) and a significant indirect effect through critical thinking disposition ($B=0.078$, 95% CI [0.005, 0.158]). The total effect was 0.441 (95% CI [0.341, 0.541]), indicating partial mediation.

Conclusions : These findings suggest that educational strategies aimed at strengthening critical thinking disposition, along with enhancing ethical nursing competence, are necessary to improve clinical performance competence among nursing students. Therefore, nursing curricula should incorporate educational programs integrating ethical decision-making training and critical thinking enhancement.

Keywords : Ethical Nursing; Critical Thinking; Clinical Performance; Mediation Analysis



Factors Influencing Ethical AI Use Behavior Among Nursing Students

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Purpose : This study aimed to construct a hypothetical path model of ethical generative artificial intelligence (AI) use behavior among nursing students based on the Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) and ethical decision-making theory, and to examine the path relationships and mediating effects among the associated factors.

Methods : A cross-sectional study was conducted with 241 nursing students in South Korea who had experience using generative AI. Data were collected via an online survey comprising 43 items, including performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, habit, perceived risk of AI misuse, ethical AI use behavior, and general characteristics. Data were analyzed using SPSS/WIN 29.0 and SmartPLS 4.0 with partial least squares structural equation modeling (PLS-SEM).

Results : Performance expectancy ($\beta=.14$, $p=.037$) and perceived risk of AI misuse ($\beta=.44$, $p<.001$) had significant positive effects on ethical AI use behavior, whereas habit had a significant negative effect ($\beta=-.23$, $p=.003$). Habit negatively influenced perceived risk of AI misuse ($\beta=-.21$, $p=.015$), while AI ethics education experience had a positive effect ($\beta=.30$, $p=.022$). Perceived risk of AI misuse partially mediated the relationship between habit and ethical AI use behavior ($\beta=-.09$, $p=.023$, 95% CI=[-.173, -.014]), and fully mediated the relationship between AI ethics education experience and ethical AI use behavior ($\beta=.13$, $p=.024$, 95% CI=[.024, .253]). The model demonstrated acceptable fit (SRMR=.07), with R^2 values of .09 and .35 for perceived risk of AI misuse and ethical AI use behavior, respectively.

Conclusions : Perceived risk of AI misuse was identified as a key determinant of ethical AI use behavior among nursing students. Habitual AI use may impede ethical behavior, whereas AI ethics education promotes ethical use by enhancing awareness of misuse risks. These findings suggest that AI ethics education for nursing students should focus on fostering critical awareness of AI misuse risks and strengthening ethical reflection.

Keywords : Generative artificial intelligence, Ethics, Nursing students, Behavior



Motivation for participation in continuing professional education and transfer of learning among clinical nurses

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Purpose : This study aimed to examine the motivations behind nurses' participation in continuing professional education and the extent to which learning was transferred to clinical practice.

Methods : A descriptive cross-sectional study was conducted with 182 nurses from a general hospital in Gyeonggi Province. Participants were selected based on having at least one year of clinical experience. Data were collected using self-administered questionnaires between May 1 and May 30, 2025.

Results : Significant factors influencing learning transfer included department of employment ($F=4.49$, $p<.001$), type of work ($t=2.08$, $p=.038$), and voluntary participation in continuing education ($F=4.49$, $p<.001$). Motivation for participation was significantly correlated with the transfer of learning. Type of work, voluntary participation, and motivation for participation were identified as significant predictors of learning transfer, explaining 39.0% of the variance.

Conclusions : Continuing professional education plays a crucial role in fostering advanced nursing competencies. Organizational support is essential in promoting and sustaining continuing education and cultivating a learning-conducive culture.

Keywords : Continuing education; Nursing practice; Clinical Nursing; Professional Practice; Nurses, nursing



Factors Influencing Academic Achievement among Nursing Students

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Purpose : This study aimed to examine the effects of stress, major satisfaction, and academic self-efficacy on academic achievement among nursing students and to identify key predictors of academic achievement.

Methods : A descriptive research design was used. Participants were 230 nursing students recruited by convenience sampling from one university in D City. Participants were informed of the study purpose and provided informed consent. Data were collected from July 21 to August 11, 2025, using self-report questionnaires on stress, major satisfaction, academic self-efficacy and academic achievement. Data were analyzed using descriptive statistics, t-tests, ANOVA, Pearson's correlation coefficients and multiple regression analysis with SPSS/WIN version 21.0.

Results : Academic achievement differed significantly according to gender ($t=6.118$, $p=.014$), academic year ($F=3.265$, $p=.022$), grade point average ($F=7.099$, $p<.001$), motivation for choosing the nursing major ($F=2.905$, $p=.023$), and health status ($F=10.971$, $p<.001$). The mean academic achievement score was 3.54 ± 0.52 . Academic achievement was positively correlated with major satisfaction ($r=.565$, $p<.001$) and academic self-efficacy ($r=.727$, $p<.001$), and negatively correlated with stress ($r=-.393$, $p<.001$). Significant predictors of academic achievement were major satisfaction ($\beta=.323$, $p<.001$), academic self-efficacy ($\beta=.206$, $p<.001$), and stress ($\beta=-.167$, $p=.015$). Major satisfaction was the strongest predictor. The regression model explained 22.8% of the variance in academic achievement ($F=23.602$, $p<.001$).

Conclusions : Reducing stress, enhancing major satisfaction, and strengthening academic self-efficacy may be important strategies for improving academic achievement among nursing students. Nursing colleges should provide academic year-specific stress management programs and create educational environments that promote the value of the nursing major and strengthen academic self-efficacy.

Keywords : Academic achievement, academic self-efficacy, major satisfaction, stress



The Process of Becoming a “Good” Researcher Among Doctoral Nursing Students: A Grounded Theory Approach

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Purpose : Doctoral education prepares nurses as researchers, yet nursing PhD programs worldwide face declining enrollment and rising attrition, with students experiencing fear, critique-related pressure, and identity confusion as they transition from clinicians to researchers. Prior literature has focused on describing barriers, with limited insight into how students overcome these difficulties and grow into competent researchers. This study aimed to develop a substantive grounded theory explaining the social-psychological process, interactions, conditions, and strategies underlying doctoral nursing students’ development into “good” researchers.

Methods : This study applied Corbin and Strauss’s grounded theory method. Participants were 15 doctoral nursing students and graduates with 5 or more years of clinical experience, recruited via purposive and theoretical sampling until saturation. Following IRB approval, individual in-depth interviews (45-90 minutes) were conducted from March 27 to June 30, 2026, audio-recorded, and transcribed verbatim. Data were analyzed through constant comparative analysis with open, axial, and selective coding, with rigor ensured per Lincoln and Guba’s criteria.

Results : Analysis yielded 16 categories and 56 subcategories. The central phenomenon was “enduring the hardships of the research process.” Causal conditions included pressure for development as a researcher, difficulties in learning, and role ambiguity; contextual conditions involved academic involvement and researcher-oriented thinking; intervening conditions included scholarly mentorship, peers, and senior researchers as role models. The core category was “continuously adjusting and reconstructing one’s own research path,” unfolding through four phases: confusion, awareness, engagement, and maturity. This process was non-linear, involving recursive movement across stages.

Conclusions : Doctoral nursing students become “good” researchers by enduring hardship and continuously reconstructing their research path through a dynamic, recursive process. Faculty mentorship, peers, and senior role models were vital resources. Findings support establishing structured mentoring programs, strengthening academic support systems, and enhancing faculty mentoring competencies. Limitations include an all-female sample and the absence of perspectives from students who withdrew or took leave.

Keywords : Grounded theory; Nurses; Qualitative research; Students



Enhancing Nursing Students' Self-Awareness Through Narrative-Based Reflective Learning: A Quasi-Experimental Study

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Purpose : Self-awareness is a fundamental competency for reflective practice, professional identity formation, and person-centered nursing care. Innovative teaching strategies that promote emotional engagement are increasingly emphasized in nursing education. Narrative pedagogy encourages students to connect learning with personal experiences and has been recognized as an effective approach for facilitating reflective learning. However, empirical evidence regarding narrative-based reflective learning in undergraduate nursing education remains limited. This study evaluated the effectiveness of a narrative-based reflective learning program in enhancing nursing students' self-awareness.

Methods : A one-group pretest-posttest quasi-experimental study was conducted with 89 undergraduate nursing students. A four-week learning module was developed using a contemporary Korean television drama as the narrative context. The intervention incorporated guided reflection, emotion-card activities, small-group discussion, and reflective action exercises to facilitate emotional engagement and reflective learning. Self-awareness was measured using a 13-item Self-awareness Scale before and after the intervention. The instrument demonstrated satisfactory internal consistency (Cronbach's $\alpha = 0.833\text{--}0.921$). Paired t-tests and Cohen's d were used to evaluate intervention outcomes.

Results : Students demonstrated an overall improvement in self-awareness following the intervention. Significant improvements were observed in intentional emotion labeling and compassionate self-talk ($p < .05$), while self-care behaviors also showed positive improvement. Effect size analysis indicated meaningful educational effects, suggesting that the intervention facilitated students' translation of emotional reflection into everyday self-care practices.

Conclusions : Narrative-based reflective learning represents an innovative educational strategy for nursing education. By integrating emotional engagement with structured reflection, the program effectively enhanced students' self-awareness and reflective capacity, providing a practical educational model for fostering professional growth among future nurses.

Keywords : Narrative-Based Learning, Reflective Learning, Self-Awareness, Nursing Education, Social and Emotional Learning



Effects of an integrated education program for prehospital and in-hospital triage systems in disaster nursing: A crossover experimental design

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Purpose : Accurate patient triage is essential for effective disaster and emergency care. This study aimed to evaluate the effectiveness of an integrated virtual simulation-based disaster nursing education program that incorporates both prehospital and in-hospital triage systems among nursing students.

Methods : A crossover experimental study was conducted to compare the effects of virtual simulation learning (VSL) and case-based learning (CBL) in disaster nursing education. Forty-six nursing students in South Korea were assigned to either Sequence 1 (VSL followed by CBL, n=23) or Sequence 2 (CBL followed by VSL, n=23). Each educational intervention was implemented once a week for 2 hours over a 4-week period. Data were collected at three time points: baseline, after the first intervention, and after the second intervention. Outcome measures included emergency triage knowledge, triage competency, disaster nursing competency, and self-efficacy. Data were analyzed using linear mixed models to examine the effects of group, time, and the group-by-time interaction.

Results : No significant group effect was found for emergency triage knowledge ($F=2.60$, $p=.080$, $\eta^2=.06$); however, a significant time effect was observed ($F=72.22$, $p<.001$, $\eta^2=.60$), with scores significantly higher after both interventions than at baseline. Triage competency also demonstrated a significant time effect ($F=68.72$, $p<.001$, $\eta^2=.61$), indicating progressive improvement across the three time points. Significant group-by-time interactions were identified for disaster nursing competency ($F=4.45$, $p=.014$, $\eta^2=.09$) and self-efficacy ($F=4.67$, $p=.012$, $\eta^2=.09$). Participants in Sequence 1 showed substantial improvement after the first intervention, followed by minimal additional change after the second intervention, whereas those in Sequence 2 demonstrated gradual improvements across both interventions.

Conclusions : Both virtual simulation learning and case-based learning were effective educational methods for disaster nursing education. The sequence in which these methods were delivered influenced the patterns of improvement in disaster nursing competency and self-efficacy, suggesting that strategically combining different instructional methods may enhance educational outcomes.

Keywords : Disaster Nursing; Nursing students; Triage; Virtual simulation



The Effect of Health-Promoting Intention on Health Behavior among College Students : The Mediating Role of Irrational Procrastination

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Purpose : This study identified factors influencing health-promoting behavior among college students and verified the mediating effect of irrational procrastination on the relationship between health-promoting intention and behavior.

Methods : Data from 300 college students were analyzed via SPSS 23.0 version and PROCESS Macro 4.2 program. Instruments included the Short-form of the Health Promoting Lifestyle Profile II (HPLP-II SF), Health-Promoting Intention Scale, Irrational Procrastination Scale (IPS), and the National Mental Health Scale for Koreans.

Results : Health-promoting behavior significantly differed by sex($t=2.38$, $p=.018$) and monthly income($F=6.18$, $p<.001$). It correlated positively with health-promoting intention($r=.532$, $p<.001$) and negatively with irrational procrastination($r=-.273$, $p<.001$). The regression model explained 33.8% of the variance in health-promoting behavior, with monthly income levels of less than 1 million KRW($\beta=-.143$, $p=.005$) and between 1 million and less than 2 million KRW($\beta=-.133$, $p=.008$), health-promoting intention($\beta=.464$, $p<.001$), and irrational procrastination($\beta=-.173$, $p<.001$) identified as significant predictors. Crucially, the partial mediating effect of irrational procrastination on the relationship between health-promoting intention and behavior was statistically significant($B=.068$, $SE=.029$, 95% Boot CI=.0173~.1302).

Conclusions : To enhance college students' health-promoting behavior, integrated interventions combining motivational approaches to strengthen intention with psycho-behavioral strategies to reduce irrational procrastination are essential.

Keywords : College Student, Health-Promoting Intention, Procrastination, Health Behavior, Mediation Analysis



Exploring nursing students' motivations and experiences in participating in international English professional vocabulary proficiency certification

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Purpose : Many nursing students experience fear, anxiety, or even give up on learning English. Students' fear of professional terminology, lack of confidence, and lack of learning strategies lead to a lack of interest in learning. However, there is a lack of literature exploring the motivation and experience of nursing students choosing to participate in the PVQC professional English vocabulary international certification program after completing professional terminology courses, and its impact on their professional English learning. Therefore, this project aims to explore the motivation and experience of nursing students participating in international English professional vocabulary proficiency certification.

Methods : Using a purposive sampling and quantitative research design, 89 students who learned medical and nursing terminology were invited to use the PVQC platform to assess their English professional vocabulary proficiency. Using a learning experience scale as the research tool.

Results : The results show that courses incorporating the PVQC professional English vocabulary learning platform effectively improved the professional English vocabulary proficiency of five-year vocational nursing students, with overall final performance significantly better than midterm. Most nursing students achieved PVQC A2 level upon completion of the course, demonstrating that this teaching model helps students reach international basic professional English proficiency standards. Students' learning motivation using the PVQC platform showed the best performance in the "relevance" and "confidence-building" dimensions, indicating that students understand the connection between the learning content and future professional applications. PVQC learning motivation has a significant positive correlation with students' attitudes and values towards nursing and English; however, its direct correlation with short-term test scores is not yet significant.

Conclusions : Future research could incorporate ARCS motivation strategies to strengthen learning feedback and achievement recognition mechanisms, thereby enhancing students' learning satisfaction. Further research could employ a longitudinal research design to track the long-term impact of learning motivation on certification acquisition and clinical practice.

Keywords : Learning experience, professional vocabulary Quotient Credential, nursing students



Learning Challenges and Early-Warning Indicators in Nursing Clinical Practicum: An Institutional Research Study

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Purpose : This study examined whether admission pathways and prerequisite theory and skills-lab performance predicted later practicum outcomes among five-year junior college nursing students, and whether these records could support an early-warning model before clinical placement.

Methods : A retrospective institutional research design used de-identified administrative academic records for the 2019-entry nursing cohort at MacKay Junior College of Medicine, Nursing, and Management, Taiwan. The student was the unit of analysis. For duplicate course records, the highest score was retained. Complete cases with eight practicum courses, eight prerequisite theory courses, and three skills-lab courses were analyzed (N=319). Admission pathway differences were tested with ANOVA and Kruskal-Wallis tests. Multivariable linear regression examined practicum score predictors. Low practicum performance was defined as the bottom quartile (P25=76.125), and logistic regression with five-fold cross-validated AUC evaluated prediction.

Results : Admission pathways differed in mean practicum scores (ANOVA $F=5.676$, $p=0.00085$; eta squared=0.051; Kruskal-Wallis $H=20.369$, $p=0.000142$). However, after adding theory and skills-lab averages, explained variance increased from $R^2=0.051$ to 0.460, and admission pathway effects became non-significant. Theory average ($B=0.337$, $p<0.001$) and skills-lab average ($B=0.149$, $p<0.001$) were significant positive predictors. For low performance, each one-point increase in theory and skills-lab averages reduced the odds by approximately 14-15% ($OR=0.854$ and 0.861 , respectively). The combined model achieved cross-validated $AUC=0.856$ plus/minus 0.036; students low on both theory and skills-lab quartiles had a 69.8% low-performance risk.

Conclusions : Prerequisite theory and skills-lab performance predicted nursing practicum outcomes better than admission pathway alone. A grade-based early-warning model can guide targeted pre-practicum support in documentation, terminology, clinical reasoning, and skills integration.

Keywords : early warning; nursing education; practicum performance; prerequisite courses



Development of a Virtual Reality Prototype for Perioperative Nursing Education

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Purpose : This project aimed to develop a Virtual Reality (VR) prototype to address the educational challenges associated with limited clinical placement capacity, complex operating room environments, and heavy staff workloads by enhancing nursing students' understanding of perioperative nursing roles, core competencies, and essential patient safety principles.

Methods : A VR simulation prototype was developed based on the perioperative management of a patient undergoing right thyroidectomy. The simulation integrated the roles of both the scrub nurse and circulating nurse and incorporated essential perioperative safety standards, including the surgical safety checklist. Content validity and procedural accuracy were evaluated by a panel of expert perioperative nurses. The prototype was developed through collaboration between a faculty of nursing and a hospital nursing department.

Results : The project successfully delivered an innovative educational VR prototype tailored for perioperative nursing. The system provides an immersive, risk-free environment where learners can practice critical thinking and procedural steps. This prototype serves as a foundational tool that can be integrated into undergraduate nursing curricula and orientation programs for newly graduated nurses.

Conclusions : This VR prototype offers a promising approach to addressing limited clinical placement opportunities in perioperative settings. Future research will focus on implementing the prototype in nursing education and evaluating its effects on nursing students' knowledge retention, clinical skills, and self-confidence. If proven effective, the prototype could be adopted by nursing schools and hospitals to enhance perioperative education for nursing students and newly graduated nurses with limited clinical exposure, a persistent challenge in nursing education in Thailand.

Keywords : Virtual Reality, Perioperative Nursing, Nursing Education, Patient Safety



Prioritizing Clinical Education Needs of Nurses in Medical Support Roles: An Importance-Performance Analysis and Borich Needs Assessment

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Purpose : This study aimed to identify and prioritize the clinical education needs of nurses in medical support roles using importance-performance analysis and the Borich needs assessment model.

Methods : A descriptive cross-sectional study was conducted among 110 nurses in medical support roles at a general hospital in Busan, Republic of Korea. Participants rated the perceived importance and self-reported performance of 48 clinical practice items across four domains—measurement and assessment, clinical procedures and treatments, surgical assistance, and documentation and order management—on a 4-point Likert scale. The questionnaire was developed through a policy and guideline review and a focus group interview and underwent two rounds of expert content validation. Data were analyzed using descriptive statistics, paired t-tests, importance–performance analysis (IPA), and Borich’s needs assessment model.

Results : Perceived importance significantly exceeded self-reported performance for 47 of the 48 items ($p < .05$). IPA identified seven priority items in the “concentrate here” quadrant: electrocardiogram (ECG) interpretation; assessment and monitoring of patients with cardiovascular disease, renal disease, and shock/sepsis; emergency medication administration; drain management and removal; and dressing of infected wounds and pressure injuries, including negative-pressure wound therapy. Borich’s needs assessment ranked ECG interpretation highest (score = 3.64), followed by arterial blood sampling (3.37), emergency medication administration (3.24), high-risk surgical assistance involving vascular ligation (3.20), and cardiovascular patient assessment and monitoring (3.12).

Conclusions : Nurses in medical support roles showed significant gaps between the perceived importance and self-reported performance of clinical practices, with priorities centered on patient assessment and monitoring, emergency and invasive procedures, and selected high-risk surgical assistance. These findings support structured, competency-based education combining common core content with role-specific training. For high-risk practices, educational preparation should be accompanied by objective competency verification within legally authorized responsibilities.

Keywords : Clinical Competence, Continuing Education, Needs Assessment, Professional Competence



Exploring the transition process of novice pediatric nurses: Implications for simulation-based continuing education guided by Meleis's Transitions Theory

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Aim(s) : This study explored the transition experiences of newly graduated nurses working in pediatric clinical settings through the lens of Meleis's Transitions Theory and identified implications for simulation-based continuing education to support emotional, relational, and clinical preparedness.

Methods : A qualitative descriptive study was conducted with six novice nurses working in a pediatric ward or neonatal intensive care unit at a tertiary hospital in South Korea. Two focus group interviews were conducted, each with three participants. Data were transcribed verbatim and analyzed using directed content analysis. Meleis's Transitions Theory provided the deductive framework, while codes and subthemes were refined inductively from participants' accounts. Two researchers independently analyzed the data and resolved discrepancies through discussion.

Results : Three themes emerged. First, participants experienced difficulty managing caregivers' emotional reactions and building trust, indicating inadequate preparation for the relational demands of pediatric care. Second, they reported limited age-specific communication skills, particularly when interacting with school-aged children and adolescents or adapting nursing care to developmental differences. Third, they described insufficient exposure to diverse, complex, or high-risk pediatric conditions, which contributed to uncertainty in rapidly changing clinical situations. Participants perceived that previous simulation education emphasized technical procedures more than emotional communication, developmental adaptation, and unpredictable clinical complexity.

Conclusions : The transition of novice pediatric nurses was hindered less by technical deficits than by gaps in emotional, developmental, and situational preparedness. Simulation-based continuing education should incorporate emotionally immersive caregiver interactions, developmentally diverse communication scenarios, and high-acuity, low-frequency pediatric cases. A theory-guided approach may strengthen clinical readiness, relational competence, and professional adaptation during the transition to pediatric practice.

Keywords : Continuing education; novice nurses; pediatric nursing; simulation-based education



Applying Generative Artificial Intelligence to Clinical Simulation Scenario Development in Nursing Education: A Pilot Feasibility Study

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Purpose : As generative artificial intelligence becomes increasingly integrated into nursing education, there is a growing need to evaluate its pedagogically appropriate use in simulation-based learning. This pilot study aimed to examine the feasibility of using generative AI to develop a nursing simulation scenario and generative AI images for debriefing, and to assess preliminary educational outcomes.

Methods : A simulation scenario for preoperative nursing care was developed using ChatGPT-4o through prompt engineering. Generative AI was also used to create images that supported debriefing. Content validity was established through expert review, followed by pilot testing. Twenty third-year undergraduate nursing students participated in the simulation, which consisted of pre-learning, prebriefing, simulation, and debriefing. Learning outcomes were assessed using pre- and post-test knowledge scores, clinical judgment, student satisfaction and self-confidence, and qualitative content analysis of debriefing reflections.

Results : Post-test knowledge scores were significantly higher than pre-test scores ($z = -3.75, p < .001$). Participants demonstrated satisfactory levels of clinical judgment ($M = 3.42, SD = 0.12$) and student satisfaction and self-confidence in learning ($M = 57.20, SD = 1.99$). Qualitative analysis of reflections elicited during image-assisted debriefing identified three themes: empathy, the clinical environment, and professional nursing identity. Participants reported that the AI-generated images enhanced emotional engagement and facilitated reflective learning during debriefing.

Conclusions : Generative AI-assisted development of a clinical simulation scenario and debriefing images was feasible and showed promising applicability in nursing education. This approach has practical potential for developing simulation-based educational resources tailored to diverse learning objectives and clinical contexts. Further studies with larger samples and rigorous designs are needed to confirm its educational effectiveness.

Keywords : Artificial intelligence; Nursing education; Nursing students; Simulation training



The Role and Impact of Generative AI agent in Supporting Nurses in Clinical Practice: A scoping review

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Purpose : AI agents are increasingly being introduced to support nurses in clinical practice by assisting with clinical decision-making, documentation, and workflow management. This scoping review aimed to map and synthesize the current evidence on AI agents supporting nurses, with a focus on their characteristics, roles, application areas, and reported impacts in clinical practice.

Methods : This scoping review was conducted following the five-stage framework proposed by Arksey and O'Malley and reported in accordance with the PRISMA-ScR guidelines. A comprehensive literature search was conducted across four databases—PubMed, CINAHL, Web of Science, and KCI—on July 2, 2026. Peer-reviewed studies investigating generative AI agents designed to support nurses in clinical practice and reporting on their roles, applications, implementation, or evaluation in healthcare settings were eligible. Review articles, studies focusing exclusively on patient-directed AI agents, and studies in which nurses were involved only as consultants, evaluators, or participants during AI development or validation rather than as intended end users were excluded. Data were extracted using a standardized charting form and synthesized descriptively.

Results : A total of 14 studies published between 2024 and 2026 were included. Most studies were conducted in inpatient settings. Methodological study was the most common study design, while experimental, cross-sectional, qualitative, and mixed-methods studies were less frequently reported. AI agents primarily supported clinical decision-making, documentation, communication, and care planning. Common application areas included nursing documentation (e.g., nursing records and handover), nursing assessment, care planning, patient triaging, patient portal messaging, and patient education. GPT-based models were the most frequently used foundation models, and all included studies incorporated human-in-the-loop approaches.

Conclusions : Generative AI agents show promising potential to support nurses in clinical practice across a range of clinical tasks. Current evidence is dominated by GPT-based system development studies and emphasizes human-in-the-loop approaches. Further research is needed to evaluate their effectiveness and implementation in real-world nursing practice.

Keywords : Artificial Intelligence; AI agents; Nurses; Clinical practice; Clinical Decision Support Systems



Effectiveness of Mobile Health Education on Emergency Patients' Knowledge, Skills, and Technology Acceptance in Suture Wound Care

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Purpose : This study aims to assess the effectiveness of mHealth in improving wound care knowledge, skills, and technology acceptance among ED patients with sutured wounds, and to compare these outcomes with traditional verbal education methods.

Methods : An experimental study design was adopted, involving 122 ED patients with sutured wounds who were randomly assigned to either an experimental group or a control group. The experimental group received mHealth interventions, including wound care videos and pictorial educational pamphlets, while the control group received traditional verbal education and pamphlets. Pre- and postintervention questionnaires and skill assessments were conducted to evaluate wound care knowledge, skills, and technology acceptance. Statistical analyses were performed using chi-square tests, independent t-tests, and paired t-tests with SPSS.

Results : The experimental group showed significantly higher post-test scores in wound care knowledge, skills, and technology acceptance compared to the control group, with statistically significant improvements observed in wound care knowledge and skills, as well as a substantial increase in technology acceptance ($p < 0.00$). These results demonstrate that mHealth interventions effectively enhance patients' self-care abilities and increase their acceptance of digital health technologies.

Conclusions : mHealth interventions significantly improve wound care knowledge, skills, and technology acceptance among ED patients with sutured wounds. Broader clinical application of mHealth is recommended to enhance patient self-care abilities, reduce the workload of healthcare professionals, and lower the risk of complications.

Keywords : mHealth, sutured wounds, wound care knowledge, wound care skills, technology acceptance



Evaluation of Hand Hygiene Education for Nursing Students Based on Bloom's Taxonomy: A Systematic Review

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Purpose : This study systematically reviewed instructional strategies and educational outcomes of hand hygiene education for nursing students using Bloom's Taxonomy, with outcomes classified into cognitive, affective, and psychomotor domains, to identify educational components relevant to comprehensive hand hygiene competency.

Methods : Six electronic databases were searched for studies published through January 12, 2026, identifying 1,409 records. After duplicate removal, 867 records remained for screening. Twenty-five full-text studies were assessed, and 18 were excluded because they did not specifically target nursing students, did not focus exclusively on hand hygiene education, or were not randomized controlled trials. Seven randomized trials, including one cluster randomized trial, were included. Data were synthesized according to instructional strategies and Bloom's Taxonomy domains.

Results : The seven studies included 972 nursing students. All studies included didactic educational content, six included practice-based components, and five incorporated feedback, most commonly visual feedback using ultraviolet fluorescent technology. Cognitive outcomes were assessed in four studies, affective outcomes in five, and psychomotor outcomes in all seven. Outcome assessment ranged from self-reported measures of knowledge, beliefs, and practices to objective measures of performance, including fluorescent residue analysis and microbial cultures. The reviewed studies therefore reflected substantial variation in both educational delivery and outcome measurement.

Conclusions : Earlier studies relied on self-reported questionnaires, whereas recent studies emphasized psychomotor outcomes using objective measures such as microbial cultures and fluorescent residue analysis. Multi-component interventions integrating theory, repeated practice, and immediate visual feedback were identified as the most effective approaches to bridging the gap between theoretical knowledge and clinical practice. Effective hand hygiene education for nursing students requires a multi-dimensional approach that simultaneously addresses knowledge, attitudes, and skills. Integrating visual feedback and objective assessments within the psychomotor domain is essential for ensuring the sustainable internalization of hand hygiene practices. These findings provide a basis for designing evidence-based hand hygiene curricula in nursing education.

Keywords : Bloom's Taxonomy, Hand Hygiene, Nursing Students, Systematic Review



Longitudinal Effects of Major Satisfaction on Clinical Practice Adaptation and AI Utilization Behavior in Nursing Students: The Mediating Role of Academic Self-Efficacy

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Purpose : This study aimed to investigate the longitudinal effects of major satisfaction on clinical practice adaptation and AI utilization behavior among nursing students, and to verify the effect of academic self-efficacy in this relationship.

Methods : This is a longitudinal survey study that conducted a self-administered questionnaire on 103 nursing students at two time points: before (T1) and after (T2) clinical practice. The collected data were analyzed using hierarchical multiple regression analysis with IBM SPSS Statistics 26.0.

Results : The academic self-efficacy of nursing students significantly increased from before to after clinical practice ($F=38.274, p<.001$). Hierarchical multiple regression analysis showed that pre-clinical (T1) major satisfaction had a significant positive effect on post-clinical (T2) clinical practice adaptation ($\beta=.535, p<.001$), significantly increasing the explanatory power by 23.1%p even after controlling for general characteristics. On the other hand, T1 major satisfaction was not a significant predictor of T2 AI utilization behavior ($\beta=.133, p=.227$). In the mediation analysis, T1 major satisfaction did not significantly predict T2 academic self-efficacy ($\beta=.057, p=.574$); but, academic performance and clinical practice adaptation were significantly associated with academic self-efficacy.

Conclusions : This study longitudinally confirmed that higher major satisfaction significantly enhances clinical practice adaptation among nursing students. However, the findings suggest that actual AI utilization behavior is likely more influenced by specific factors such as attitudes toward AI, digital literacy, and AI self-efficacy, rather than mere major satisfaction. Therefore, to strengthen nursing practice and education in the AI era, it is necessary to develop and implement strategic educational programs that directly enhance AI technology acceptance alongside improving major satisfaction.

Keywords : Academic self-efficacy, Artificial intelligence, Clinical practice adaptation, Major satisfaction



Development and Effects of the REWARD (REady to WARD) Mobile Serious Game for Creating Clinical Nursing Schemas among Nursing Students: A Mixed-Methods Study

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Purpose : This study aimed to develop the REWARD (REady to WARD) mobile serious game for creating clinical nursing schemas among nursing students and to evaluate its integrated effects using a mixed-methods approach.

Methods : Grounded in schema theory and an experiential gaming model, REWARD was developed with two modules simulating single-patient and multi-patient nursing processes across five progressive levels, incorporating quiz-based activities and reflective feedback. A convergent mixed-methods intervention design was used. The quantitative phase was a single-blind randomized controlled trial registered with the Clinical Research Information Service (KCT0010936). Fourth-year nursing students were stratified by baseline clinical reasoning scores and allocated via block randomization to an experimental or control group, the latter receiving self-directed online learning materials, with outcomes assessed as clinical reasoning, clinical judgment, clinical decision-making self-confidence and anxiety, learning self-efficacy, and clinical competency. In the qualitative phase, semi-structured interviews explored participants' clinical nursing schema changes after gameplay, analyzed through content analysis. Findings were integrated following established mixed-methods procedures.

Results : Compared with the control group, the experimental group showed significantly greater improvements in clinical reasoning ($p < .001$), clinical judgment ($p < .001$), clinical decision-making self-confidence ($p < .001$), decision-making anxiety reduction ($p < .001$), learning self-efficacy ($p = .003$), and clinical competency ($p < .001$). Qualitative findings produced the overarching theme, 'A journey of schema transformation and professional identity formation fostered in immersive nursing serious game', along with five subthemes ranging from anxious performance in fragmented cognition to the formation of nursing professionalism. Integration showed convergence: quantitative gains were substantively explained by participants' experiences of schema restructuring and identity development.

Conclusions : REWARD's integrated findings show that play can build both competence and identity, offering nursing students a powerful bridge toward becoming pre-registered nurses and a smoother transition into professional practice.

Keywords : clinical judgment, clinical reasoning, mixed-methods study, serious game



Reflective learning in end-of-life care education: A qualitative content analysis of nursing students' perceptions across hospice, dying, and bereavement care education

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Purpose : This study explored nursing students' perceptions, emotional responses, and professional attitudes toward end-of-life care through a qualitative content analysis of reflective journals written during a 10-week hospice, dying, and bereavement care education program. It also examined how structured reflective learning influenced cognitive understanding, emotional awareness, ethical sensitivity, and professional nursing identity.

Methods : A qualitative content analysis was conducted using reflective journals from 34 second-year nursing students enrolled in a 10-week end-of-life care course at D University. Weekly reflective journals were analyzed inductively using the approach described by Elo and Kyngäs (2008). Data analysis involved open coding, categorization, and abstraction, and codes with similar meanings were inductively grouped into subcategories, categories, and overarching themes.

Results : Students experienced a progressive transformation in their understanding of death and end-of-life care throughout the 10-week program. During Weeks 1–3, reflections revealed fear, avoidance, and limited understanding of death. During Weeks 4–7, students increasingly viewed death as an integral part of life and recognized hospice and palliative care as person-centered care emphasizing dignity, comfort, family involvement, and therapeutic presence. By Weeks 8–10, reflective learning deepened awareness of multidimensional suffering, strengthened ethical sensitivity, and fostered professional nursing identity. These progressive changes were reflected in five overarching themes: reframing death as part of life; recognizing multidimensional suffering; developing emotional and ethical sensitivity; enhancing reflective awareness; and forming a relational nursing identity.

Conclusions : The 10-week hospice, dying, and bereavement care education program fostered meaningful changes in nursing students' understanding of end-of-life care. Structured reflective learning enabled students to integrate theoretical knowledge with lived experience, strengthening ethical awareness, person-centered perspectives, and professional nursing identity. These findings support reflective learning as an effective educational approach for preparing future nurses to provide compassionate end-of-life care.

Keywords : End-of-life care education; Reflective learning; Professional nursing identity; Qualitative content analysis



Developmentally Sequenced Artificial Intelligence Virtual Humans for Pediatric Nursing Communication Training: A Two-Phase Repeated-Measures Study of Incremental Effects on Empathy and Therapeutic Communication

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Purpose : Therapeutic communication and empathy are central to pediatric nursing yet difficult to develop through didactic teaching alone. This study describes a scenario engineering framework for developmentally sequenced artificial intelligence virtual humans and evaluates its incremental effect, beyond conventional instruction, on nursing students' therapeutic communication, empathy, and self-perceived learning outcomes.

Methods : A single-group, within-subject, two-phase repeated-measures design was used, each student serving as their own control. Third-year nursing students in a pediatric nursing course at one South Korean university participated with institutional review board approval and informed consent (baseline 76; 47 completers). Six researcher-designed virtual humans, each specifying a guardian persona, emotional trajectory, conversation architecture, and scoring rubric, were sequenced so developmental stage and communication complexity escalated together. Validated therapeutic communication and empathy scales and six single-item learning outcomes were assessed at baseline, after conventional instruction, and after the virtual-human phase. Linear mixed-effects models estimated within-subject and incremental effects, with repeated-measures analysis of variance and nonparametric tests for sensitivity.

Results : Empathy did not change during conventional instruction ($p = .277$) but increased significantly during the virtual-human phase ($p < .001$), with a robust incremental effect ($d = 0.59$). Attitude toward virtual simulation-based learning showed the same virtual-human-specific pattern. Self-perceived knowledge, program outcomes, and therapeutic communication improved across both phases, with a robust virtual-human increment for high-risk-neonate knowledge. Effects were consistent across sex and prior experience, and attrition was unrelated to baseline characteristics.

Conclusions : Beyond a stringent conventional baseline that already included flipped-learning content on communication and empathy, systematically engineered artificial intelligence virtual humans produced an incremental gain in empathy, which appears to behave as an experientially acquired performance capacity rather than transmissible knowledge. As a single-group study with a fixed phase order at one site, temporal and order effects cannot be excluded, warranting multi-site, order-counterbalanced replication.

Keywords : artificial intelligence, empathy, nursing education, therapeutic communication



Transformation Process of Perceptions Regarding Intercultural and Patient Understanding Among Nursing Students During Clinical Practice: A Qualitative Descriptive Study

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Purpose : In light of the increasing number of foreign residents in Japan, person-centered nursing care that respects each patient's cultural background is increasingly required. However, many nursing students tend to equate "intercultural" with "foreign," limiting their understanding of patients as multidimensional individuals. This study aimed to clarify the transformation process of nursing students' perceptions regarding intercultural and patient understanding following clinical practice and to explore the factors that promote or inhibit this transformation.

Methods : A qualitative descriptive research design was employed. The participants were 14 nursing students who had completed an International Nursing course followed by clinical practice. Semi-structured interviews compared reports written immediately after the lectures with students' perceptions following clinical practice. Data were analyzed using a qualitative inductive approach to identify transformation processes and influencing factors.

Results : Students who experienced a transformation in their perceptions moved beyond viewing culture as a fixed attribute, such as nationality, and instead understood it as an individual's life context. They regarded intercultural understanding as an ethical and professional responsibility grounded in medical equity and human rights. In contrast, students who did not perceive a change achieved practical refinement in safe care and trust-building but viewed this as skill development rather than self-transformation. Promoting factors included disorienting dilemmas, empathy, and critical self-reflection, whereas inhibiting factors included equating culture with foreignness, interpreting differences among Japanese patients merely as individual differences, and a lack of educational continuity.

Conclusions : To foster person-centered recognition, whereby patients are understood as unique cultural beings, nursing education should provide continuous, cross-disciplinary opportunities for reflection that support the reconstruction of students' existing cognitive frameworks.

Keywords : clinical practice, intercultural understanding, nursing students, transformative learning



Development and Internal Consistency of an Index for Comfort-Oriented Dementia Care Based on Humanity and Person-Centred Care

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Purpose : As the number of older adults with dementia continues to rise, improving the quality of dementia care has become a pressing concern. Humanity and Person-Centred Care are internationally recognised approaches that emphasise dignity, comfort, and relationship-building, yet few standardised indices exist to capture the care behaviours that elicit positive emotions in older adults with dementia. This study aimed to develop an index of such care behaviours grounded in Humanity and Person-Centred Care, and to examine the internal consistency and score distribution of its subscales.

Methods : Based on a preceding qualitative study, a 56-item index was constructed comprising four domains: preparing for the encounter (21 items), comfort care (23 items), actualizing the person's wishes (7 items), and moving toward the next encounter (5 items). Care providers, including nurses and care workers, were surveyed via a web-based questionnaire using a five-point Likert scale. Internal consistency and subscale means were calculated using statistical software.

Results : Responses from 203 care providers were analysed. All four subscales demonstrated high internal consistency, with reliability coefficients ranging from 0.97 to 0.99. Subscale means were consistently high, ranging from 4.40 to 4.45, indicating that respondents rated these care behaviours as highly important.

Conclusions : The index showed excellent internal consistency across all four domains. These findings support its potential use as an outcome measure for dementia care education, including future haptic virtual-reality training programmes. This research was supported by a grant from the Yoshiko Shinohara Memorial Foundation.

Keywords : comfort, dementia care, Humanity, Person-Centred Care



Knowledge, Attitudes, and Experiences Regarding Advance Directives among Gerontological Health Care Students: A Study at a University in Taiwan

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Purpose : With increasing chronic illness, disability, and end-of-life care needs among older adults, understanding advance directives is essential for gerontological health care students. This study examined students' knowledge, attitudes, and experiences regarding advance directives and their relationships to inform professional education.

Methods : This cross-sectional study purposively recruited first- through third-year students from a gerontological health care department at a university in Taiwan between May and July 2026. Participants completed an anonymous questionnaire assessing background characteristics, knowledge, attitudes, support needs, and experiences. Data were analyzed using descriptive and inferential statistics.

Results : Ninety-nine valid questionnaires were collected from 40 first-year, 28 second-year, and 31 third-year students. Experience scores differed significantly across academic years ($p = .006$). Third-year students had higher experience scores than first-year students, with a mean difference of 0.861 points ($p = .006$); the other pairwise comparisons were not significant. Knowledge ($p = .089$) and attitude scores ($p = .948$) did not differ significantly across academic years. Knowledge ($p = .017$) and experience scores ($p < .001$) differed by religious affiliation. Experience scores were positively correlated with knowledge scores ($p = .019$).

Conclusions : Third-year students had significantly more experience with advance directives than first-year students, possibly because they had completed hospice and palliative care coursework and accumulated more clinical practicum experience. However, although third-year students had received relevant instruction, knowledge and attitude scores did not differ significantly across academic years. This finding suggests that the current curriculum and clinical learning may increase students' exposure to advance directive issues but may not yet translate into measurable differences in knowledge and attitudes. Advance directive concepts should be introduced earlier and reinforced through clinical cases, scenario-based simulations, values clarification, and reflective discussions to strengthen students' knowledge, caring attitudes, and practical application abilities.

Keywords : Advance Directives, Gerontological Health Care Students, Hospice and Palliative Care Education, Knowledge



Learning Experiences of Nursing Students in an Immersive Virtual Reality Medication Room of Errors: A Mixed-Methods Study

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Purpose : Medication errors remain a major patient safety concern. In healthcare education, “Room of Errors” programs are increasingly used; however, little is known about nursing students’ learning experiences in immersive virtual reality environments. This study explored the learning experiences of senior nursing students participating in an immersive virtual reality medication Room of Errors (IVR-mROE) program using a mixed-methods approach.

Methods : A convergent mixed-methods design was employed. Fourth-year nursing students (n=26) participated in the IVR-mROE program to identify medication-related errors. Quantitative data were collected on error detection, and qualitative data were obtained from reflection sheets and debriefings. Quantitative data were analyzed using descriptive statistics, and qualitative data were analyzed using content analysis.

Results : The most frequently identified error was the incorrect application of the “Arm Save” bracelet (22 of 26 students), followed by errors related to medication storage and patient identification. Three themes emerged from the qualitative analysis: “critical reflection on nursing competence and metacognitive awareness,” “transition toward safe nursing practice,” and “multifaceted responses to the simulation learning environment.” Integration of the quantitative and qualitative findings suggested that medication error recognition was strongly influenced by prior clinical experience and served as a catalyst for reflection on clinical judgment and patient safety.

Conclusions : The IVR-mROE program facilitated the integration of error recognition and reflective thinking, thereby supporting the development of clinical reasoning and practical strategies for safe medication practices. These findings suggest that the program has potential as an effective experiential learning approach to promote patient safety competencies in clinical practice.

Keywords : Education, Nursing; Medication Errors; Patient Safety; Virtual Reality



Reconstructing Patient Safety Risk Perception and Intentions for Safe Practice through Case-Based Learning: A Qualitative Content Analysis of Nursing Students' Experiences

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Purpose : This study explored how nursing students reconstructed their perceptions of patient safety risks and developed intentions for safe practice through a case-based patient safety course.

Methods : A descriptive qualitative content analysis was conducted with second-year nursing students who completed a case-based patient safety course at a university in the second semester of 2025. Data were collected from post-course reflective journals. Participants had completed the course, submitted complete journals, provided written informed consent, and voluntarily agreed to participate. Data collection continued until saturation. Journals were analyzed through iterative coding, categorization, and abstraction.

Results : One overarching theme emerged "From Passive Knowledge Acquisition to Proactive Safety Advocacy" representing students' cognitive and professional transformation through case-based learning.

Three interrelated categories described this process. First, "Reframing Hidden Patient Safety Risks through Case-Based Learning" reflected students' shift from viewing safety as protocol compliance to recognizing latent risks related to system vulnerabilities, human factors, and complex clinical situations. Second, "Internalizing Professional Accountability for Patient Safety" captured their recognition of patient safety as an ethical and professional responsibility and of nurses as a final safeguard against preventable harm. Third, "Developing Intentions for Safe and Assertive Clinical Practice" reflected concrete intentions to communicate clearly, speak up in unsafe situations, collaborate with healthcare professionals, and consistently apply safety principles in future practice.

Conclusions : Case-based patient safety education reshaped students' perceptions of clinical risk and strengthened their intentions for safe practice. By placing patient safety within realistic clinical contexts, case-based learning helped students move beyond procedural knowledge to recognize complex risks, internalize professional accountability, and develop proactive safety behaviors. These findings suggest that authentic case experiences better prepare nursing students to respond to the complexity and uncertainty of real clinical practice.

Keywords : Case-based learning, Nursing students, Patient safety education, Risk perception



How Are AI Literacy, Resilience, and Clinical Reasoning Competency Related in Nursing Students?

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Purpose : The spread of generative AI is transforming the learning environment in nursing education. Increasing emphasis is being placed on nursing students' AI literacy, clinical reasoning competency, and resilience. This study aims to examine the effects of AI literacy and resilience on the clinical reasoning competency of nursing students and test the moderating effects of resilience on the associations between their AI literacy and clinical reasoning competency.

Methods : A mixed-methods study was conducted. In the quantitative phase, an online survey was conducted from June 30 to July 5, 2026, involving 110 nursing students to measure AI literacy, resilience, and clinical reasoning competency. Data were analyzed using descriptive statistics, Pearson's correlation analysis, hierarchical multiple regression, and the PROCESS Macro for moderating effects. To investigate the meaning of quantitative findings in actual learning and clinical experiences, semi-structured interviews are planned, and data collection is currently underway.

Results : AI literacy had significant positive correlations with resilience ($r=.534$, $p<.001$) and clinical reasoning competency ($r=.556$, $p<.001$). The multiple regression analysis results showed that AI literacy ($\beta=.428$, $p<.001$), resilience ($\beta=.272$, $p=.001$), and grade ($\beta=.330$, $p<.001$) were significant predictors of clinical reasoning competency, with the final model accounting for 48.4% of the variance. Resilience had no statistically significant moderating effect on the association between AI literacy and clinical reasoning competency ($B=-0.113$, $p=.408$).

Conclusions : The results demonstrate that AI literacy and resilience are independent predictors of nursing students' clinical reasoning competency. Resilience did not moderate the association between AI literacy and clinical reasoning competency. These findings suggest that resilience may contribute to clinical reasoning competency independently of AI literacy, rather than strengthening the effect of AI literacy on clinical reasoning competency. Further qualitative investigation is warranted to better understand the underlying mechanisms of these relationships.

Keywords : Artificial intelligence literacy, Clinical reasoning, Mixed-methods study, Resilience



Effects of GenAI-Assisted Reflective Debriefing on Nursing Students' Handoff Competency in Trauma Nursing Simulation: A Mixed-Methods Study

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Purpose : To evaluate the effects of generative artificial intelligence (GenAI)-assisted reflective debriefing on nursing students' handoff competency, handoff self-efficacy, SBAR communication performance, and satisfaction with the debriefing experience in trauma nursing simulation, and to explore students' experiences.

Methods : An explanatory sequential mixed-methods study was conducted with 40 third-year nursing students from a university in South Korea. Participants were randomly allocated to an experimental group (n = 20) or a control group (n = 20). Both groups participated in trauma nursing simulation and completed an SBAR handoff followed by instructor-led debriefing, whereas the experimental group additionally received GenAI-assisted reflective debriefing. Quantitative outcomes included handoff competency, handoff self-efficacy, SBAR communication performance, and satisfaction with the debriefing experience. Semi-structured interviews in the experimental group were analysed using thematic analysis.

Results : Handoff competency, handoff self-efficacy, and SBAR communication performance improved significantly in both groups (all p .05). Qualitative findings revealed that students identified improved information prioritization, more organized SBAR communication, individualized feedback, and repeated reflection as key learning experiences associated with GenAI-assisted reflection.

Conclusions : Although GenAI-assisted reflective debriefing did not provide additional quantitative benefits beyond instructor-led debriefing, qualitative findings suggested that it supported reflective learning through individualized feedback, improved information prioritization, and repeated reflection. GenAI may complement instructor-led debriefing rather than replace educator guidance.

Keywords : Artificial Intelligence, Education, Nursing, Patient Handoff, Reflective Learning



Self-Control Matters More Than Short-Form Media Addiction: Factors Influencing Learning Flow Among Nursing Students

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Purpose : This study investigated the effects of short-form content addiction tendency, self-control, perceived stress, and self-efficacy on learning flow among nursing students. The findings provide evidence for developing educational interventions to promote effective learning in digital learning environments.

Methods : A descriptive cross-sectional study was conducted with 188 undergraduate nursing students enrolled at a university in South Korea. Data were collected from April 9 to April 17, 2026, using structured self-administered questionnaires. Descriptive statistics, independent t-tests, one-way ANOVA, Pearson's correlation coefficients, and multiple regression analyses were performed using Jamovi 2.6.44. Statistical significance was set at $p < .05$.

Results : Learning flow was positively correlated with self-control ($r=.542, p<.001$), short-form content addiction tendency ($r=.394, p<.001$), perceived stress ($r=.386, p<.001$), and self-efficacy ($r=.383, p<.001$). Multiple regression analysis revealed that self-control was the strongest predictor of learning flow ($\beta=.292, p<.001$), followed by self-efficacy ($\beta=.222, p=.002$) and short-form content addiction tendency ($\beta=.202, p=.002$). Perceived stress was not a significant predictor after controlling for other variables ($\beta=.093, p=.211$). The regression model explained 37.0% of the variance in learning flow ($F=26.90, p<.001$).

Conclusions : Self-control was identified as the most influential factor associated with learning flow among nursing students. Educational interventions aimed at enhancing self-control and self-efficacy may be more effective than restricting media use alone. These findings suggest that nursing education programs should incorporate strategies that strengthen self-regulation while promoting healthy digital media use to improve learning engagement.

Keywords : Nursing students, Learning flow, Self-control, Short-form content addiction



Effects of a Continuous Glucose Monitoring Data-Based Nursing Intervention on Self-Care Behaviors, Sleep Quality, and Glycemic Control in Adults With Type 2 Diabetes: A Randomized Controlled Trial

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Purpose : Effective management of type 2 diabetes mellitus requires sustained self-care behaviors. Continuous glucose monitoring (CGM) can help patients understand the relationship between glucose fluctuations and lifestyle behaviors and support self-care behaviors; however, evidence regarding the effectiveness of personalized nursing interventions using CGM data remains limited. This study aimed to evaluate the effects of a CGM data-based personalized nursing intervention on self-care behaviors, sleep quality, and glycemic outcomes in adults with type 2 diabetes mellitus.

Methods : A randomized controlled trial was conducted among adults with type 2 diabetes mellitus. The experimental group received a 2-week CGM data-based personalized nursing intervention consisting of basic CGM education, diabetes self-management education, and individualized feedback based on CGM data, whereas the control group received basic CGM education only. Self-care behaviors and sleep quality were assessed at baseline, immediately after the 2-week intervention, and at the 4-week follow-up. Glycemic outcomes, including mean amplitude of glycemic excursions (MAGE), time in range (TIR), mean glucose, and nocturnal hypoglycemia frequency, were assessed immediately after the 2-week intervention and at the 4-week follow-up. Data were analyzed using descriptive statistics, homogeneity tests, and repeated measures analysis of variance (RM-ANOVA) with SPSS.

Results : A total of 54 participants (28 in the experimental group and 26 in the control group) were included in the final analysis. Self-care behaviors ($p<.001$) and sleep quality ($p=.003$) improved significantly in the experimental group compared with the control group. However, MAGE, TIR, mean glucose, and nocturnal hypoglycemia frequency did not differ significantly between the two groups.

Conclusions : A CGM data-based personalized nursing intervention was effective in improving self-care behaviors and sleep quality in adults with type 2 diabetes mellitus. These findings suggest that personalized nursing interventions using CGM data may serve as an effective nursing strategy to promote self-management in adults with type 2 diabetes mellitus.

Keywords : Continuous glucose monitoring, Nursing intervention, Self-care behaviors, Type 2 diabetes mellitus



From Perception to Design: Developing a Platform-Independent Metaverse-Based Clinical Learning Environment for Nursing Students

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Purpose : To examine nursing students' perceptions and learning needs regarding metaverse-based education and describe how these findings informed the design of an immersive clinical learning environment.

Methods : A descriptive cross-sectional needs analysis was conducted among 269 Diploma in Nursing students from four Institutes of Health Training under the Ministry of Health Malaysia. Data were collected using an adapted 24-item Metaverse Perception Scale for Nursing Students covering educational, technological, challenge, and lifestyle dimensions. Additional items assessed gaps in current clinical learning support and students' preferred elements for metaverse-based learning. Data were analysed using frequencies, percentages, means, and standard deviations.

Results : Students reported high perceptions of the educational dimension, with a mean of 4.19 and a standard deviation of 0.820; the technological dimension, with a mean of 4.20 and a standard deviation of 0.810; and the lifestyle dimension, with a mean of 4.19 and a standard deviation of 0.800. The challenge dimension was moderate, with a mean of 3.57 and a standard deviation of 1.240, and inadequate infrastructure and equipment emerged as the principal concern. The overall need for additional clinical learning support was high, with a mean of 3.92 and a standard deviation of 0.980. Students prioritised learning activities, flexible time and location, learning experiences, and learning resources. These findings informed the development of a prototype immersive clinical learning environment, initially implemented on the Spatial platform, featuring orientation, wound dressing, and subcutaneous injection learning spaces supported by demonstrations, quizzes, three-dimensional resources, and navigable learning portals.

Conclusions : Nursing students perceived metaverse-based learning as a valuable complement to conventional clinical education. The findings support pedagogically driven and platform-independent immersive learning environments while highlighting infrastructure readiness, equitable access, and platform sustainability as essential implementation considerations.

Keywords : Clinical learning; immersive learning; metaverse; nursing education



Nursing students' educational needs for simulation-based education to enhance situation awareness: A qualitative study

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Purpose : Situation awareness is a fundamental competency for safe nursing practice, but nursing students often experience difficulties in developing this competency during clinical education. Although simulation-based education has been recommended to support situation awareness, evidence regarding nursing students' educational needs remains limited. This study explored nursing students' educational needs for simulation-based education to enhance situation awareness.

Methods : A qualitative study using focus group interviews was conducted with 13 third- and fourth-year nursing students from two universities in South Korea who had experience in both simulation-based education and clinical practice. Focus group interviews were conducted to explore nursing students' educational needs for simulation-based education to enhance situation awareness. Data were analyzed using qualitative content analysis.

Results : Two categories and six subcategories were identified. The first category, 'simulation learning designs that facilitate situation awareness,' included prebriefing that guides learners to identify situation-specific cues and priorities, and realistic, dynamic scenarios of progressively increasing complexity. The second category, 'personalized and trustworthy reflective feedback systems,' included personalized, consistent multimodal feedback using artificial intelligence, eye tracking, and first-person video; evidence-informed reflection integrating technology-based analysis with faculty and peer feedback; longitudinal feedback showing changes across repeated performances; and learning environments that protect data privacy and learner choice.

Conclusions : Nursing students perceived simulation as a safe environment in which they could repeatedly experience changing clinical situations and reflect on their situation awareness. Simulation-based education should therefore combine cue- and question-focused prebriefing, developmentally appropriate dynamic scenarios, and personalized reflective feedback supported by technology, faculty, and peers. Data protection and learner autonomy should be considered essential prerequisites for implementing technology-based feedback. These findings provide practical guidance for designing simulation-based education to enhance nursing students' situation awareness.

Keywords : Educational Needs, Nursing students, Simulation-based education, Situation awareness

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Development and Validity Verification of a Pediatric Asthma Nursing Scenario for Generative AI-Based Question-Centered Learning (QcL)

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Purpose : The increasing complexity of clinical environments requires nursing students to develop advanced clinical reasoning and decision-making competencies. Recently, generative artificial intelligence (Gen AI) has emerged as a promising educational tool to support learner-centered and adaptive learning. This study aimed to develop a pediatric asthma nursing scenario based on Question-centered Learning (QcL) using Gen AI and to validate its content through expert evaluation.

Methods : This methodological study involved the development of a simulation scenario integrating Gen AI and QcL principles. The scenario was designed to reflect a continuum of care from the emergency department to the pediatric intensive care unit and general ward. Content validity was evaluated by a panel of five experts using a structured validity assessment tool. The content validity index (CVI) was calculated to determine the appropriateness and relevance of the scenario.

Results : The developed scenario demonstrated a high level of content validity, with a scale-level CVI/Average (S-CVI/Ave) of 0.93. The integration of clinical cues and questioning triggers facilitated active clinical reasoning and decision-making. Additionally, the use of Gen AI enabled real-time, tailored feedback, enhancing self-directed learning and metacognitive reflection. The scenario also incorporated evidence-based treatment protocols, family-centered care, and interprofessional collaboration, thereby improving clinical authenticity and educational applicability.

Conclusions : The Gen AI-based QcL pediatric asthma nursing simulation scenario developed in this study is a valid and effective educational model that supports the enhancement of clinical competencies in nursing students and novice nurses. Future studies are needed to evaluate its educational effectiveness in practice and to explore its applicability across diverse clinical contexts.

Keywords : Generative artificial intelligence, Question-centered learning, Pediatric asthma, Nursing simulation, Clinical reasoning



Comparison of Nursing Professionalism, Cultural Intelligence, and Core Nursing Competencies among Korean and Chinese Nurses

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Purpose : As globalization advances, nurses are expected to possess professional values and intercultural competence. Despite increasing international enrollment in Korean nursing programs, little is known about Chinese nurses with different educational backgrounds. This study compared nursing professionalism, cultural intelligence, and core nursing competencies among Korean nurses and Chinese nurses educated in Korea or China.

Methods : This descriptive cross-sectional study was conducted from March 16 to April 13, 2026. Participants were 122 registered nurses recruited by convenience and snowball sampling: 58 Korean nurses educated only in Korea (K group), 31 Chinese nurses educated in both China and Korea (CCK group), and 33 Chinese nurses educated only in China (CC group). Data on nursing professionalism, cultural intelligence, and core nursing competencies were collected using self-administered questionnaires and analyzed using descriptive statistics, chi-square tests, one-way ANOVA, and post hoc analyses with SPSS 30.0.

Results : Nursing professionalism differed overall ($F = 3.082, p = .0496$), but post hoc tests found no significant pairwise differences. Cultural intelligence differed across groups ($F = 16.369, p < .001$). The K group (3.12 ± 0.70) scored lower than the CCK group (3.94 ± 0.76) and the CC group (3.89 ± 0.88). The Chinese groups did not differ. Core nursing competencies differed across groups ($F = 4.717, p = .011$). The K group (3.16 ± 0.41) scored lower than the CC group (3.39 ± 0.44), but not significantly lower than the CCK group (3.46 ± 0.65). The two Chinese groups did not differ.

Conclusions : Nursing professionalism, cultural intelligence, and core nursing competencies differed among the three groups, whereas no differences were found between the CC and CCK groups. These findings suggest that differences in nursing competencies should be interpreted within broader cultural, educational, and clinical contexts. Strategies to enhance nursing competencies should integrate these perspectives.

Keywords : Clinical Competence, Cultural Intelligence, Nurses, Professional Values



Room of Errors: Learning Activity for Nurses

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Purpose : Nurses with limited clinical experience are vulnerable to patient safety incidents. However, existing safety education relies mainly on one-time, basic concept delivery, restricting competency enhancement. Therefore, systematic, case-based education is necessary. This study was to find that the "Room of Errors" simulation program is an effective learning activity for nurses in improving patient safety.

Methods : This study employed a quasi-experimental design using a non-equivalent control group pretest-posttest design. The participants were nurses working at a single tertiary hospital. Participants were included in the experimental group (n = 38) and the control group (n = 38).

The "Room of Errors" program was developed based on Jeffries' NLN/JST simulation theory and consisted of three sessions: two online lectures and one face-to-face simulation. A face-to-face simulation scenario was based on a post-operative colorectal cancer nursing, using the accreditation standards Version 4 and post-operative guidelines.

We set up a real patient room in closed unit with 28 embedded error items. The error items were classified as immediately observable errors requiring simple decision-making, while classified as two-step logical reasoning errors requiring analysis and comparison of physician orders or laboratory results.

Results : During the simulation, the error identification by the nursing teams was 22 out of 28 items. Items with the lowest detection rates included immediately observable errors such as "upside-down application of the pulse oximeter sensor," "disposable oxygen humidifier not filled with distilled water, failing to perform humidification".

Conclusions : In conclusion, the findings of this study demonstrate that the "Room of Errors" simulation program is an effective learning activity for nurses in improving patient safety. This program can be utilized as a valuable educational strategy to strengthen patient safety competencies, and contribute to the establishment of a patient safety culture within hospital settings.

Keywords : Nurse, Patient Safety, Room of Error, Simulation Training



Secondary Traumatic Stress in Nursing Students: A Scoping Review

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Purpose : This scoping review aimed to map the extent and nature of research on secondary traumatic stress among nursing students, focusing on research trends, study characteristics, conceptualization and measurement, and related factors.

Methods : This review followed the Joanna Briggs Institute methodology for scoping reviews and was reported using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews. Eligibility followed the population–concept–context framework: nursing students; secondary traumatic stress; any context. Five international and three Korean databases were searched for literature published from January 2000 to July 2026. Of 987 records identified, 254 duplicates were removed, and 733 records were independently screened by two reviewers. Thirty-nine studies met the eligibility criteria.

Results : Four studies were published between 2013 and 2019, 11 between 2020 and 2023, and 24 between 2024 and 2026, demonstrating a marked recent increase. Thirty-two studies were quantitative, two qualitative, and five mixed methods; no intervention studies were included. Studies were conducted in 12 countries, most frequently China (14), the United States (seven), and South Korea (five). Among the 33 studies using standardized instruments, 30 measured secondary traumatic stress within compassion fatigue frameworks, most commonly with the Professional Quality of Life Scale (18), whereas only three used the Secondary Traumatic Stress Scale, a dedicated measure. These framework-based instruments differ from dedicated measures in item content and severity thresholds. Related factors clustered within personal and clinical practicum-related domains.

Conclusions : Research on secondary traumatic stress among nursing students has expanded rapidly, yet its predominant operationalization within compassion fatigue frameworks limits comparability across studies. Conceptually explicit, validated measures for nursing students and the development and evaluation of trauma-informed educational interventions are needed to support students exposed to traumatic events during clinical practicum.

Keywords : Nursing students, Scoping review, Secondary traumatic stress

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Factors Influencing Nursing Information Literacy Competency in Nursing Students Who Experienced Clinical Practicum

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Purpose : This study aimed to identify the factors influencing nursing information literacy competency among nursing students by examining the relationships among digital competence, attitudes toward artificial intelligence (AI), critical thinking disposition, and self-directed learning ability.

Methods : A descriptive correlational survey design was used. Data were collected from 179 third- and fourth-year nursing students at a university in Busan, Korea, from August 26 to September 27, 2024, using structured self-report questionnaires. Digital competence, attitudes toward AI, critical thinking disposition, self-directed learning ability, and nursing information literacy competency were measured on 5-point Likert scales. Data were analyzed using descriptive statistics, independent t-test, Pearson's correlation coefficients, and multiple regression analysis with IBM SPSS 26.0.

Results : The mean nursing information literacy competency score was 3.84 ± 0.49 (range 1–5). It was positively correlated with digital competence ($r=.65$, $p<.001$), self-directed learning ability ($r=.63$, $p<.001$), critical thinking disposition ($r=.56$, $p<.001$), and attitudes toward AI ($r=.15$, $p=.043$). Multiple regression analysis showed that digital competence ($\beta=.41$, $p<.001$) and self-directed learning ability ($\beta=.38$, $p<.001$) were significant predictors, explaining 54.5% of the variance in nursing information literacy competency ($F=41.47$, $p<.001$).

Conclusions : Digital competence and self-directed learning ability were key factors influencing nursing information literacy competency in nursing students. Educational strategies and curricula that strengthen these competencies are needed to prepare future nurses for a digital, AI-driven healthcare environment.

Keywords : Nursing students, Nursing information literacy competency, Digital competence, Artificial intelligence, Self-directed learning



Effectiveness of AI-Assisted Learning on Knowledge Retention and Study Strategies Among Selected Nursing Students

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Purpose : Artificial intelligence (AI) has become increasingly integrated into education, transforming how students learn, communicate, and engage with academic content. In nursing education, where critical thinking and long-term knowledge retention are essential, AI-assisted learning platforms offer innovative opportunities to enhance study habits and improve learning outcomes. Quizizz (Wayground) is an AI-supported learning and assessment platform that provides adaptive learning activities and immediate feedback. Despite its growing use in education, limited research has explored the effectiveness of AI-assisted learning tools in nursing education, particularly regarding knowledge retention and study strategies. This study aimed to determine the effectiveness of AI-assisted learning on knowledge retention and study strategies among nursing students in a selected School of Nursing in Manila, Philippines.

Methods : A quasi-experimental design was employed among level 1 nursing students enrolled in one of the major subjects. Participants were selected through purposive sampling from one section and were exposed to the intervention (Quizizz) over four consecutive weeks during the midterm period. Data were collected using pre-test and post-test assessments to measure knowledge retention and a Likert-scale questionnaire to evaluate study strategies.

Results : Results showed that post-test scores were higher than pre-test scores, indicating improved knowledge retention in recall, comprehension, application, and problem-solving following exposure to AI-assisted learning. Findings on study strategies revealed an improvement, with ratings increasing from "good" to "very good." Notable enhancements were observed in organization, time management, self-monitoring, and identification of error patterns, reflecting stronger self-regulated learning behaviors. Overall, the results demonstrated significant improvements in both knowledge retention and study strategies after the implementation of AI-assisted learning using Quizizz (Wayground).

Conclusions : Quizizz (Wayground) is an effective AI-assisted learning resource for enhancing knowledge retention and study strategies among nursing students.

Keywords : Artificial Intelligence, Quizizz (Wayground)



Implementation of the Advance Physician-led Education Experience (APEX) Program to Improve Nursing Competency in Intensive Care Unit and Emergency Department Settings

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Purpose : To outline the execution and results of the APEX clinical teaching and bedside learning program, which was carried out in ICU and Emergency Department units from March to May 2026 as an effort to increase nurse competency rather than a strictly research project

Methods : A quality improvement project was conducted using bedside teaching, case-based discussion, and specialist-led learning sessions. Data were collected from across five hospital. Approximately 60 educational sessions were delivered in ICU and ED settings covering critical care, cardiac, neurological, respiratory, pediatric, surgical, and emergency topics. Participant attendance ranged from 2 to 10 staff members per session. Program evaluation used satisfaction and self-confidence questionnaires (12 items, Likert scale 1-5), participant feedback, and knowledge assessment scores.

Results : The program delivered a wide range of clinical topics including ventilator weaning, hemodynamic monitoring, stroke management, tracheostomy care, sepsis, urinary retention, chest pain management, dystonia, and acute liver injury. Evaluations of self-confidence and satisfaction were largely favorable, with the majority of participants choosing scores of 4 or 5 in every category. The majority of participants received a score of 100 on the knowledge assessment, which had a range of 80 to 100. Improved comprehension of critical care management, respiratory support, neurological evaluation, fracture management, pediatric care, and clinical reasoning was shown by qualitative comments. Participants emphasized the advantages of direct communication with experts and bedside instruction. Longer discussion sessions, more case-based learning, and more topic covering were among the suggested enhancements.

Conclusions : The APEX program was successfully implemented as a nursing competency improvement initiative. Bedside teaching, multidisciplinary collaboration, and case-based learning enhanced nurses knowledge, confidence, and perceived clinical competence. High participant satisfaction and positive feedback support continuation and expansion of the program as a sustainable strategy for nursing professional development.

Keywords : Nursing competency improvement; bedside teaching; nursing development ; professional development



Development of a Web-Based Shared Decision-Making Education Program for Nurses

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Purpose : Although nurses are directly involved in patients' treatment decisions, most receive no systematic training in shared decision-making or the communication skills it requires, and one-off workshops leave only temporary effects. We built a web-based SDM(shared decision making)platform for nurses to close this gap, making content accessible, continuous, and repeatable, and thereby effectively supporting the shared decision-making process.

Methods : We followed the SDLC(Software Development Life Cycle)waterfall model: literature review, needs assessment, content design, platform implementation, and usability evaluation, in order. Ten nurses joined focus group interviews shaping protocols built on the five SHARE approach steps (seeking participation, exploring and comparing options, identifying values and preferences, reaching a decision, and evaluating the decision). After expert content-validity review, we produced 12 video sessions; participants checked prior knowledge, watched each session, then compared pre-post knowledge through a post-survey. A beta test checked usability and preparation for decision making.

Results : Beta testing returned a mean usability score of 5.61 ± 0.82 (7-point scale) and a preparation-for-decision-making score of 4.30 ± 0.56 (5-point scale), both above the midpoint. The guideline matched what nurses said they needed: clear patient preparation, appropriate treatment options, and room to reflect preferences. Using the platform, nurses identified patient values, encouraged participation, and gave accurate information by exploring and comparing treatment options; disease-specific tools added detail for repeated learning anytime, anywhere.

Conclusions : We built this program on evidence-based protocols delivered digitally, aiming to strengthen nurses' shared decision-making competency. The detailed curriculum and guidelines, grounded in nurses' own stated needs, did just that, and the platform made systematic, repeated learning possible. What we have not yet confirmed is whether this translates into changed decision-making behavior at the bedside; that question needs its own follow-up study before we can call the program clinically effective.

Keywords : Shared Decision-Making, Nurse Education, Web-Based Platform, SHARE Approach



Factors Influencing Nursing Performance among Emergency Room Nurses

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Purpose : Emergency room (ER) nurses work in complex, unpredictable, and high-acuity environments where rapid clinical judgment, effective emotional regulation, and sustained motivation are essential for providing safe and high-quality patient care. Identifying the individual competencies that contribute to nursing performance is important for improving the quality of emergency nursing care. This study aimed to examine the relationships among critical thinking disposition, emotional intelligence, grit, and nursing performance, and to identify the factors influencing nursing performance among emergency room nurses.

Methods : This descriptive study included 168 emergency room nurses with at least one year of clinical experience. Data were collected using self-administered questionnaires. Critical thinking disposition, emotional intelligence, grit, and nursing performance were measured using validated instruments. Data were analyzed using descriptive statistics, independent t-tests, one-way ANOVA, Pearson's correlation coefficients, and multiple regression analysis. Statistical significance was set at $p < .05$.

Results : The mean nursing performance score was 4.13 ± 0.44 on a 5-point scale. Nursing performance was positively correlated with ER job satisfaction ($r = .375, p < .001$), critical thinking disposition ($r = .658, p < .001$), emotional intelligence ($r = .579, p < .001$), and grit ($r = .626, p < .001$). Multiple regression analysis identified critical thinking disposition ($\beta = .394, p < .001$), grit ($\beta = .264, p < .001$), and emotional intelligence ($\beta = .147, p = .044$) as significant predictors, explaining 53.4% of the variance (Adjusted $R^2 = .534$).

Conclusions : Critical thinking disposition, grit, and emotional intelligence were identified as significant predictors of nursing performance among emergency room nurses. These findings highlight the importance of strengthening both cognitive and emotional competencies to improve nursing performance in emergency care settings. Developing educational and intervention programs that enhance these competencies may improve emergency nurses' professional competencies and ultimately contribute to higher quality emergency nursing care.

Keywords : Critical thinking, emergency nursing, emotional intelligence, job performance



An integrated nursing care model for lung cancer patients- A Regional Teaching Hospital Experience in Taiwan

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Introduction : Lung cancer is a leading cause of cancer death in Taiwan in 2026. As a disease jointly managed by different disciplines, there is a need to improve the coordination of care. An integrated lung cancer case management program has commenced in our Hospital since Feb 2013 to facilitate the continuity of care in newly diagnosed lung cancer patients.

Purpose: To examine the role of lung cancer case manager (LCCM)

Methods : A situation analysis from 1 September 2024 to 30 September 2024. The pathway includes 5 key elements: (1) Patient triage; (2) Assistance in arranging diagnostic investigations; (3) Monitoring the progress and collaborating investigation results for multi-disciplinary team (MDT) case conference; (4) Making referrals and liaisons with healthcare providers; (5) Continuous assessment, monitoring, education and support.

Results : Five patients were diagnosed of lung cancer, predominantly female (60%) and metastases already noted in 100%. Advancements of diagnostic investigations were facilitated for 5 patients. Liaison with the corresponding surgical LCCM for operative arrangements Venous Port implantable was done in 5 (100%). 1 (20%) were referred to social workers for counselling and financial support, 5 (100%) to dieticians before surgical operation and chemotherapy, 1 (20%) to clinical psychologist for critical stress management. 5 (100%) patients acknowledged sufficient knowledge and expressed satisfaction on the service provision.

Conclusions : LCCM is a useful and cost-effective way to reduce the possible fragmentation of service provisions by MDT in the management of lung cancer.

Keywords : lung cancer case manager (LCCM), nursing



Development of Advanced Practice Nurse Roles in Breast Cancer Care Using the PEPPA Framework

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Purpose : This study aimed to develop advanced practice nurse roles across the breast cancer care trajectory and to generate evidence for advanced practice nursing under Korea's newly legislated scope of practice, using the PEPPA (Participatory, Evidence-informed, Patient-Centered Process for Advanced Practice Nursing role development) framework.

Methods : An exploratory sequential mixed-methods design applied steps one to five of the framework at a tertiary hospital in Seoul, Korea. Semi-structured interviews with eleven women within two years of a breast cancer diagnosis, purposively sampled until data saturation, were analyzed thematically. An online survey of fifty-five healthcare providers (thirty-one nurses, fifteen advanced practice nurses, nine physicians) rated the necessity of thirty-five nursing service items across four care phases on a four-point scale. Twenty-two stakeholders agreed priority goals, and integrated findings were organized into a care model by structure, process, and outcome.

Results : Three qualitative themes emerged: the advanced practice nurse as a bridge within the healthcare system, gaps in continuity of care, and expectations for holistic care. Providers rated education and counseling items as most necessary, especially during diagnosis and active treatment; coordination items were rated lower but, reflecting patients' accounts, were prioritized through stakeholder consensus. Key barriers were legal and institutional limits on authority, staff shortages, excessive workload, and inadequate compensation. The patient-centered integrated care model comprised four competency domains (education and counseling, clinical practice, coordination and collaboration, and research and leadership) and organized role functions as independent, dependent, and interdependent, mapped onto the legislated scope of practice.

Conclusions : Steps one to five of the framework yielded a patient-centered advanced practice nurse role model designed to address unmet needs for information, access, and emotional support and to strengthen continuity of care across the trajectory. Implementation requires legal, institutional, reimbursement, and staffing support, followed by stakeholder validation and evaluation in steps six to nine.

Keywords : Advanced practice nursing; Breast neoplasms; Nursing role; Patient-centered care



Nursing Management and Policy in Mongolia: Leadership, Alignment, and Global Integration

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Purpose : Mongolia's healthcare system faces unique challenges shaped by vast geography, dispersed populations, and limited infrastructure. Nursing management and policy play a pivotal role in ensuring equitable access to care, strengthening workforce capacity, and aligning national health priorities with international standards. This paper examines the current state of nursing management and policy in Mongolia, highlighting opportunities for leadership development, policy innovation, and integration of global frameworks into local practice.

Methods : A narrative review of national health policies, nursing education reforms, and workforce development strategies was conducted. Comparative analysis with international nursing management models was applied to identify strengths, gaps, and actionable pathways for policy advancement.

Results : The analysis revealed three overarching domains. Leadership capacity: Nurse managers are increasingly positioned as decision-makers, yet require structured training in policy interpretation, strategic planning, and digital health integration. Policy alignment: National nursing policies emphasize workforce expansion and rural service delivery but lack comprehensive frameworks for leadership preparation and evidence-based management. Global integration: Adoption of WHO and ICN guidelines offers opportunities to strengthen nursing governance, improve quality assurance, and enhance cross-border collaboration.

Conclusions : Nursing management and policy in Mongolia are at a critical juncture. By investing in leadership development, embedding evidence-based management practices, and aligning national policies with international standards, Mongolia can advance nursing's role in shaping resilient, equitable, and culturally responsive healthcare systems.

Keywords : Nursing management, Health policy, Leadership development, Workforce capacity, Global integration



A Positive Psychological Capital-Based Nursing Retention Model for Shift-Working Hospital Nurses: A Conceptual Analysis

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Purpose : This study aimed to develop a conceptual model explaining retention intention among shift-working hospital nurses based on Positive Psychological Capital Theory. The model focuses on how positive psychological capital interacts with job stress, nursing work environment, psychological burnout, and job satisfaction to influence nurses' intention to remain in their current workplace.

Methods : A conceptual model was developed through an integrative review of literature on positive psychological capital, nurse retention, shift work, job stress, nursing work environment, burnout, and job satisfaction. Theoretical assumptions from Positive Psychological Capital Theory were synthesized with empirical findings from nursing workforce and organizational behavior studies. Key concepts and possible pathways among variables were identified and organized into a preliminary explanatory model.

Results : The proposed model suggests that nursing work environment and job stress directly and indirectly affect retention intention through psychological burnout and job satisfaction. Positive psychological capital, consisting of self-efficacy, hope, resilience, and optimism, is conceptualized as a modifiable psychological resource that may reduce burnout, enhance job satisfaction, and strengthen retention intention. In the context of shift work, positive psychological capital may function not merely as an individual trait but as a strategic resource that supports professional sustainability and organizational stability among hospital nurses.

Conclusions : This conceptual model provides a theoretical basis for understanding retention intention among shift-working hospital nurses from a positive psychological capital perspective. The model highlights the need to move beyond deficit-oriented explanations of nurse turnover and to develop organizational strategies that strengthen nurses' psychological resources, improve work environments, and promote sustainable retention. Future empirical studies are needed to test the proposed pathways using structural equation modeling and to develop interventions aimed at enhancing positive psychological capital in nursing organizations.

Keywords : Hospital nurses, Positive psychological capital, Retention intention, Shift work



Nursing Intelligence in the AI Era: An Evolutionary Concept Analysis of Human–AI Collaborative Care

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Purpose : Artificial intelligence is rapidly transforming nursing research, education, and practice. Although related concepts such as emotional intelligence, clinical judgment, digital literacy, and AI literacy have been discussed in nursing, the concept of nursing intelligence in AI-mediated care remains insufficiently defined. This study aimed to clarify the concept of nursing intelligence in the AI era and identify its defining attributes, antecedents, consequences, and implications for human–AI collaborative care.

Methods : Rodgers' evolutionary concept analysis method was applied. Literature related to artificial intelligence in nursing, digital therapeutics, remote care, clinical decision support, nursing ethics, data governance, cybersecurity, and human-centered care was reviewed. The analysis focused on the contextual use of nursing intelligence and its related concepts in AI-enabled healthcare environments.

Results : Nursing intelligence in the AI era was identified as a dynamic and integrative capacity that enables nurses to interpret AI-generated information, understand patients beyond data, ethically mediate technological interventions, and coordinate human–AI collaborative care. Its defining attributes included clinical interpretive intelligence, relational-contextual intelligence, ethical and regulatory intelligence, digital and cybersecurity intelligence, and human–AI coordination intelligence. Antecedents included AI-enabled healthcare systems, platform-based care, digital therapeutics, data-driven decision-making, and increasing demands for responsible AI use. Consequences included safer AI-supported care, preservation of patient dignity and vulnerability, enhanced professional judgment, and trustworthy digital health practice.

Conclusions : Nursing intelligence in the AI era should not be reduced to technical competency or AI literacy. It should be understood as a professional and ethical capacity to integrate human judgment, relational care, digital competence, cybersecurity awareness, and governance responsibility in AI-mediated healthcare. This concept provides a theoretical foundation for nursing education, competency development, ethical guidelines, and human-centered AI implementation.

Keywords : artificial intelligence, human–AI collaboration, nursing intelligence



The Influences of Psychological Safety on Voice Behavior among Hospital Nurses : The Mediating Effect of Moral Courage

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Purpose : This study aimed to examine the influences of psychological safety on voice behavior among nurses in tertiary hospitals and to verify the mediating effect of moral courage, ultimately providing foundational data to enhance nurses' voice behavior.

Methods : A cross-sectional descriptive correlational design was utilized. Participants were frontline nurses with at least 6 months of clinical experience working at two advanced general hospitals in the Gyeongin region, selected via convenience sampling for an online survey. Data were collected from February 23 to April 9, 2026. Out of 209 retrieved questionnaires, 22 were excluded due to incomplete responses or unmet inclusion criteria, leaving 187 questionnaires for the final analysis. Data collection was performed using structured questionnaires assessing general characteristics, psychological safety, moral courage, and voice behavior.

Results : The regression model to identify factors influencing voice behavior included total clinical career, education level, department, psychological safety, and moral courage. Total clinical career (beta = .166, p = .028), working in the emergency room (beta = .202, p = .005), and moral courage (beta = .236, p = .002) were significant predictors, explaining 15.0% of the variance (F = 4.64, p < .001). Furthermore, moral courage significantly mediated the relationship between psychological safety and voice behavior, demonstrating a significant indirect effect (95% Bootstrap CI = .019-.129).

Conclusions : Nurses' voice behavior was influenced by total clinical career, emergency room assignment, and moral courage, with psychological safety indirectly affecting voice behavior through moral courage. To promote voice behavior for patient safety, it is essential to foster a psychologically safe organizational culture and implement educational and organizational strategies to enhance nurses' moral courage.

Keywords : Psychological safety, Speaking up, Moral courage, Nurses, Patient safety



Effectiveness of a Situation Awareness–Based Initial Nursing Rounds Training Program for Ward Nurses: A Quasi-Experimental Study

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Purpose : Initial nursing rounds are critical for early patient assessment and preventing clinical deterioration, requiring situation awareness for safe clinical decision-making. Since structured educational interventions integrating situation awareness into routine practice remain limited, this study aimed to develop a situation awareness–based initial nursing rounds training program for ward nurses and to evaluate its effects on situation awareness, patient safety competence, and missed nursing care.

Methods : This study employed a quasi-experimental design with a non-equivalent control group pretest–posttest approach. The training program was developed using the analysis, design, development, implementation, and evaluation instructional design model. Fifty ward nurses from acute care units were included in the final analysis, with twenty-five nurses in the experimental group and twenty-five in the control group. The experimental group completed three structured educational sessions totaling 120 minutes over a four-week period. Data were collected at baseline, immediately post-intervention, and at a four-week follow-up, and subsequently analyzed using repeated measures analysis of variance.

Results : Significant group-by-time interactions were observed for both situation awareness and patient safety competence, indicating greater and sustained improvements in the experimental group compared to the control group. However, no statistically significant effect was found for the reduction of missed nursing care between the two groups.

Conclusions : The program effectively enhanced ward nurses' situation awareness and patient safety competence. Integrating situation awareness into routine initial nursing rounds may strengthen proactive patient care and improve overall patient safety. Further studies are warranted to examine long-term clinical effects and to develop target strategies for reducing missed nursing care.

Keywords : Missed nursing care; Nursing education; Patient safety; Situation awareness



Predictors of leaving intention among clinical nurses in North Taiwan

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Purpose : Nurse shortages are a serious problem worldwide. A shortage of nursing staff will reduce the quality of medical care and also seriously threaten patient safety. Considering the importance of enhancing patient care safety and from an administrative perspective, the issue of nursing staff shortages deserves serious attention. Furthermore, early identification of the reasons for nursing staff turnover and providing assistance to improve them will help address the problem of nursing staff shortages.

Methods : It is a cross-sectional study, we invite participants who are employed in a regional hospital in North Taiwan to fill out several questionnaires to explore their work incivility, workplace justice, and leaving intention. All participants are registered nurses. The leaving intention was determined using a leaving intention questionnaire which is a 5-item Likert scale, a higher total score indicates more leaving intention. SPSS 26.0 version was used for data analysis. Logistic regression was used to examine predictors of intention among nurses.

Results : In total, 528 participants aged from 20 to 65 were included. Of the participants, show a significant female majority (507 participants) compared to males (21 participants). Younger nurses below 30 years old (OR=2.155, 95% CI: 1.057- 4.394) and those with a university education or above (OR=1.913, 95% CI: 1.039-3.523) were more likely to have high intentions to leave their jobs. Additionally, participants who reported low workplace justice (OR=2.033, 95% CI: 1.264- 3.271) had markedly elevated leaving intentions. However, experiencing workplace incivility was associated with reduced intentions to leave (OR=0.215, 95% CI: 0.121-0.382).

Conclusions : Young age, low work incivility, and workplace justice were associated with leaving intention among nurses in North Taiwan. Not a very surprising result we made. These phenomena still deserve our attention. Reducing workplace incivility and improving work justice will help reduce leaving intentions, retain nursing staff, and enable our patients to receive better care.

Keywords : Leaving intention, Nursing Staff shortages.



Changes in Ward-Level Clinical Workflow Indicators and Advanced Practice Nurse–Physician Collaboration During Advanced Practice Nurse Role Expansion: An Exploratory Operational Analysis

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Purpose : This exploratory operational analysis described changes in ward-level operational indicators, patient-side experience, and physician-perceived APN–physician collaboration during the transition to an expanded physician–APN collaborative inpatient care model.

Methods : An exploratory before-and-after descriptive design using department-year aggregated data was supplemented by a cross-sectional physician perception survey. Ward-level operational indicators were extracted from electronic medical records and enterprise data warehouse systems for five departments during identical 6-month periods in 2023, 2024, and 2025. Indicators included length of stay, medical record completion, discharge pre-notification, same-day order completion, and oncology-specific chemotherapy waste. Patient/customer experience evaluation scores were examined as descriptive phase-level patient-side indicators. One-way ANOVA with Benjamini–Hochberg correction was used for exploratory comparisons, and APN–physician collaboration was assessed using a validated collaboration scale.

Results : A total of 24,693 hospitalized patients were included. APNs increased from 32 to 48, with variation across departments. Length of stay remained statistically stable across study periods. Significant phase differences were observed for discharge pre-notification rate ($F[2,12] = 10.98$, $p = .005$, $\eta^2 = .647$) and patient/customer experience evaluation scores ($F[2,12] = 15.48$, $p = .002$, $\eta^2 = .721$). Chemotherapy waste rates in oncology decreased from 0.12% in 2023 to 0.01% in 2025. Medical record completion and same-day order completion showed numerical increases but were not statistically significant after correction. Physician-reported collaboration scores were consistent with frequent collaborative behaviors between physicians and APNs during the expanded APN role phase.

Conclusions : APN role expansion coincided with stable length of stay and favorable changes in selected ward-level operational and patient-side indicators. Because this single-institution study used retrospective aggregated data without a concurrent control group, findings should be interpreted as descriptive associations rather than causal evidence. Further longitudinal, multi-institutional studies are needed to evaluate APN-integrated care models more rigorously.

Keywords : advanced practice nursing, nurse practitioners, interprofessional relations, quality of health care



Generative artificial intelligence use intention among nursing students and nurses: A cross-sectional study

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Purpose : This study aimed to identify factors influencing generative artificial intelligence use intention among nursing students and experienced nurses based on the extended Unified Theory of Acceptance and Use of Technology, and to examine whether the effects of these factors differ by group.

Methods : This descriptive correlational study included nursing students who had completed at least one semester of clinical practicum and nurses with at least three years of clinical experience. Data from 328 participants were analyzed. Generative artificial intelligence use intention, related factors, and ethical awareness were measured. Data were analyzed using descriptive statistics, independent t-test, correlation analysis, and hierarchical multiple regression analysis including the group variable and interaction terms between the group and major predictive variables.

Results : The nursing student group showed significantly higher scores than the nurse group for generative artificial intelligence use intention, performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivation, price value, habit, and ethical awareness. Hierarchical regression analysis showed that performance expectancy, social influence, habit, and ethical awareness were significant predictors of generative artificial intelligence use intention, and habit was the strongest predictor. The main effect of group was not significant; however, the model including interaction terms showed a significant increase in explanatory power. The effect of effort expectancy was stronger in the nursing student group, whereas the effect of social influence was stronger in the nurse group.

Conclusions : As the factors influencing the intention to use generative artificial intelligence differ between nursing students and nurses, understanding these group-specific acceptance mechanisms may help anticipate gaps between educational and clinical settings. Accordingly, practice-based generative artificial intelligence education for students and organizational guidelines, managerial support, and peer support for nurses may facilitate the effective integration of generative artificial intelligence into nursing practice and support communication and collaboration in clinical settings.

Keywords : Generative Artificial Intelligence, Intention, Nurses, Nursing students



Strengths and Effects of Nurse-Led Case Management in Community Settings: A Systematic Review

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Purpose : This systematic review aimed to synthesize international evidence on the characteristics, strengths, and effects of nurse-led case management interventions delivered in community settings.

Methods : A systematic literature search was conducted in PubMed, Cumulative Index to Nursing and Allied Health Literature Plus, Web of Science, and Research Information Sharing Service for studies published between 2015 and 2025. Eligibility criteria were defined using the Population, Intervention, Comparator, and Outcome framework. Peer-reviewed quantitative studies evaluating nurse-led or nurse-coordinated case management interventions delivered in community-based settings were included. Methodological quality was assessed using the QualSyst tool, and the findings were synthesized narratively.

Results : Forty-nine studies from 12 countries were included. Interventions were classified into six models: clinical monitoring and management, education and self-management support, care coordination and linkage, psychosocial support, comprehensive case management, and transitional care. Across seven outcome domains, mental health outcomes, particularly depression, improved consistently. Patient satisfaction, self-efficacy, medication adherence, self-care behaviors, and health knowledge were predominantly positive. Care coordination outcomes, including service referral, linkage to community resources, and caregiver outcomes, also showed consistent benefits. However, effects on healthcare utilization, including hospital readmissions and emergency department visits, were mixed, and clinical outcomes such as blood pressure and glycated hemoglobin varied across populations and intervention designs.

Conclusions : Nurse-led case management in community settings was associated with positive outcomes across multiple domains, with particular strengths in patient-reported outcomes, self-management, and care coordination. As healthcare systems worldwide shift toward integrated, community-based care, strengthening nurse-led case management is essential for improving continuity of care and supporting individuals with complex health needs. Future research should develop and evaluate rigorous, standardized interventions to enhance effectiveness across diverse healthcare contexts.

Keywords : Care coordination, Care management, Case management, Nurse-led intervention



Validation of the Korean Version of the Barriers to Error Disclosure Assessment Tool among Hospital Nurses

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Purpose : Disclosing patient safety incidents is emphasized in nursing, yet nurses face barriers to doing so. The Barriers to Error Disclosure Assessment measures these barriers but had not been validated for Korean nurses. This study examined the construct validity and reliability of its Korean version among hospital nurses.

Methods : This methodological study analyzed data from 283 nurses at two tertiary and two general hospitals in a metropolitan city in South Korea, collected via an online survey from March to April 2026. After approval from the original developers, the tool underwent forward and backward translation following the World Health Organization guideline. An expert panel evaluated content validity over two rounds; three items were deleted, and all remaining items reached an item-level content validity index of 1.00. Pilot testing with 18 nurses followed. Because only one item remained in the financial concern barriers factor, confirmatory factor analysis tested a three-factor structure with five single items modeled as separate observed variables. Reliability was assessed using Cronbach's alpha.

Results : The initial 24-item model fit poorly; six items with standardized factor loadings below .50 were removed. The modified model comprised confidence and knowledge barriers (four items), institutional barriers (two items), psychological barriers (seven items), and five single items, and showed acceptable fit (chi-square/degrees of freedom=2.58, goodness-of-fit index=.904, comparative fit index=.946, normed fit index=.917, Tucker-Lewis index=.922, root mean square residual=.052, root mean square error of approximation=.075). Standardized factor loadings ranged from .547 to .938. Cronbach's alpha was .847 for the 18 items and ranged from .743 to .954 across subscales.

Conclusions : The 18-item Korean version of the Barriers to Error Disclosure Assessment tool is a valid and reliable instrument for measuring hospital nurses' barriers to disclosing patient safety incidents. It can help identify modifiable barriers and guide targeted interventions and organizational strategies promoting open communication after incidents.

Keywords : Nurses, Patient safety, Psychometrics, Truth disclosure



The Moderating Role of Patient Safety Culture in the Relationship Between Nurses' Attitudes Toward Early Recognition and Timely Response to Clinical Deterioration

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Purpose : To examine the association between nurses' attitudes toward early recognition and timely response to clinical deterioration and determine whether patient safety culture moderates this association.

Methods : A cross-sectional correlational study was conducted with 502 nurses providing direct patient care in acute care hospitals in South Korea. Data were collected through an online survey from March to April 2026. Attitudes toward early recognition, attitudes toward timely response, and patient safety culture were measured using the ATREND, CARED, and SAQ-K2 scales, respectively. Data were analyzed using descriptive statistics, independent-samples t-tests, one-way analysis of variance, Pearson's correlation analysis, and hierarchical multiple regression. Moderation and conditional effects were examined using PROCESS Model 1 with 5,000 bootstrap resamples.

Results : Attitudes toward early recognition were positively correlated with attitudes toward timely response ($r = .752$). Patient safety culture was also positively correlated with both attitudes ($r = .518$ and $.641$, respectively; all $p < .001$). Its moderating effect remained significant after adjustment for relevant characteristics (interaction $\beta = .108$, $p < .001$). As patient safety culture became more positive, nurses' positive attitudes toward early recognition were more strongly associated with positive attitudes toward timely response. Conditional effects were $.406$ at low and $.610$ at high levels of patient safety culture. The final model explained approximately 69% of the variance in attitudes toward timely response.

Conclusions : A more positive patient safety culture was associated with a stronger link between nurses' attitudes toward early recognition and timely response to clinical deterioration. These findings suggest that nursing management strategies should combine education to strengthen nurses' early recognition and response capabilities with efforts to foster a supportive patient safety culture through clear escalation protocols, interprofessional training, and nonpunitive communication.

Keywords : early recognition, timely response, clinical deterioration, patient safety culture



Mapping the research landscape of social intelligence in nursing and non-nursing disciplines: A text mining and topic modeling analysis

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Purpose : Social intelligence, the capacity to perceive others' emotions and intentions and to navigate interpersonal relationships, is foundational to nursing care and interdisciplinary collaboration, and its distinctly human value is gaining renewed attention as artificial intelligence enters clinical practice. In nursing, however, it has frequently been subsumed under emotional intelligence, leaving its unique contribution underexamined. This study compared the thematic structure of social intelligence research across nursing and non-nursing fields, spanning domestic and international literature, to clarify how the concept is conceptualized within and beyond nursing.

Methods : A comprehensive search of domestic and international databases through April 2026 identified 257 abstracts meeting the inclusion criteria: nursing (59; domestic 27, international 32) and non-nursing (198; domestic 18, international 180). After preprocessing, frequency analysis, Latent Dirichlet Allocation topic modeling, and co-occurrence network analysis based on connection strength were conducted for each corpus.

Results : In nursing literature, social intelligence was largely subordinated to emotional intelligence. In domestic nursing studies, emotional intelligence was about ten times more strongly connected than social intelligence, which appeared mainly as an explanatory variable for burnout and turnover; international nursing framed it more independently around education and training, social skills, and patient care. Non-nursing disciplines addressed social intelligence more broadly, centered on job performance domestically and expanding internationally into organizational and leadership themes, its cultivation among university students and teachers, and dedicated development and training programs. No validated social intelligence instrument developed specifically for nurses was identified.

Conclusions : Whereas other disciplines have explored social intelligence across diverse domains, nursing research has remained constrained by emotional-intelligence-centered frameworks and narrow educational applications, insufficiently reflecting the care and collaborative dimensions central to practice. Developing nursing-contextualized measurement tools and testing targeted interventions are therefore international priorities for strengthening relational competence in technology-driven care.

Keywords : Nurses; Social intelligence; Text mining; Topic modeling



Understanding the Association Between Nurse Practitioner Scope of Practice Policy and Nurse Practitioner Workforce Outcomes

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Purpose : This systematic review aimed to examine and synthesize the evidence regarding the association between nurse practitioner (NP) scope of practice (SOP) policies and NP workforce outcomes in the United States.

Methods : This systematic review was conducted following the PRISMA 2020 guidelines. Six electronic databases (PubMed, CINAHL, Cochrane Library, EBSCO, DBpia, and RISS) were searched for studies published between January 2000 and June 2025. Two reviewers independently screened studies, assessed methodological quality using the Mixed Methods Appraisal Tool (MMAT), and extracted data. Due to substantial heterogeneity in study design, policy measures, and outcome variables, a narrative synthesis was performed.

Results : Thirteen studies were reviewed. Overall, less restrictive SOP policies, particularly full practice authority (FPA), were associated with more favorable workforce outcomes. FPA was associated with greater NP participation in primary care and Health Professional Shortage Areas (HPSA), increased Medicaid acceptance, higher workforce supply, improved labor market outcomes including self-employment opportunities and working hours, enhanced workforce mobility, and greater practice autonomy. However, findings regarding NP workforce supply were inconsistent across several longitudinal studies, suggesting that the effects of FPA may vary according to implementation period, healthcare market characteristics, and workforce redistribution over time. Several autonomy-related outcomes, including hospital admitting privileges, physician on-site presence, and selected quality indicators, showed no significant association with SOP policies.

Conclusions : The findings partially support an association between less restrictive NP SOP policies and favorable NP workforce outcomes. Although FPA was generally associated with improvements in workforce distribution, labor market outcomes, workforce mobility, and practice autonomy, evidence for workforce supply and some autonomy-related outcomes remained inconsistent. These findings suggest that expanding NP SOP may strengthen the NP workforce, but additional organizational and policy support is needed. Further longitudinal and quasi-experimental studies using standardized measures are required to evaluate the long-term effects of NP SOP policies.

Keywords : Full practice authority, Nurse practitioner, Scope of practice, Workforce outcomes



A Structural Model of Medication Errors in Clinical Nursing: A Structural Equation Model Based on the Ecological Systems Theory

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Purpose : Grounded in Bronfenbrenner's ecological systems theory, this study aimed to examine the structural relationships among the nursing work environment, communication with health professionals, fatigue, and medication errors among clinical nurses.

Methods : A cross-sectional design was employed involving 230 clinical nurses from four tertiary hospitals in South Korea. Data were collected using validated self-report questionnaires measuring the nursing work environment, communication with health professionals, fatigue, and medication errors. Structural equation modeling, supported by confirmatory factor analysis, was used to evaluate direct and indirect pathways and assess overall model fit.

Results : The proposed hypothetical model demonstrated an acceptable fit to the data (e.g., $\chi^2/df = 2.98$, RMSEA = 0.08, SRMR = 0.06, CFI = 0.93). A supportive nursing work environment had a significant positive direct effect on communication (beta = 0.80, $p < 0.001$). Communication significantly reduced fatigue (beta = -0.78, $p = 0.005$) and directly decreased medication errors (beta = -0.27, $p = 0.010$). Consequently, increased fatigue directly contributed to higher rates of medication errors (beta = 0.32, $p = 0.003$). The structural model explained 29.8% of the total variance in medication errors.

Conclusions : Using structural equation modeling, this study highlights that prioritizing improvements in the nursing work environment and strengthening interprofessional communication are essential strategies. Implementing targeted fatigue management programs supported by organizational policies will effectively reduce medication errors and enhance patient safety among clinical nurses.

Keywords : Communication, Fatigue, Medication error, Patient safety



Factors affecting sleep quality among nurses in tertiary hospitals in China

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Purpose : Nurses in tertiary hospitals face demanding workloads and irregular shift patterns that impair sleep. This study aimed to identify factors affecting sleep quality among nurses working in tertiary hospitals in China and to provide evidence for developing strategies to promote their sleep health.

Methods : A descriptive correlational study surveyed 230 nurses who had worked at least six months in Chinese tertiary (Grade 3) hospitals. Sleep quality was measured with the Korean version of the Pittsburgh Sleep Quality Index, along with sleep hygiene, occupational stress, and resilience. Data were analyzed using descriptive statistics, t-tests, one-way analysis of variance, Pearson correlation, and multiple linear regression.

Results : The mean sleep quality score was 6.78, indicating that a majority of participants experienced poor sleep. Sleep quality correlated positively with occupational stress and sleep hygiene scores, whereas resilience showed no significant correlation. Multiple regression analysis identified overtime work, higher occupational stress, and poorer sleep hygiene as significant factors associated with poor sleep quality, with sleep hygiene being the strongest predictor. Older age was associated with poorer sleep, while regular exercise was associated with better sleep. Resilience was not a significant factor for sleep quality.

Conclusions : Modifiable work-related and behavioral factors, particularly overtime, occupational stress, and sleep hygiene, substantially influence sleep quality among tertiary hospital nurses. Interventions that strengthen sleep hygiene practices, together with reduced overtime and better occupational stress management, may improve nurses' sleep health, thereby enhancing work efficiency and patient safety. These findings offer a foundation for developing targeted sleep health promotion strategies for nurses in Chinese tertiary hospitals.

Keywords : Nurses, Occupational stress, Sleep hygiene, Sleep quality



Factors Associated with Workflow Interruptions Among Healthcare Workers: Evidence from the 7th Korean Working Conditions Survey

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Purpose : Workflow interruptions are a common occupational hazard in healthcare settings and can adversely affect patient safety and healthcare workers' well-being. This study aimed to identify individual, organizational, and health-related factors associated with workflow interruptions among healthcare workers, including nurses, using nationally representative data from the 7th Korean Working Conditions Survey.

Methods : This secondary analysis used data from the 7th Korean Working Conditions Survey conducted by the Occupational Safety and Health Research Institute in South Korea. A total of 1,144 healthcare workers with at least six months of work experience were included. Descriptive statistics, Rao–Scott chi-square tests, and multivariable logistic regression analyses were performed to identify factors associated with workflow interruptions. Results are presented as odds ratios (ORs) and 95% confidence intervals (CIs). All analyses were conducted using R version 4.5.2.

Results : Overall, 58.8% of healthcare workers reported experiencing workflow interruptions. The prevalence of workflow interruptions differed significantly according to work characteristics, including shift work, team-based work, work intensity, and sleep problems. In the multivariable logistic regression analysis, shift work (OR=1.74, 95% CI: 1.06–2.86), team-based work (OR=1.61, 95% CI: 1.03–2.51), higher work intensity (OR=1.12, 95% CI: 1.05–1.19), and sleep problems (OR=1.13, 95% CI: 1.04–1.22) were independently associated with workflow interruptions after adjusting for potential confounders.

Conclusions : The findings underscore the importance of addressing organizational work characteristics and sleep health to reduce workflow interruptions among healthcare workers. Given that shift work, multidisciplinary teamwork, and high work intensity are common features of nursing practice, nurses may be particularly vulnerable to workflow interruptions. Organizational interventions that optimize work environments, reduce excessive workload, strengthen teamwork, and promote sleep health may help minimize unnecessary workflow interruptions and improve patient safety. These findings provide empirical evidence to inform occupational health policies and guide the development of interventions tailored to nursing practice.

Keywords : Healthcare workers, occupational health, workflow interruptions, working conditions



A Systematic Review of Healthcare-Associated Infection Prevention and Control Studies Based on Bronfenbrenner's Ecological Systems Theory

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Purpose : This study aimed to systematically review healthcare-associated infection (HAI) prevention and control (IPC) studies using Bronfenbrenner's ecological systems theory as an analytical framework, and to synthesize how HAI IPC programs are structured and implemented across individual, organizational, institutional, and broader health-system levels.

Methods : A systematic review was conducted according to the PRISMA guidelines. Studies published between January 1900 and January 2024 were searched and screened. Eligible studies examined the effects of HAI IPC programs among hospitalized patients. The included studies were analyzed according to study design, participants, intervention type, program providers, and major outcomes. In addition, HAI IPC programs were categorized and synthesized based on Bronfenbrenner's ecological systems theory, including the microsystem, mesosystem, exosystem, and macrosystem levels.

Results : A total of 2,528 records were identified, and 53 studies were included in the systematic review. The reviewed HAI IPC programs included transmission-based precautions, hand hygiene, environmental infection control, antimicrobial stewardship, prevention of multidrug-resistant organisms, outbreak management and preparedness, and standard precautions. At the microsystem level, interventions focused on direct interactions between patients and healthcare providers, including hand hygiene and standard precaution practices. At the mesosystem level, interdepartmental collaboration and multidisciplinary teamwork were emphasized. At the exosystem level, institutional infection control policies, surveillance systems, staff education, and collaboration with external organizations were identified. At the macrosystem level, national guidelines, healthcare policies, infection control culture, and temporal trends in HAI IPC research were reflected. The role of nurses expanded from performing basic infection control practices to serving as educators, coordinators, and members of multidisciplinary teams.

Conclusions : HAI IPC programs should be understood as multilevel interventions shaped by interactions among individuals, clinical teams, healthcare organizations, and broader policy environments. Bronfenbrenner's ecological systems theory provides a useful framework for integrating HAI IPC evidence and identifying structural factors that influence infection prevention. These findings support the development of comprehensive

Keywords : Healthcare-associated infection, Infection prevention and control, Bronfenbrenner, Ecological systems theory, Systematic review, Nursing



Factors Influencing Sleep Hygiene among Newly Hired Nurses: Focusing on Job Stress, Fatigue, and Resilience

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Purpose : This study aimed to identify the level of sleep hygiene and to examine the factors influencing sleep hygiene among newly hired nurses performing rotating shift work.

Methods : A descriptive survey design was used. Participants were 168 newly hired nurses with less than one year of clinical experience, working at general or university hospitals with 300 or more beds in Metropolitan City D, South Korea. Data were collected from September 2025 to May 2026 using self-administered questionnaires measuring sleep hygiene, job stress, fatigue, social jetlag, and resilience. Data were analyzed using descriptive statistics, independent t-tests, one-way ANOVA with Scheffé post-hoc tests, Pearson's correlation coefficients, and multiple linear regression.

Results : The mean sleep hygiene score was 72.73 ± 17.47 (range 28-168), indicating a moderate level of difficulty in sleep hygiene practice. Sleep hygiene differed significantly according to alcohol consumption frequency, caffeine intake, and job satisfaction. Sleep hygiene was positively correlated with job stress ($r=.487$, $p<.001$) and fatigue ($r=.490$, $p<.001$), and negatively correlated with resilience ($r=-.313$, $p<.001$). Multiple regression analysis revealed that age, home residence, alcohol consumption frequency, caffeine intake, ward assignment, job stress ($\beta=.28$, $p=.011$), and fatigue ($\beta=.29$, $p=.003$) significantly predicted sleep hygiene, explaining 45.5% of the variance ($\text{Adj. } R^2=.455$).

Conclusions : Sleep hygiene among newly hired nurses is influenced by individual and work-related characteristics as well as job stress and fatigue, which remained significant predictors even after controlling for other variables. These findings suggest that improving sleep hygiene requires tailored education programs combined with organizational strategies to reduce job stress and manage fatigue among newly hired nurses.

Keywords : Fatigue, Job Stress, Newly Hired Nurses, Sleep Hygiene



Factors associated with colleague solidarity among hospital nurses: Focusing on self-conscious emotions and mentalization

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Purpose : Colleague solidarity is essential for maintaining collaborative relationships among hospital nurses and fostering a supportive organizational culture. However, little is known about how individual psychological characteristics, such as self-conscious emotions and mentalization, are associated with colleague solidarity. This study aimed to identify factors associated with colleague solidarity among nurses working in tertiary general hospitals, focusing on self-conscious emotions and mentalization.

Methods : A cross-sectional survey was conducted with 205 nurses working in tertiary general hospitals in South Korea. General and work-related characteristics, self-conscious emotions, mentalization and colleague solidarity were measured using structured self-report questionnaires. Data were analyzed using descriptive statistics, bivariate analyses, and multiple linear regression analysis.

Results : Shame-proneness and externalization were negatively correlated, and guilt-proneness and mentalization were positively correlated, with colleague solidarity. Multiple linear regression analysis showed that lower shame-proneness and higher mentalization were significantly associated with stronger colleague solidarity among nurses.

Conclusions : Lower shame-proneness and higher mentalization were associated with stronger colleague solidarity among hospital nurses. These findings suggest that shame-related responses and mentalization capacity should be considered when developing strategies to strengthen colleague solidarity. Nurse managers should create psychologically safe and reflective work environments that help nurses respond constructively to shame-related experiences and strengthen their understanding of themselves and their colleagues.

Keywords : colleague solidarity, mentalization, nurses, nursing management, self-conscious emotions, shame-proneness



Nationwide Epidemiology and Economic Burden of Stevens–Johnson Syndrome and Toxic Epidermal Necrolysis in Korea: A 15-Year Claims-Based Analysis

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Purpose : Stevens–Johnson syndrome (SJS) and toxic epidermal necrolysis (TEN) are rare but life-threatening severe cutaneous adverse reactions, yet long-window population-based data remain limited. This study aimed to update the nationwide epidemiology and characterize healthcare utilization, and costs of SJS and TEN in Korea over 15 years.

Methods : A retrospective population-based descriptive study was conducted using the Health Insurance Review and Assessment Service (HIRA) national claims database from 2010 to 2024, with 2009 as wash-out. Patients with a primary diagnosis of L51.1 (SJS) or L51.2 (TEN) were identified. Annual crude rates per million were calculated using national resident-population denominators. Costs were inflation-adjusted and converted to U.S. dollars. Adjusted analyses examined TEN associations with hospitalization, prolonged stay, and high-cost care.

Results : A total of 13,481 incident patients were identified (12,318 SJS; 1,163 TEN). The mean annual crude rate was 15.99 per million for SJS and 1.51 per million for TEN. TEN patients were significantly older (median 61 vs. 50 years) than SJS and required much higher care intensity. Specifically, 66.5% of TEN patients were hospitalized at the index episode versus 22.8% for SJS, and TEN cases were predominantly managed in tertiary or general hospitals (80.5% vs. 43.5%). The clinical severity of TEN translated into a longer median inpatient length of stay (15 vs. 10 days) and a dramatically higher economic burden. The median per-episode cost was 118-fold higher for TEN (USD 1,599.5) than for SJS (USD 13.6). Notably, TEN-related medical expenditures exhibited a marked and sharp increase from 2019 onward.

Conclusions : Over 15 years, outpatient-inclusive claims-coded rates of SJS and TEN in Korea remained broadly stable, while TEN imposed a substantially greater clinical and economic burden. The post-2019 increase in TEN-related expenditures may partly reflect expanded insurance coverage for intensive care, but cost-attribution analyses are needed to confirm this health-system signal.

Keywords : administrative claims data, epidemiology, Stevens–Johnson syndrome, toxic epidermal necrolysis



The Effects of Nursing Professional Values and Nursing Practice Environment on Turnover Intention among General Hospital Nurses : The Mediating Effect of Job Embeddedness

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Purpose : This study aimed to investigate the factors influencing turnover intention among general hospital nurses, focusing on nursing professional values, nursing practice environment, and job embeddedness, and to identify the mediating effect of job embeddedness.

Methods : This descriptive survey study included 242 clinical nurses with over three months of experience at a general hospital. Data collected via structured questionnaires were analyzed using descriptive statistics, t-test, analysis of variance, Pearson's correlation, and hierarchical multiple regression. The mediating effect was verified using Model 4 of the PROCESS Macro.

Results : Turnover intention was significantly and negatively correlated with job embeddedness ($r = -.46, p < .001$), nursing practice environment ($r = -.43, p < .001$), and nursing professional values ($r = -.31, p < .001$). In the hierarchical regression, job embeddedness ($\beta = -.26, p = .002$) and nursing practice environment ($\beta = -.25, p = .002$) were significant predictors explaining 24.3% of the variance ($F = 7.46, p < .001$). Finally, the PROCESS Macro analysis revealed that job embeddedness partially mediated the relationship between nursing practice environment and turnover intention (Indirect Effect = $-0.32, 95\% \text{ CI } [-0.52, -0.13]$), while it fully mediated the relationship between nursing professional values and turnover intention (Indirect Effect = $-0.34, 95\% \text{ confidence interval } [-0.50, -0.19]$).

Conclusions : These findings suggest that improving the practice environment and enhancing professional values are crucial to reducing turnover intention among general hospital nurses. In addition, job embeddedness plays a pivotal role by significantly mediating these relationships, completely absorbing the direct impact of professional values. Therefore, multidimensional intervention programs focused on strengthening job embeddedness and organizational bonding must be integrated into nursing management, ultimately contributing to securing a stable workforce and improving healthcare quality.

Keywords : Job embeddedness, Nursing professional values, Nursing practice environment, Turnover intention



Impact of General Bed Reduction on the Nursing Workforce in Japanese Public Hospitals: A Nationwide Retrospective Observational Study

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Purpose : Japan has maintained a high number of hospital beds, and hospital bed reduction has become a policy issue amid population aging, rising health care costs, and workforce shortages. This study aimed to examine how reductions in general beds were associated with changes in hospital management indicators and nursing workforce indicators, and to explore the impact of bed reduction on the nursing workforce.

Methods : A retrospective observational study was conducted using Public Hospital Management Comparison Tables for fiscal year 2014 and fiscal year 2024. The study included 262 eligible public hospitals. Hospitals were classified into three groups: 136 hospitals with a reduction of 10% or more in general beds, 71 hospitals with a reduction of less than 10%, and 55 hospitals with an increase in beds. Changes in bed occupancy rate, average length of stay, personnel cost-to-medical revenue ratio, ordinary income-and-expenditure ratio, medical service income-and-expenditure ratio, number of nursing staff, nursing staff per 100 total beds, average monthly salary, and average age of nursing staff were compared across groups.

Results : In hospitals with a reduction of 10% or more, the mean number of general beds decreased by 49.5 beds, whereas bed occupancy was almost maintained. Financial indicators did not improve, while the personnel cost-to-medical revenue ratio increased in all groups. The number of nursing staff remained almost unchanged in the group with a reduction of 10% or more.

Conclusions : General bed reduction may help maintain bed occupancy, but it did not directly improve financial performance or reduce hospital-wide personnel cost burden. These findings suggest that bed reduction policies should be evaluated not only from the perspective of hospital management indicators but also in terms of how nursing personnel are maintained, redeployed, and utilized.

Keywords : Hospital bed reduction, Nursing workforce, Health policy



V-Shaped Recovery in Workplace Well-Being Among Clinical Nurses Across the COVID-19 Pandemic: A Secondary Data Analysis of a 6-Year Longitudinal Study

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Purpose : This study examined longitudinal changes in workplace well-being—specifically work–life balance and wellness—among clinical nurses across the COVID-19 pandemic. It further examined whether second victim experiences mediated, and second victim support moderated, the association between patient safety incidents and workplace well-being.

Methods : This study is a secondary data analysis of a six-year longitudinal cohort study, using repeated survey data collected from registered nurses in South Korea. Longitudinal changes in workplace well-being were analyzed using linear mixed models. Mediating effects of second victim experiences and moderating effects of second victim support were evaluated using PROCESS macro Models 4 and 1, respectively, with bootstrapping.

Results : Nurses' workplace well-being followed a distinct V-shaped trajectory, declining significantly during the COVID-19 pandemic (wellness: $\beta = -0.18$, $p .05$).

Conclusions : Second victim experiences emerged as a key mechanism linking patient safety incidents to diminished workplace well-being. The absence of significant buffering effects across all examined forms of second victim support suggests that current support frameworks may not fully address the specific recovery needs of affected nurses. These findings highlight a need for future research and policy efforts to consider

Keywords : Nurses; Patient Safety; Burnout, Professional; Work-Life Balance



From Nursing Education to the Active Nursing Workforce: Policy-Driven Changes in the Nursing Workforce Supply Pathway in Korea

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Purpose : Although South Korea has implemented multiple policies to address nursing workforce shortages, changes across the entire nursing workforce supply pathway have not been comprehensively examined. Most studies have estimated overall nurse supply rather than tracking how each stage evolves over time. This study characterized the nursing workforce supply pathway from education to active workforce participation and examined differences in growth trajectories across pathway stages using national time-series data.

Methods : A descriptive study used national time-series data from 2008 to 2025. The nursing workforce supply pathway was conceptualized as five sequential stages: nursing education, graduation, licensure, registration, and active workforce participation. Trends were examined descriptively, and exploratory segmented regression identified changes in growth trajectories at each stage.

Results : Growth trajectories differed across pathway stages. Nursing schools increased from 132 in 2008 to 196 in 2025 (+48.5%), and admission quotas increased from 11,581 to 23,883 (+106.2%) over the same period. Graduates increased from 11,174 in 2008 to 25,326 in 2023 (+126.7%), and licensed nurses increased from 246,840 in 2008 to 526,939 in 2024 (+113.5%). Active nurses increased from 114,005 in 2008 to 282,712 in 2025 (+148.0%); however, the proportion of active nurses rose only from 46.0% to 53.7% of licensed nurses. Segmented regression identified asynchronous breakpoints: around 2012 for admission quotas and active nurses, 2016 for licensed nurses, and 2017 for graduates.

Conclusions : The nursing workforce supply pathway evolved through distinct, asynchronous growth trajectories rather than uniform expansion. Although nursing education and licensed nurse numbers expanded substantially, these gains were not proportionally translated into active workforce participation. This pathway framework complements conventional workforce supply estimation by identifying where and when changes occur across the supply process, providing a foundation for future workforce projection and policy evaluation.

Keywords : nursing workforce, workforce supply pathway, health policy, segmented regression



Effects of Nurses' Clinical Reasoning Competence, Irrational Beliefs, and Psychological Safety on Communication Behaviors

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Purpose : Despite growing recognition of communication as a core competency in nursing practice, little is known about how clinical reasoning competence, irrational beliefs, and psychological safety jointly shape nurses' communication behaviors. This study examined the effects of these factors on communication behaviors among nurses.

Methods : A descriptive survey was conducted with nurses at a tertiary general hospital in G metropolitan city. Eligible participants had at least one year of clinical experience and were directly involved in patient care. Social desirability was additionally measured to control for potential response bias in self-reported communication behaviors. Data were collected from February to April 2026. Of 156 questionnaires collected, 21 insincere responses were excluded, yielding 135 for analysis. Independent t-test, one-way ANOVA, Pearson's correlation, and hierarchical regression were employed. Ethical approval was obtained from the Institutional Review Board.

Results : Mean scores were 4.26 ± 0.72 (possible range: 1–6) for communication behaviors, 3.99 ± 0.53 (1–5) for clinical reasoning competence, 2.13 ± 0.54 (1–5) for irrational beliefs, and 5.05 ± 0.88 (1–7) for psychological safety. Communication behaviors varied significantly by position ($t = -2.697$, $p = .008$) and correlated positively with clinical reasoning competence ($r = .473$, $p < .001$) and psychological safety ($r = .395$, $p < .001$). In hierarchical regression, control variables (position and social desirability) explained 12.2% of the variance in Model 1. Adding clinical reasoning competence ($\beta = .372$, $p < .001$) and psychological safety ($\beta = .224$, $p = .005$) increased the explained variance to 33.6% (adjusted $R^2 = .315$), with position no longer significant after these factors were entered.

Conclusions : Clinical reasoning competence was the strongest predictor of communication behaviors, followed by psychological safety, even after controlling for social desirability. Educational programs that strengthen clinical reasoning, together with organizational efforts to foster psychological safety, may enhance nurses' communication and ultimately improve the quality of patient care.

Keywords : Clinical reasoning competence, Communication, Irrational beliefs, Psychological safety



The Effects of Clinical Competence, Role Ambiguity, and Positive Nursing Organizational Culture on Occupational Stress among Nurses in Comprehensive Nursing Care Service Wards

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Purpose : This study aimed to examine the effects of clinical competence, role ambiguity, and positive nursing organizational culture on occupational stress among nurses working in comprehensive nursing care service wards.

Methods : This descriptive cross-sectional study included 135 nurses who had worked for at least six months and provided direct patient care in comprehensive nursing care service wards at six general hospitals with 100–299 beds in G Metropolitan City. Data were collected using self-administered questionnaires from April 1 to April 20, 2026. Data were analyzed using IBM SPSS Statistics version 29.0 with descriptive statistics, independent t-test, one-way ANOVA, Scheffé test, Games–Howell test, Pearson's correlation coefficients, and hierarchical multiple regression analysis.

Results : The mean scores were 4.34 ± 0.48 for clinical competence, 2.14 ± 0.49 for role ambiguity, and 4.07 ± 0.62 for positive nursing organizational culture (5-point scales). The mean occupational stress score was 41.62 ± 10.10 (100-point scale). Occupational stress was negatively correlated with clinical competence ($r = -.38$, $p < .001$) and positive nursing organizational culture ($r = -.59$, $p < .001$), whereas it was positively correlated with role ambiguity ($r = .47$, $p < .001$). Hierarchical multiple regression analysis identified positive nursing organizational culture as the only significant predictor of occupational stress ($\beta = -.49$, $p < .001$), explaining 39.0% of the variance ($F = 11.65$, $p < .001$).

Conclusions : Positive nursing organizational culture was the strongest factor associated with occupational stress among nurses in comprehensive nursing care service wards. Developing and maintaining a positive organizational culture may be an effective strategy for reducing occupational stress and promoting a healthier work environment for nurses.

Keywords : Clinical Competence, Occupational Stress, Organizational Culture, Role Ambiguity



Effects of Korean Medicine Nursing Knowledge and Self-Care on Person-Centered Nursing Among Korean Medicine Hospital Nurses: The Mediating Role of Job Esteem

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Purpose : Person-centered nursing is essential in Korean medicine hospitals, yet little is known about its predictors and pathways. This descriptive correlational study aimed to investigate the effects of Korean medicine nursing knowledge, job esteem, and self-care on person-centered nursing among these nurses, and to examine the mediating role of job esteem.

Methods : Participants were 123 nurses from six Korean medicine hospitals in Seoul, Gwangju, and Jeollanam-do, South Korea, with at least six months of total clinical experience and three months in Korean medicine hospitals. Data were collected from March 16 to April 3, 2026. Statistical analyses included descriptive statistics, Mann-Whitney U test, Kruskal-Wallis test, independent t-test, Pearson's correlation, multiple regression, and mediation analysis using PROCESS Macro Model 4. The study was conducted after obtaining IRB approval, and all participants provided informed consent.

Results : Person-centered nursing was positively correlated with Korean medicine nursing knowledge ($r=.290$, $p=.001$), job esteem ($r=.668$, $p<.001$), and self-care ($r=.363$, $p<.001$). However, in multiple regression, only job esteem ($\beta=.610$, $p<.001$) and recent Korean medicine nursing education ($\beta=.144$, $p=.037$) remained significant predictors ($R^2=.475$, $F=21.15$, $p<.001$), while knowledge and self-care no longer reached significance. Mediation analysis confirmed that job esteem fully mediated the effects of both Korean medicine nursing knowledge (indirect effect $B=.21$, 95% CI [.10, .31]) and self-care (indirect effect $B=.31$, 95% CI [.21, .43]) on person-centered nursing, while their direct effects were non-significant.

Conclusions : Job esteem fully mediated the effects of Korean medicine nursing knowledge and self-care on person-centered nursing. Organizational support that strengthens job esteem, alongside continuing education and self-care promotion, is recommended to enhance person-centered nursing in Korean medicine hospital settings.

Keywords : Job esteem, Korean medicine hospital nurses, Person-centered nursing, Self-care



Perceived Green Human Resource Management on Green Creativity Among Nurses: Sequential Mediating Effects of Green Extrinsic and Intrinsic Motivation

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Purpose : To examine the association between perceived green human resource management and green creativity among nurses, focusing on the sequential mediating pathway of green extrinsic and intrinsic motivation.

Methods : A cross-sectional, correlational study was employed using data from 649 registered nurses in South Korea. Structural equation modeling was used to examine the sequential mediating effects of green human resource management, green extrinsic motivation, green intrinsic motivation, and green creativity, while controlling for age and educational level. Indirect effects were tested using bootstrapping with 5,000 resamples and 95% confidence intervals.

Results : The total effect of green human resource management on green creativity was statistically significant ($b = .588, p < .001$). Regarding the indirect effects, the effect through green extrinsic motivation alone was not statistically significant ($b = .001, 95\% \text{ confidence interval } [-.005, .010]$), whereas the indirect effect through intrinsic motivation alone was significant ($b = .029, 95\% \text{ confidence interval } [.011, .051]$). The sequential mediating effect through green extrinsic motivation followed by green intrinsic motivation was also significant ($b = .006, 95\% \text{ confidence interval } [.000, .014]$). Even after adjusting for indirect effects, the green human resource management was directly related to increased green creativity ($b = .551, p < .001$).

Conclusions : The findings suggest that perceived green human resource management is associated with greater green creativity among nurses primarily through intrinsic motivation rather than through extrinsic motivation alone. Incorporating pro-environmental values into healthcare organizational practices, such as recruitment, training, and reward systems, with a focus on internalizing sustainability into individuals' values, might encourage creativity in environmental sustainability among nurses.

Keywords : creativity, environment and public health, health services administration, motivation



Development and Initial Validation of the Nurses' Organizational Objectification Scale (NOOS)

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Purpose : Nurses are vulnerable to organizational objectification, yet no validated instrument exists in nursing contexts. This study aimed to develop the Nurses' Organizational Objectification Scale (NOOS) and examine its preliminary psychometric properties.

Methods : A methodological study was conducted based on DeVellis and Thorpe's (2021) procedures. An initial item pool, rated on a six-point Likert scale, was generated from a prior concept analysis of nurse objectification and existing instruments. Eight experts evaluated content validity; 20 nurses participated in a pilot test and cognitive interviews. For the main survey, 320 staff nurses were recruited from tertiary and secondary general hospitals in South Korea. Data were analyzed using descriptive statistics, item analysis, and exploratory factor analysis (maximum likelihood, oblimin rotation). IRB approval was obtained.

Results : Of sixty initial items, two were removed after expert review, and one was eliminated through item analysis. The pilot test led to wording refinement and replacement of reverse-coded items. KMO = .97 and Bartlett's test was significant. Through three sequential factor analyses, 22 items were removed due to low loadings, cross-loadings, or conceptual inconsistencies, yielding a 35-item, three-factor structure—Instrumentality (12 items), Denial of Humanity (14 items), and Denial of Individuality (9 items)—explaining 62.47% of the variance. Cronbach's alpha was .97 (subscales .94–.95). Two forms of construct validity were supported: NOOS correlated positively with the Korean-Perception of Objectification in the Workplace Short Scale (K-POWS) ($r = .43, p < .001$; convergent validity), and job satisfaction was significantly higher in the lowest than the highest objectification quartile ($M = 5.92$ vs. $4.57, p < .001$; known-groups validity)

Conclusions : The newly developed scale demonstrated acceptable preliminary reliability and validity. As the first instrument measuring organizational objectification in nursing, it offers a foundation for identifying at-risk nurses and informing interventions. Further validation through confirmatory factor analysis is warranted.

Keywords : Nurses, Organizational objectification, Psychometrics, Scale development



Perceived Job Sustainability among Korean Female Nurses: Associations with Job Quality Indices and the Indirect Role of Work Engagement

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Purpose : This study aimed to examine perceived job sustainability among Korean female nurses in 2023 by assessing its associations with Job Quality Indices and the potential indirect role of work engagement.

Methods : This cross-sectional study analyzed 271 employed female nurses from the 7th Korean Working Conditions Survey (2023). Job quality was measured using seven Job Quality Indices (JQIs), perceived job sustainability (PJS) using age-specific items on the ability to continue the current or a similar job until age 60 or for another five years, and work engagement using three items. Unweighted chi-square tests, ANOVA, Pearson correlations, and regression-based mediation analysis were conducted. All seven JQIs were entered simultaneously with adjustment for age, educational level, employment duration, and region; indirect effects were estimated using 5,000 bootstrap replications.

Results : Of 271 female nurses, 58.3% reported perceived job sustainability (PJS). Those with PJS were older and had longer employment duration, higher earnings, and greater work engagement (all $p < .05$). Work engagement was most strongly correlated with social environment ($r = .252$) and working time quality ($r = .144$) and was positively associated with PJS (OR = 1.71, 95% CI 1.28–2.27). Social environment showed the largest indirect association with PJS through work engagement ($\beta = .211$; indirect effect = 2.36 percentage points, 95% CI .86–4.36), followed by working time quality ($\beta = .137$; indirect effect = 1.57 percentage points, 95% CI .20–3.41). Earnings was directly associated with PJS (OR = 1.49, 95% CI 1.06–2.10), with no significant indirect association.

Conclusions : Supportive social environments and better working time quality may promote perceived job sustainability by sustaining work engagement, while earnings may contribute through a direct pathway. These findings highlight the need for organizational strategies that improve both psychosocial and structural aspects of job quality to support sustainable nursing employment.

Keywords : Perceived job sustainability, Job quality, Work engagement, Nurses, Working conditions



The Effects of Burnout, Organizational Communication Satisfaction, and Moral Courage of Nurses Caring for Cancer Patients on Patient Safety Silence

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Purpose : This study examined the effects of burnout, organizational communication satisfaction, and moral courage on patient safety silence among nurses caring for patients with cancer.

Methods : A descriptive cross-sectional survey was conducted with 224 nurses providing direct care to patients with cancer at a regional cancer center hospital in Korea. Data were collected after Institutional Review Board approval (CNUHH-2024-137). Patient safety silence, burnout, organizational communication satisfaction, and moral courage were measured using validated instruments. Data were analyzed using descriptive statistics, t-test, ANOVA, Pearson's correlation coefficients, and stepwise multiple regression.

Results : The mean scores were 2.32 ± 0.83 for patient safety silence, 3.17 ± 0.66 for burnout, 3.10 ± 0.45 for organizational communication satisfaction, and 3.30 ± 0.52 for moral courage. Patient safety silence differed significantly according to total clinical experience, working unit, and shift work. It was positively correlated with burnout ($r=.41$, $p<.001$) and negatively correlated with organizational communication satisfaction ($r=-.44$, $p<.001$) and moral courage ($r=-.49$, $p<.001$). Multiple regression analysis identified moral courage ($\beta=-.32$, $p<.001$), burnout ($\beta=.26$, $p<.001$), organizational communication satisfaction ($\beta=-.17$, $p=.001$), clinical experience of 10–15 years ($\beta=.12$, $p=.025$), and working in a surgical ward ($\beta=.11$, $p=.039$) as significant predictors, explaining 37.0% of the variance.

Conclusions : Burnout, organizational communication satisfaction, and moral courage significantly influenced patient safety silence among oncology nurses. Organizational strategies to reduce burnout, improve communication satisfaction, and strengthen moral courage, together with tailored support according to clinical experience and work unit, are recommended to reduce patient safety silence and promote a positive patient safety culture.

Keywords : Burnout, Communication, Courage, Patient safety



Psychometric Evaluation of the Korean Version of the Preceptor Self-Assessment Tool (K-PSAT-40)

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Purpose : This study aimed to translate and culturally adapt the Preceptor Self-Assessment Tool (PSAT-40) into Korean and evaluate its psychometric properties among clinical nurses.

Methods : This methodological study followed the World Health Organization translation guidelines. Data were collected between August and October 2025 from 435 nurses with at least three months of preceptor experience at eight hospitals. Construct validity was evaluated using exploratory and confirmatory factor analyses. Convergent validity was assessed using average variance extracted (AVE) and composite reliability (CR), while discriminant validity was assessed using AVE, squared inter-factor correlations, and the 95% confidence intervals of inter-factor correlations. Criterion validity was evaluated through Pearson's correlation with the Clinical Teaching Behavior Inventory (CTBI). Internal consistency reliability was assessed using Cronbach's α .

Results : The Korean version of the Preceptor Self-Assessment Tool (K-PSAT-40) consisted of 40 items across four factors: interpersonal skills and attitudes (14 items), intrapersonal skills and attitudes (12 items), knowledge and understanding (10 items), and administrative resources and support (4 items), accounting for 54.99% of the total variance. Confirmatory factor analysis demonstrated an acceptable model fit ($\chi^2/df=2.41$, RMSEA=.08, SRMR=.06, CFI=.84, TLI=.83). For convergent validity, standardized factor loadings ranged from .45 to .92, AVE ranged from .47 to .72, and CR ranged from .91 to .93. Discriminant validity was supported, as the 95% confidence intervals of inter-factor correlations did not include 1.0 (.32-.94), and the chi-square difference tests were significant ($p<.001$). Criterion validity was confirmed by a positive correlation with the CTBI ($r=.77$, $p<.001$). Cronbach's α was .96 for the total scale and ranged from .90 to .93 for the subscales.

Conclusions : The K-PSAT-40 demonstrated acceptable psychometric properties, supporting its use as a valid and reliable instrument for assessing preceptors' competencies in Korean clinical settings. The instrument may serve as a standardized measure that enables preceptors to systematically evaluate and reflect on their competencies.

Keywords : Preceptorship; Nurses; Reproducibility of Results; Factor Analysis, Statistical



The Impact of Comprehensive Characteristics of Nurses' Work Schedule on Health-Related Symptoms and Sleep Difficulties

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Purpose : This study aimed to examine the associations between comprehensive work schedule characteristics and health-related symptoms as well as sleep difficulties among nurses in South Korea.

Methods : A cross-sectional secondary analysis was conducted using data from the Seventh Korean Working Conditions Survey (KWCS, 2023). The final sample included 401 wage-employed nurses in the health sector with an associate degree or higher in nursing. Work schedule characteristics included weekly working hours, weekly working days, commute time, shift work, short-notice work requests, working during free time, and lack of control over working time arrangements. Health-related symptoms (backache, musculoskeletal pain, headache/eye strain, overall fatigue, and anxiety/depression) and sleep difficulties were assessed. Multivariate logistic regression and multiple linear regression analyses were conducted, adjusting for personal and work-related characteristics.

Results : Among work schedule characteristics, shift work was significantly associated with higher odds of backache (OR=2.484, 95% CI=1.081–5.709) and greater sleep difficulties (β =5.425, p =.019). Longer weekly working hours were associated with increased overall fatigue (OR=1.120, 95% CI=1.012–1.240). Frequent work during free time was positively associated with sleep difficulties (β =3.939, p =.004). Greater lack of control over working time was inversely associated with anxiety/depression (OR=0.468, 95% CI=0.233–0.941). Higher quantitative demands were associated with backache, musculoskeletal pain, and sleep difficulties.

Conclusions : Comprehensive work schedule characteristics, particularly shift work, long working hours, and frequent work during free time, were significantly associated with health-related symptoms and sleep difficulties among nurses. These findings provide evidence for the development of workplace policies and organizational strategies that address multiple dimensions of work schedules to promote nurses' health and well-being.

Keywords : health-related symptoms, shift work, sleep difficulties, work schedule



Divergent Determinants of Missed Nursing Care and Turnover Intention Among Shift-Working Hospital Nurses: A Structural Equation Modeling Analysis

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Purpose : To examine how shift regime, job demands, and strain relate to missed nursing care and turnover intention, and whether the two outcomes share a common resource-depletion pathway.

Methods : In this cross-sectional study (N=295), nurses were drawn from three shift regimes: regular three-shift (reference, n=149), night-only (n=52), and a shift-system-improvement pilot project (n=94). Guided by Conservation of Resources theory, a structural equation model specified latent job demands predicting latent strain, with strain and shift regime predicting latent missed nursing care and turnover intention. Estimation used robust maximum likelihood; indirect and total effects were tested using 5,000 bootstrap resamples.

Results : Missed nursing care and turnover intention were uncorrelated ($r=.05$, ns) with divergent predictors. Turnover intention followed a depletion pathway: job demands increased strain ($\beta=.683$, 95% CI [.545, .805]), and strain predicted turnover ($\beta=.441$, [.247, .634]); the job demands-turnover association was fully mediated by strain ($\beta=.432$, [.319, .541]; direct effect ns). In contrast, strain did not predict missed nursing care ($\beta=.019$, ns); missed nursing care was higher in the pilot project group than in the three-shift group ($\beta=.261$, [.127, .384]). Night-only shift was associated specifically with sleep problems ($\beta=.263$, [.168, .358]) but not with strain, turnover intention, or missed nursing care. The model explained 29.6% of variance in turnover intention but 9.5% in missed nursing care.

Conclusions : Missed nursing care and turnover intention are decoupled outcomes with distinct mechanisms. Turnover intention reflects resource depletion and may respond to interventions reducing demands and strain, whereas missed nursing care is not depletion-driven and appears linked to organizational shift arrangements rather than individual burden. Night work's burden concentrates in sleep disruption. Reducing strain alone is unlikely to improve missed nursing care; the two outcomes require different intervention targets.

Keywords : Hospital Nursing Staff, Personnel Turnover, Occupational Health, Stress, Shiftwork



News, Public, and Legislative Discourse on the Korean Nursing Act: A Multi-Source Structural Topic Modeling Study

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Purpose : To examine how discourse surrounding the Korean Nursing Act was constructed across media, public, and institutional spheres during its legislative process. Structural topic modeling was applied to a multi-source corpus to identify dominant topics, compare topic prevalence across source types, and trace how the discourse changed over time.

Methods : This descriptive, exploratory study integrated three source types collected for 2020–2024: news articles from five major national broadcasters, their corresponding YouTube comments, and National Assembly records. After filtering, the corpus comprised 534 news articles, 78,473 YouTube comments aggregated into video-level documents, and 47 National Assembly records. Structural topic modeling was performed in R with source type and year as covariates; K=14 was selected via searchK diagnostics, and topics were labeled using FREX keywords.

Results : Eleven of fourteen topics were interpretable and retained. The most prevalent was “Presidential veto of the Nursing Act and healthcare organizations’ backlash” (21.9%), concentrated in news articles. YouTube comments showed the most diverse and evaluative topics—criticism of physicians, nursing work conditions, and support for the Act—whereas National Assembly records centered on budget and legislative review. Discourse shifted from nursing-specific concerns (2021), through political conflict peaking at the veto (2023), to restructuring around the 2024 medical-workforce crisis.

Conclusions : Source types functioned as structurally distinct discourse spaces in which the meaning of nursing policy issues varied systematically. The persistent gap between online public discourse and institutional channels may structurally disadvantage nursing-specific concerns, highlighting the need for proactive media engagement and systematic monitoring of public discourse by nursing organizations and regulators.

Keywords : News, Public Opinion, Legislation, Data Mining, Computer Assisted Data Analysis



The Effects of QI Activities and Teamwork on Job Satisfaction among Hospital Nurses

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Purpose : This study examined the relationships among QI activities, teamwork, and job satisfaction in hospital nurses, and identified the influence of ward-level QI activity participation and teamwork on job satisfaction to provide foundational data for programs enhancing their job satisfaction.

Methods : This descriptive survey included 141 nurses providing direct care for at least three months at two 300-bed hospitals in Metropolitan City B, South Korea. All participants were engaged in QI activities and provided voluntary consent. Data were collected via self-report questionnaires using Kang's (1995) QI activity scale, Larson and LaFasto's teamwork scale (adapted by Kim), and Paula's (1978) job satisfaction scale (revised by Han). Cronbach's alphas were .816 (QI), .951 (teamwork), and .854 (job satisfaction). Data were analyzed using IBM SPSS 31.0 via descriptive statistics, t-tests, ANOVA with Scheffé tests, Pearson's correlations, and multiple linear regression.

Results : Mean scores were 2.79 ± 0.26 (out of 4.0) for QI participation, 3.75 ± 0.25 (out of 5.0) for teamwork, and 3.26 ± 0.94 (out of 5.0) for job satisfaction. Job satisfaction correlated significantly and positively with both QI participation ($r = .574, p < .001$) and teamwork ($r = .564, p < .001$). Multiple regression analysis revealed that QI participation ($\beta = .415, p < .001$) and teamwork ($\beta = .399, p < .001$) were significant predictors, explaining 45.5% of the variance in job satisfaction ($F = 59.540, p < .001$).

Conclusions : Although ward-level QI activities alongside direct patient care may feel burdensome, they significantly enhance nurses' job satisfaction. Teamwork among colleagues also contributes to higher satisfaction. Nurse managers should implement multifaceted strategies to promote active QI engagement and cultivate teamwork-oriented environments to boost job satisfaction.

Keywords : Job satisfaction, QI activities, Teamwork



Cross-Cultural Perspectives on Work–Family Conflict Among Shift-Work Nurses: A Scoping Review of Global Evidence, Institutional Hazards, and Future Pathways

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Purpose : This scoping review aimed to map the existing literature on work–family conflict (WFC) among shift-working nurses and identify key patterns, associated factors, and research gaps across different countries and cultural contexts.

Methods : Following Arksey and O'Malley's five-stage scoping review framework, a systematic search was conducted across three databases — PubMed, CINAHL (EBSCO), and Embase. The population was defined as shift-working nurses, the concept as WFC, and the context as diverse national healthcare settings. Titles, abstracts, and full texts were screened against predefined inclusion criteria. From 330 initially identified studies, nine published between 2021 and 2025 were included in the final synthesis.

Results : The included studies spanned six countries — China, Taiwan, Jordan, Iran, Israel, and the Czech Republic — with sample sizes ranging from 131 to 17,582 participants. Rotating and night shifts were consistently identified as primary determinants of WFC, while poor sleep quality mediated its relationship with burnout. WFC functioned as a strong predictor of presenteeism, particularly in high-acuity settings, with perceived social support emerging as the principal mitigating buffer. Cross-sectional designs predominated across studies, and macro-level cultural dimensions — such as collectivism, gender role expectations, and national labor policies — remained largely unexamined.

Conclusions : Work–family conflict among shift-working nurses constitutes a systemic occupational hazard that transcends national boundaries. Evidence consistently points to the need for institutional scheduling interventions rather than individual-level coping strategies. Future research should prioritize multi-country longitudinal designs and qualitative methodologies to capture the full complexity of this phenomenon across cultural contexts.

Keywords : cross-cultural perspectives, nurses, shift work, work–family conflict



The Effects of Nurses' Meaning in Life, Moral Sensitivity, and Professional Nursing Values on Attitudes Toward Life-Sustaining Treatment Decisions

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Purpose : This study aimed to investigate the effects of meaning in life, moral sensitivity, and professional nursing values on nurses' attitudes toward life-sustaining treatment decisions in Korea. It also aimed to provide foundational data for ethical decision-making education and institutional improvement by identifying how nurses' personal values and professional identity shape these attitudes.

Methods : Data were collected using a structured questionnaire measuring meaning in life, moral sensitivity, professional nursing values, and attitudes toward life-sustaining treatment decisions. Participants were 171 nurses with at least six months of clinical experience working in clinical settings in Korea. Data were collected through an online survey from July to August 2025. Data were analyzed using IBM SPSS Statistics 29.0, employing descriptive statistics and stepwise multiple regression analysis.

Results : The significant predictors of attitudes toward life-sustaining treatment decisions were professional responsibility ($\beta = 0.33$, $p < .001$) and benevolence ($\beta = 0.24$, $p < .001$), which are subfactors of moral sensitivity, and commitment ($\beta = 0.17$, $p = .014$), a subfactor of meaning in life. The regression model explained 27.9% of the variance in attitudes toward life-sustaining treatment decisions and was statistically significant (adjusted $R^2 = .279$, $F = 22.93$, $p < .001$).

Conclusions : Professional responsibility and benevolence, subfactors of moral sensitivity, and commitment, a subfactor of meaning in life, were identified as significant factors influencing Korean nurses' attitudes toward life-sustaining treatment decisions. Therefore, ethical education and professional development programs should focus on strengthening nurses' professional responsibility and benevolence and providing opportunities to reflect on commitment and meaning in life. Such efforts may help nurses develop more ethical and professional attitudes toward life-sustaining treatment decisions.

Keywords : Nurses, Morals, Attitude of Health Personnel



The Effect of Clinical Nurse's Character, Resilience, and Job Satisfaction on Organizational Commitment among General Hospital Nurses

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Purpose : This study aimed to identify the effects of clinical nurse's character, resilience, and job satisfaction on organizational commitment among nurses working in general hospitals.

Methods : A convenience sample of 180 nurses who had been providing direct patient care for at least three months was recruited from four general hospitals with 100–300 beds located in a metropolitan city in South Korea. Data were collected using the Clinical Nurse's Character Scale, the Connor–Davidson Resilience Scale (CD-RISC), a Job Satisfaction Scale, and the Organizational Commitment Questionnaire (OCQ). All instruments used a 5-point Likert scale. Data were analyzed using descriptive statistics, tests of normality, independent t-tests, one-way ANOVA with Scheffé post hoc tests, Pearson's correlation coefficients, and hierarchical multiple regression analysis with SPSS version 30.0.0.0

Results : Clinical nurse's character, resilience, job satisfaction, and organizational commitment differed significantly according to age and clinical experience ($p=.003\sim.031$);. Organizational commitment showed significant positive correlations with clinical nurse's character ($r=.52$, $p<.001$), resilience ($r=.46$, $p<.001$), and job satisfaction ($r=.66$, $p<.001$). Hierarchical multiple regression analysis revealed that job satisfaction ($\beta=.63$, $p=.001$) and clinical nurse's character ($\beta=.20$, $p=.010$) were significant predictors of organizational commitment. The model explained 44.8% of the variance in organizational commitment and was statistically significant ($F=49.28$, $p<.001$).

Conclusions : Nurses with 5 to less than 10 years of clinical experience exhibited relatively lower levels of resilience, job satisfaction, and organizational commitment despite their pivotal roles in clinical practice. These findings underscore the need for systematic support and management strategies targeting experienced nurses. Job satisfaction and clinical nurse's character were significant predictors of organizational commitment, with job satisfaction showing the strongest effect. Therefore, organizational support and the promotion of a positive work environment may be effective strategies for enhancing organizational commitment among nurses.

Keywords : Clinical nurse's character, Resilience, Job satisfaction, Organizational commitment



Development of a Business Performance Model of Day Care Centers for Long-term Care Using the Balanced Scorecard Causal Relation Model

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Purpose : Day care centers for long-term care must manage staffing, attendance, service use, and costs under reimbursement constraints. Although the Balanced Scorecard (BSC) integrates financial and non-financial indicators, evidence in this setting remains limited. This study developed a BSC-based business performance model for a long-term care day care center using routine operating records.

Methods : This retrospective secondary analysis used a reconstructed operating-day administrative dataset from one center in Seoul, South Korea. The final sample included 226 operating-day observations from January 1 to November 30, 2023. Variables were mapped to four BSC perspectives: learning and growth, internal processes, customer, and financial performance. Pearson correlation and standardized path analyses were conducted. Total pay and total operating expenses were log-transformed; indirect and total effects were tested using 5,000 bootstrap case-resampling draws.

Results : The final model showed acceptable fit ($\chi^2=7.370$, $df=6$, $p=.288$, $GFI=0.998$, $TLI=0.988$, $CFI=0.997$, $RMSEA=0.032$), explaining 39.3% of beneficiary status, 39.3% of total pay, and 49.1% of total operating expenses. Assigned staff, labor input per staff, and service count positively predicted beneficiary status, whereas non-use count negatively predicted it. Service count was the only direct predictor of total pay. Total operating expenses were directly associated with labor input per staff, service count, non-use count, and beneficiary status. Bootstrap results identified significant indirect effects on total operating expenses through beneficiary status.

Conclusions : The BSC framework can transform routine administrative, staffing, claim, and accounting records into a multidimensional performance model for long-term care day care centers. Workforce input and service-process indicators were linked to customer and financial outcomes, supporting BSC-based facility-level monitoring and nursing management. This approach may support strategic decision-making in resource-constrained long-term care settings. Findings represent statistically supported operational pathways, not definitive causal effects.

Keywords : Long-term care, Day care center, Balanced scorecard, Financial performance, Nursing management



Patient Safety Culture and Its Influence on Patient Safety Nursing Activities Among Ward Nurses in a Tertiary General Hospital in South Korea

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Purpose : This study aimed to examine the relationships among patient safety culture, nursing professionalism, and patient safety nursing activities among general ward nurses, and to identify factors influencing patient safety nursing activities.

Methods : A cross-sectional correlational design was employed. Participants were 132 nurses working in general wards of a tertiary general hospital in South Korea. Data were collected using structured questionnaires from March 24 to March 31, 2025, and 126 valid responses were included in the final analysis. Data were analyzed using descriptive statistics, independent t-tests, one-way analysis of variance, Pearson correlation coefficients, and multiple regression.

Results : The mean score for patient safety nursing activities was 4.76 of 5, while patient safety culture and nursing professionalism averaged 3.76 and 3.44, respectively. Patient safety nursing activities were positively correlated with patient safety culture ($r=.49$, $p<.001$) and nursing professionalism ($r=.30$, $p<.001$). In multiple regression, patient safety knowledge and attitude ($\beta=.36$, $p<.001$) and patient safety priority ($\beta=.23$, $p=.013$), both subdomains of patient safety culture, were significant influencing factors, explaining 31 percent of the variance.

Conclusions : Patient safety knowledge and attitude and patient safety priority, both subdomains of patient safety culture, were the significant factors influencing patient safety nursing activities. To improve nurses' patient safety knowledge and attitude, hospitals should activate patient safety reporting and provide continuous education on patient safety concepts and regulations. To better sustain patient safety priority, organizations should identify underlying systemic problems, pursue appropriate improvements, and develop educational programs addressing working conditions, such as adequate staffing, and reinforced adherence to patient safety principles. These findings can serve as foundational data for developing practical educational programs that strengthen patient safety culture and improve patient safety nursing activities.

Keywords : nursing professionalism, patient safety, patient safety nursing activities, safety culture



Structural mediation of stress between gender discrimination and turnover intention in male nurses: A cross-sectional survey

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Purpose : This study aimed to investigate the mediating effects of psychological stress, burnout, job satisfaction, and nursing work environment on the relationship between perceived gender discrimination and turnover intention among male nurses.

Methods : This cross-sectional study surveyed 167 male nurses working in over 100 bed sized hospitals in South Korea. Data were collected using structured questionnaires and analyzed using hierarchical logistic regression and mediation analysis with bootstrapping (5,000 resamples). The primary outcome was turnover intention (binary: yes/no). Key predictors included perceived gender discrimination and psychosocial mediators (stress, burnout, job satisfaction, and nursing work environment).

Results : Among the 167 participants (mean [SD] age, 30.9 [4.6] years), 57(34.1 %) reported turnover intention. Mediation analysis revealed that psychological stress fully mediated the relationship between gender discrimination and turnover intention. Gender discrimination was positively associated with stress ($\beta = 0.22$; $P < .05$), which in turn significantly predicted turnover intention ($\beta = 2.17$; $P < .001$). No significant mediation was observed through burnout, job satisfaction, or nursing work environment.

Conclusions : Perceived gender discrimination among male nurses drives turnover intention primarily through the mediation of psychological stress, rather than through job satisfaction, burnout, or nursing work environment. These findings suggest that gender-based stressors have a direct psychological impact that outweighs general organizational or other attitudinal factors. To stabilize the workforce, healthcare organizations must move beyond generic workplace improvements and prioritize targeted measures to mitigate psychological stress and support the well-being of male nurses.

Keywords : Male nurses, Gender discrimination, Psychological stress, Turnover



The Nurse Shift Work System Improvement Pilot Project and Its Effects

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Purpose : Night shifts and irregular schedules often harm nurses' health and job performance. South Korea launched the Nurse Shift Work System Improvement Pilot Project (NSWSIPP) in 2022 to address this, yet empirical evidence of its effectiveness remains limited. Therefore, this study aimed to compare job demands, sleep quality, and nursing work performance between the NSWSIPP participants and non-participant groups in South Korea.

Methods : This cross-sectional study included data from 295 nurses working at general hospitals participating in the NSWSIPP. Data were collected from 310 nurses (January-June 9, 2025). To minimize selection bias, 1:1 Propensity Score Matching (PSM) was used, followed by independent t-tests.

Results : After matching 63 pairs (N=126), all covariates achieved satisfactory balance (SMDs < 0.20). No significant differences were found in the total scores for job demands, sleep quality, and nursing work performance. However, subscale analysis showed that the participant group had significantly higher emotional demands ($p = .012$) and poorer subjective sleep quality ($p = .007$) (including sleep disturbance and use of sleep medication, all $p < .01$). Notably, nursing work performance indicators such as attitude ($p = .018$) and the application of nursing process ($p = .036$) were significantly higher in the participant group.

Conclusions : The NSWSIPP enhances professional competencies but appears insufficient to alleviate emotional and physiological strain. Structural scheduling shifts must be supported by adequate staffing and well-being interventions. Longitudinal research is needed to track long-term systemic effects.

Keywords : Shift Work, Job Demands, Sleep Quality, Nursing Performance



A Conceptual Analysis of Collaboration Between Midwives and Nurses in a Mixed Obstetrics Ward

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Purpose : The aim of this study is to conduct a conceptual analysis of the “collaboration” between midwives and nurses in a mixed obstetric ward, based on Rodgers’ approach.

Methods : A total of 23 articles were identified using an “AND” search for the keywords “mixed obstetric ward,” “midwife,” and “nurse” in JMAS and CiNii databases. Researchers carefully reviewed the literature, coded the content, and had the analysis performed by AI. The analysis results were generated in Japanese, and their validity was reviewed by researchers in the field of midwifery.

Results : Attributes were categorized into five categories: “Clarification of role division and mutual complementarity,” “Frequency and quality of information sharing,” “Mutual understanding of professional expertise,”

“Mutual support as a team,” and “Growing awareness of collaboration.” Prerequisites included five categories: “The complex structure of mixed obstetric wards,” “Differences in the professional expertise of midwives and nurses,” “Staffing constraints,” “Lack of experience and knowledge,” “inadequate ward systems.” The outcomes were categorized into five groups: “improved safety during labor,” “strengthened multidisciplinary collaboration,” “increased patient satisfaction,” “reduced workload for both midwives and nurses,” and “the need for education and training.” Related concepts derived from the analysis included “division of roles,” “team nursing,” “multidisciplinary collaboration,” “midwifery expertise,” and “nurses’ lack of obstetric knowledge.”

Conclusions : Based on these analyses, collaboration between midwives and nurses in mixed obstetric wards was defined as a mutually supportive and dynamic team process. In a complex ward environment where obstetrics and other specialties coexist, this process involves understanding and complementing each other’s expertise while ensuring the safety and quality of care for mothers, infants, and patients from other specialties through information sharing and division of roles.

Keywords : Mixed Obstetrics Ward, midwifery, Collaboration Conceptual Analysis



Understanding the Reinforcing Structures of Workplace Bullying among Nurses: A System Dynamics Modeling Study

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Purpose : Workplace bullying among nurses, often referred to as taeeom in Korean nursing contexts, is a persistent organizational problem that affects nurses' psychological well-being, workforce retention, and quality of care. This study aimed to develop a system dynamics model that explains the structural reproduction of workplace bullying among nurses and to explore the potential effects of organizational intervention strategies through simulation.

Methods : A system dynamics modeling approach was employed. First, a comprehensive literature review was conducted to identify key variables related to workplace bullying, organizational environment, burnout, turnover, and workforce management. Subsequently, group focus interviews with clinical nurses were performed to explore contextual factors and causal relationships among variables. Based on these findings, a causal loop diagram (CLD) was developed and translated into a stock-flow diagram (SFD). The model was implemented using Vensim PLE, with simulations conducted over a 60-month period. Model validity was evaluated through structural validation, behavior validation, extreme condition testing, and sensitivity analysis.

Results : The model demonstrated multiple reinforcing feedback loops in which staffing shortages increased workload, excessive workload intensified emotional burnout and negative workplace interactions, and higher turnover further aggravated staffing shortages. Conversely, balancing loops indicated that organizational support, leadership enhancement, structured support for new nurses, and workload management could mitigate workplace bullying by improving organizational climate and workforce stability. Simulation analyses suggested that integrated organizational interventions produced greater long-term reductions in workplace bullying than single-component strategies.

Conclusions : This study highlights workplace bullying as a dynamic organizational phenomenon rather than an isolated interpersonal issue. System dynamics modeling provides a useful framework for understanding reinforcing organizational mechanisms and evaluating intervention strategies. The findings offer evidence to support sustainable workforce management, healthier nursing work environments, and patient safety-oriented organizational policies.

Keywords : Workplace Bullying, Nurses, System Dynamics, Organizational Culture, Workforce Management



Structural Mechanisms Underlying Patient Safety Incident Occurrence Based on the Korea Patient Safety Reporting System: A System Dynamics Modeling Approach

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Purpose : This study aimed to identify the structural mechanisms influencing patient safety incident occurrence by applying a system dynamics approach to data from the Korea Patient Safety Reporting System (KOPS) and to explore the implications for nursing management.

Methods : A system dynamics model was developed using national patient safety incident data from the 2016-2025 KOPS and a comprehensive literature review. Twenty-two key variables associated with patient safety incidents were identified and classified into stock, flow, auxiliary, and policy variables. Expert content validation was conducted with specialists in patient safety education and nursing management to confirm the appropriateness of the model structure. A Causal Loop Diagram (CLD) was constructed to identify feedback relationships among variables, followed by the development of a Stock-Flow Diagram (SFD) to represent the dynamic structure of patient safety incident occurrence.

Results : The model identified four balancing feedback loops and two reinforcing feedback loops that explained the structural mechanisms underlying patient safety incidents. Balancing loops demonstrated that patient safety education, incident reporting, organizational learning, and safety culture contributed to reducing incident occurrence through improvements in competency and guideline compliance. In contrast, reinforcing loops indicated that increased workload reduced communication quality and guideline adherence, resulting in a higher incidence of patient safety incidents and further intensifying workload. The SFD illustrated the dynamic interactions among patient safety competency, organizational learning, safety culture, and incident occurrence over time.

Conclusions : This study provides a systems-level understanding of patient safety incident occurrence by integrating organizational factors and feedback structures. The findings highlight the importance of strengthening patient safety education, reporting systems, organizational learning, and safety culture as effective nursing management strategies aimed at enhancing patient safety.

Keywords : Patient safety, System dynamics, Causal loop diagram, Organizational learning, Safety culture



Retention Intention According to Career Transition Pathways Among Experienced Nurses with Previous Job Changes

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Purpose : This study aimed to examine the career trajectories of experienced nurses, including the period between leaving their first job and re-employment at a healthcare institution, and to identify the factors influencing their intention to remain employed at their current workplace throughout this process.

Methods : Data were collected between December 2023 and January 2024 from 316 nurses who had changed jobs at least once through two online portals and three general hospitals. Analysis of variance (ANOVA) was used to examine differences in retention intention according to the type of career transition pathway, and multiple regression analysis was performed to identify the factors influencing the participants' intention to remain in their current workplace.

Results : The career transition pathways were classified into three groups: nurses who moved from the metropolitan area to provincial areas (Type 1), those who moved from provincial areas to the metropolitan area (Type 2), and those who changed jobs within the same region (Type 3). Nurses who moved from provincial areas to the metropolitan area (Type 2) demonstrated a significantly higher intention to remain employed than those in the other two groups. Multiple regression analysis showed that older age, employment at hospitals with a greater number of beds, and better self-rated health were positively associated with intention to remain employed. In addition, higher communication competence and lower career stagnation were significant predictors of greater intention to remain employed.

Conclusions : This study is significant in that it identified the key factors influencing nurses' intention to remain in their current workplace and, in particular, highlighted the importance of career stagnation and communication competence.

Keywords : communication; career stagnation; retention intention; nurses with previous job changes



A Study on Brand Perception and Positioning Strategy Development for a Military Nursing Institution

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Purpose : This study aimed to assess the brand perception of a military nursing academy in Korea as both a military nursing educational institution and a specialized institution for disaster and trauma, and to explore its positioning strategy using the Brand Stewardship Model (BSM).

Methods : A mixed-methods design was applied. Quantitative surveys measured image, attitude, loyalty, recommendation or application intention, perceived differentiation, trust, and overall brand perception scores by stakeholder group. Brand audit data were collected from military officials, prospective students, the general public, and nurses using six open-ended BSM questions: top-of-mind recall, unaided recall, familiarity, brand association, brand relationship, and brand proposition. Quantitative data were analyzed using descriptive statistics and non-parametric group comparisons, while open-ended responses were analyzed by keyword frequency and percentage.

Results : The findings revealed that the brand perception of the academy was centered around military and nursing professional identities, characterized by keywords such as "military," "nursing officer," "nurse," and "military professional nursing." This indicates that the institution is recognized not merely as a conventional nursing college or a general higher education institution, but as a special-purpose educational institution that integrates military and nursing fields. Furthermore, brand propositions prominently featured "national service," "professionalism," "military specialization," and "talent development." These results suggest that the future brand value of the academy can expand beyond simply training nurses to encompass national crisis response, disaster and trauma management, military nursing leadership, and broader public contributions.

Conclusions : In conclusion, the academy possesses a distinct brand identity that integrates both military and nursing professional values. To enhance its future brand position, the institution should move beyond the traditional role of training nursing officers and strategically expand its brand value toward becoming a specialized institution for national crisis response, disaster and trauma management, and military nursing leadership.

Keywords : Nursing Institution, Brand Perception, Brand Positioning, Brand Stewardship Model



Factors Influencing Innovative Behavior among Nurses in Regional Public Hospitals

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Purpose : Regional public hospitals deliver essential healthcare in medically underserved areas, where nurses' innovative behavior is critical to organizational sustainability and quality of care. This study examined the effects of happiness, self-leadership, and nursing professional self-efficacy on innovative behavior among nurses in regional public hospitals.

Methods : A total of 201 nurses with at least 1 year of clinical experience at three regional public hospitals participated. Data were collected from June 1 to June 27, 2026, using a structured self-report questionnaire. Descriptive statistics, t-tests, one-way ANOVA, Pearson correlation, and hierarchical multiple regression were performed using IBM SPSS Statistics 28.0.

Results : The mean innovative behavior score was 4.41 ± 0.80 out of 6, with opportunity exploration highest (4.69 ± 0.81) and championing lowest (4.02 ± 1.04). Innovative behavior differed significantly by age, education, position, work schedule, income, and self-development activities (all $p < .05$). It correlated positively with happiness ($r = .57$), self-leadership ($r = .71$), and nursing professional self-efficacy ($r = .76$; all $p < .001$). Hierarchical multiple regression identified nursing professional self-efficacy ($\beta = .48$, $p < .001$), self-leadership ($\beta = .27$, $p < .001$), and happiness ($\beta = .13$, $p = .030$) as significant factors influencing innovative behavior, explaining 65.5% of the variance ($F = 24.72$, $p < .001$).

Conclusions : Nursing professional self-efficacy was the strongest factor influencing innovative behavior among nurses in regional public hospitals, followed by self-leadership and happiness. These findings suggest that innovative behavior stems more from nurses' beliefs about their professional competence than from external circumstances. Intervention programs prioritizing professional self-efficacy, alongside self-leadership and happiness, are needed to enhance innovative behavior in these settings.

Keywords : happiness, innovative behavior, professional self-efficacy, regional public hospital nurses, self-leadership



Experiences of Nurse Managers Regarding Retention Strategies for New Graduate Nurses in Small- and Medium-Sized Hospitals.

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Purpose : Nurse turnover among newly graduated nurses is a persistent threat to workforce stability in Korean hospitals, and this vulnerability is especially pronounced in small- and medium-sized hospitals, which typically lack the standardized education systems, compensation structures, and human resource management capacity available in larger institutions. In these settings, retention strategies tend to rely heavily on the individual leadership and informal support of nurse managers rather than on organizational systems. This study aimed to explore in depth the experiences of nurse managers regarding retention strategies for newly graduated nurses in small- and medium-sized hospitals and to identify effective approaches for workforce retention, thereby providing foundational data for developing realistic and sustainable support strategies.

Methods : This qualitative study employed an inductive content analysis approach. Participants were selected through purposive sampling and consisted of 10 nurse managers with more than 10 years of managerial experience, all currently working in hospitals with fewer than 300 beds and responsible for the education and retention management of newly graduated nurses. Data were collected through one-on-one, in-depth interviews conducted from September 2025 to January 2026, each lasting approximately 60 to 90 minutes, and continued until data saturation was reached. Data analysis proceeded through the preparation, organizing, and reporting phases of inductive content analysis, and methodological rigor and Lincoln, including member checking and peer debriefing.

Results : Four theme clusters and eleven themes were identified: relationship-oriented organizational culture, informal and close support mechanisms, limitations of institutional support systems, and workplace conditions hindering job engagement.

Conclusions : Retention strategies for newly graduated nurses in small- and medium-sized hospitals rely primarily on the relationship-oriented leadership of nurse managers. Sustainable retention requires preserving these relational strengths while strengthening hospital-tailored organizational support.

Keywords : Nurses, Nurse administrators, Personnel turnover, Hospitals, community, Qualitative research



Health literacy, perceived safety culture, and speaking up about care concerns: the mediating role of patient psychological safety

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Purpose : Speaking up about care concerns is an important form of patient voice in safety, yet patients may remain silent when they lack confidence or perceive care environments as unreceptive. This study aimed to examine the influences of health literacy and patients' perceptions of the safety culture on speaking up about care concerns and test the mediating role of patient psychological safety among Korean adults.

Methods : A descriptive cross-sectional survey was conducted with 1,277 Korean adults aged 19–69 years who had used a healthcare institution within the previous year. The participants were recruited using stratified proportional quota sampling by region, sex, and age. Data were collected from June 10 to 16, 2026. Health literacy, patients' perceptions of the safety culture, patient psychological safety, and speaking up about care concerns were assessed using structured questionnaires. Data were analyzed using descriptive statistics, t-tests, analysis of variance, Pearson's correlation coefficients, and mediation analysis using PROCESS Macro Model 4. Indirect effects were tested using 5,000 bootstrap samples.

Results : The mean speaking-up score was 19.92 ± 4.62 out of 32. Speaking up was positively correlated with health literacy ($r = .37$), perceived safety culture ($r = .46$) and psychological safety ($r = .58$) (all $p < .001$). Psychological safety partially mediated the associations between health literacy and speaking up (direct effect = 0.15, $p < .001$; 95% CI for indirect effect = 0.04–0.08) and between perceived safety culture and speaking up (direct effect = 0.83, $p = .018$; 95% CI = 2.13–3.18).

Conclusions : Speaking up about care concerns is influenced by patients' health literacy, perceptions of the safety culture, and psychological safety. Strategies to promote speaking-up behavior among patients should integrate health literacy education, a patient-participatory safety culture, and communication practices that elicit patients' questions and concerns.

Keywords : Patient voice, Health literacy, Psychological safety, Safety culture



Work Experiences, Job Satisfaction, Retention Intention, and Health Status of Nursing Graduates in a Hospital-Sponsored Scholarship Program at One Year of Employment

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Purpose : This study explored the work experiences, job satisfaction, retention intention, and health status of recent university nursing graduates participating in a hospital-sponsored scholarship recruitment program upon completing one year of employment.

Methods : This study was part of a three-year longitudinal study with data collected before employment and at three months, one year, two years, and three years after employment. A convergent parallel mixed-methods design was used. Two cohorts of recent nursing graduates from a university in northern Taiwan were purposively recruited and divided into scholarship and non-scholarship groups. Qualitative data were collected through individual semistructured interviews and analyzed using Colaizzi's method. Quantitative data were collected using measures of job satisfaction, retention intention, and health status and analyzed using descriptive and inferential statistics.

Results : At the one-year follow-up, 36 scholarship recipients and 31 non-recipients completed data collection. Three qualitative themes emerged: a period of overwhelming stress, entering a stable phase, and integration into the team. At one year of employment, job satisfaction did not differ significantly between groups ($p = .085$). The scholarship group's mean retention intention score was 0.42 points higher than that of the non-scholarship group, but the difference was not significant ($p = .38$). Health status did not differ between groups ($p = .25$); however, health-related distress increased significantly in both groups compared with pre-employment levels ($p < .01$).

Conclusions : The period from three months to the completion of one year of employment was perceived as more stressful than the first three months. Participants gradually progressed from overwhelming stress to independent practice. This period was a critical stage for building interpersonal relationships and integrating into the team. These findings may inform hospital-sponsored scholarship programs, transition support, nurse-retention strategies, and nursing students' career planning.

Keywords : Hospital-sponsored scholarships; Job satisfaction; Intention to retention; Mixed-methods research



Responsibility Structures and Nurses' Ethical Burden in Artificial Intelligence-Based Clinical Decision Support in Intensive Care Units: A Scoping Review

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Purpose : This study aimed to map responsibility-related issues in the ICU AI-CDS literature and inductively develop a framework describing how responsibility is constituted, distributed, and shifted in practice.

Methods : This study conducted a theory-informed scoping review following JBI methodology and reported the review in accordance with PRISMA-ScR. We searched PubMed, Embase, Web of Science, CINAHL, and Scopus. A priori sensitizing criteria derived from Santoni de Sio and Mecacci's Responsibility Gap framework and Meaningful Human Control guided identification of responsibility-related meaning units. Two researchers independently conducted open coding, resolved discrepancies through discussion, and performed conventional content analysis.

Results : Of 8,038 records identified across five databases, 13 publications were included, comprising six qualitative studies, five reviews or conceptual papers, one quantitative survey, and one randomized controlled trial. Conventional content analysis generated 22 subcategories and six themes: responsibility structure alignment; transparency, explainability, and trust; clinical autonomy and human-centered judgment; capability building and implementation readiness; traceability, audit, and change management; and improving AI-CDS adoption and sustainment. The findings described unclear accountability for AI-CDS-related errors and changing nursing roles; the need for explainable, context-sensitive outputs; preservation of clinical autonomy; organizational readiness and AI literacy; traceable decision processes and audit; and ICU-specific bias mitigation and workflow-compatible design. These findings were integrated into the CHARTS framework, which centers human-centered clinical judgment as the basis for accountable ICU AI-CDS.

Conclusions : The CHARTS framework centers human-centered clinical judgment and highlights the role of ICU nurses in interpreting AI-CDS outputs within patient context. Accountable use requires aligned responsibilities, transparency, implementation readiness, and traceability and audit mechanisms. Policies should clarify responsibilities for clinical decisions and error response while providing organizational support for routine practice.

Keywords : Artificial Intelligence, Clinical Decision Support Systems, Critical Care Nursing, Nursing Ethics



Associations of nurse shift system improvements with work environments, nursing performance, and missed nursing care: A structural equation modeling study

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Purpose : This study aimed to comprehensively examine the effects of improvements in the nurse shift system on nursing care by focusing on the mediating roles of work–life balance, nursing work intensity, nurse–nurse cooperation, and nursing performance.

Methods : An online survey link was sent to nursing department staff at 82 hospitals participating in the nurse shift system pilot project, which was subsequently forwarded to nurses who agreed to participate. Data were collected over a total of 25 days, from October 24 to November 18, 2024. A model was developed and tested to examine the relationships among the abovementioned variables to identify the association between applying nurse shift system improvements and nursing-related outcomes.

Results : The direct effect of applying nurse shift system improvements on nursing intensity was statistically significant ($\beta=-0.105$). The direct effects of applying nurse shift system improvements and nursing intensity on work–life balance were also statistically significant ($\beta=0.117$ and $\beta=-0.586$, respectively). Additionally, the indirect effect of applying nurse shift system improvements on work–life balance through nursing intensity was statistically significant ($\beta=0.061$). These two variables explained 37.2% of the variance in work–life balance. The direct effect of applying nurse shift system improvements on nurse–nurse cooperation was statistically significant ($\beta=0.101$), as was its indirect effect on nurse–nurse cooperation through nursing intensity ($\beta=0.001$).

Conclusions : Applying nurse shift system improvements may be associated with reduced nursing intensity, improved work–life balance, enhanced nurse–nurse cooperation, and increased nursing performance. The findings suggest that these factors may be indirectly related to missed nursing care. These findings comprehensively support job demands–resources theory and research on nursing work environments.

Keywords : Shift System; Nursing; Work–Life Balance; Nurse–Nurse Cooperation; Nursing Intensity



Comparing Stakeholder Perceptions of Person-Centred Care in Korea: A Qualitative Focus Group Study

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Purpose : Person-centred care (PCC) is a core principle of high-quality healthcare; however, its interpretation and implementation may differ among stakeholders. This study explored and compared stakeholders' perceptions of PCC within the Korean healthcare context.

Methods : A qualitative descriptive study was conducted in March 2026 using three online focus group interviews with 15 participants across three stakeholder groups: patients with recent hospitalization experience (n = 5), healthcare professionals with at least three years of clinical experience (n = 5), and PCC researchers and educators (n = 5). Interviews were audio-recorded, transcribed verbatim, and analyzed using qualitative content analysis to identify themes within and across stakeholder groups.

Results : Four themes emerged. Patients perceived PCC as a respectful caring relationship, emphasizing being recognized as individuals, empathetic communication, and individualized care. Healthcare professionals viewed PCC as an ideal constrained by clinical realities, citing limited consultation time, heavy workloads, staffing shortages, and organizational barriers. Researchers and educators described PCC as a system-wide cultural transformation, highlighting the importance of organizational culture, leadership, education, and Korean sociocultural influences. Across stakeholder groups, participants consistently valued respect, empathy, communication, and individualized care but differed in how they prioritized these elements. Patients emphasized relational experiences, healthcare professionals highlighted implementation barriers, and researchers and educators stressed organizational and cultural transformation.

Conclusions : Although stakeholders shared fundamental values regarding PCC, they differed in how they understood and prioritized its implementation. These findings highlight the need for multilevel strategies that strengthen interpersonal care, improve clinical practice environments, foster supportive organizational cultures, and promote policies that facilitate the implementation of PCC in Korea.

Keywords : Focus Groups, Patient-Centered Care, Qualitative Research, Stakeholder Perspectives



The Moderating Effect of Peer Solidarity on the Relationship Between Emotional Events, Positive Nursing Organizational Culture, and Retention Intention Among Nurses

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Purpose : This study examined the effects of negative emotional events, positive emotional events, and positive nursing organizational culture on nurses' retention intention. It also investigated whether peer solidarity moderates these relationships.

Methods : A cross-sectional survey was conducted among 199 registered nurses working at a tertiary university hospital in South Korea. Data were collected using structured questionnaires measuring negative emotional events, positive emotional events, positive nursing organizational culture, peer solidarity, and retention intention. Descriptive statistics, Pearson's correlation analyses, hierarchical multiple regression, and moderation analyses were performed using SPSS PROCESS Macro.

Results : Peer solidarity functions as a key relational resource that strengthens the positive influence of favorable work environments on nurses' retention intention. These findings suggest that improving workplace conditions alone may be insufficient; fostering strong peer solidarity through mentoring, supportive communication, and teamwork-building strategies may be essential for enhancing nurse retention and sustaining the nursing workforce.

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Keywords : emotional events, nursing organizational culture, peer solidarity, retention intention



Mediation Effects of Occupational Coping Self-Efficacy on the Relationship between Job Esteem and Professional Quality of Life in Physician Assistant Nurses

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Purpose : The number of physician assistant nurses is increasing annually in response to changes in the healthcare environment, and their roles are also expanding. This study aimed to examine the mediating effects of occupational coping self-efficacy on the relationships between job esteem and professional quality of life (ProQOL) in physician assistant nurses.

Methods : A cross-sectional descriptive study was conducted among 193 physician assistant nurses working at general and tertiary hospitals with 200 or more beds in Korea. Data were collected through an online nursing community from February 4 to 5, 2026, using measures of job esteem (JES-KN), occupational coping self-efficacy (K-OCSE-N), and professional quality of life (ProQOL) including the subscales of compassion satisfaction, burnout, and secondary traumatic stress. Data were analyzed using t-tests, analysis of variance, and Pearson's correlation coefficients in IBM SPSS Statistics version 29.0 (IBM Corp.). Mediation effects were tested using the Hayes's PROCESS macro model 4 and the bootstrapping method.

Results : Compassion satisfaction was significantly positive correlated with job esteem and occupational coping self-efficacy ($r=.61, p<.001$; $r=.62, p<.001$), whereas burnout was significantly negative correlated with both variables ($r=-.39, p<.001$; $r=-.51, p<.001$). Secondary traumatic stress was not significantly correlated with either variables. Furthermore, occupational coping self-efficacy partially mediated the relationships of job esteem with compassion satisfaction and burnout. However, no mediating effect was observed in the relationship between job esteem and secondary traumatic stress.

Conclusions : Based on these results, to improve the professional quality of life for physician assistant, education and intervention programs should be established to strengthen job esteem and enhance coping abilities in work situations.

Keywords : Job esteem, Occupational coping self efficacy, Physician assistant nurse, Professional quality of life



Grit, compassion fatigue, physical activity, and turnover intention among emergency department nurses in South Korea: a cross-sectional study of the mediating role of burnout

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Purpose : Emergency department (ED) nurses work in a high-stress, high-workload environment and report high turnover intention. Although turnover intention has been linked to age, position, and night-shift work, few studies have examined job-related factors such as compassion fatigue and physical activity. This study examined the associations of compassion fatigue, domain-specific physical activity, and grit with turnover intention among ED nurses, and the pathways linking grit, compassion fatigue, and turnover intention.

Methods : In this cross-sectional study, 170 nurses from the EDs of 15 tertiary and general hospitals across South Korea were surveyed between May 2024 and January 2025. Compassion fatigue (burnout and secondary traumatic stress subscales), grit, physical activity, and turnover intention were measured by self-report. Hierarchical regression and PROCESS-macro mediation with bootstrapping were performed in SPSS 29.0.

Results : Turnover intention correlated positively with occupational physical activity ($r = .191$, $p = .013$) and burnout ($r = .295$, $p < .001$), but not with secondary traumatic stress ($r = .072$). Grit ($r = -.174$) and moderate leisure-time physical activity ($r = -.151$) correlated negatively with turnover intention. Physical activity explained no variance beyond covariates ($\Delta R^2 = .007$, $p = .728$), whereas grit and compassion fatigue did ($\Delta R^2 = .076$, $p < .001$); in the final model (adjusted $R^2 = .221$), burnout ($\beta = .26$, $p = .001$), age ($\beta = -.28$), and ED type ($\beta = -.28$) were significant. Burnout fully mediated the grit–turnover intention association (indirect effect $B = -.077$, 95% CI $[-.136, -.023]$), and the reversed model showed no significant indirect effect.

Conclusions : Occupational and leisure-time physical activity correlated with turnover intention in opposite directions, consistent with the physical activity health paradox, but contributed no independent variance. Burnout of compassion fatigue was the proximal psychological correlate of ED nurses' turnover intention, and grit's protective association operated entirely through lower burnout.

Keywords : Emergency nursing; Personnel turnover; Burnout; Compassion fatigue; Grit; Physical activity; Mediation analysis



A Text Mining-Based Case Law Analysis of Nurses' Occupational Negligence Resulting in Injury or Death

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Purpose : The enactment of the Nursing Act and the expansion of nurses' professional roles have increased the need to examine how criminal liability is determined in cases involving nursing practice. This study compared the linguistic patterns and legal reasoning in guilty and not-guilty judgments involving nurses charged with occupational negligence resulting in injury or death.

Methods : A text-mining analysis was conducted on 52 criminal cases adjudicated between 2013 and 2025. All cases involved nurses charged with occupational negligence resulting in injury or death. Using NetMiner 5, the court judgments were preprocessed and analyzed using term frequency (TF), term frequency-inverse document frequency (TF-IDF), word network and centrality analyses, and topic modeling.

Results : Of the 52 cases, 34 (65.4%) resulted in guilty verdicts and 18 (34.6%) in not-guilty verdicts. Five topics were identified in the guilty judgments: failure to perform clinical observation and reporting duties, inadequate verification before and after caring for intubated patients, inadequate management of the patient's immediate environment and safety, inadequate care of patients receiving mechanical ventilation or undergoing surgery, and insufficient medication verification. Three topics were identified in the not-guilty judgments: clinical observation and nursing response, uncertainty regarding the source of contamination during medication preparation, and the management of patients in isolation.

Conclusions : Guilty judgments were mainly associated with failures in required verification procedures, medication-related negligence, and inadequate responses to patient safety risks. In contrast, not-guilty judgments emphasized appropriate clinical observation, reporting, and nursing responses, as well as uncertainty regarding causation. These findings suggest the need to strengthen standardized verification and reporting procedures, improve nursing documentation, and expand legal education and institutional support for nurses.

Keywords : Criminal Law; Data Mining; Malpractice; Nurses



Medication Safety Clinical Decision Support Systems Across the Medication Workflow: A Scoping Review

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Purpose : Clinical decision support systems (CDSSs) are widely utilized to enhance medication-related decision-making and patient safety. However, most existing reviews have concentrated on specific diseases, drugs, or individual stages of the medication process, with few comprehensively examining CDSS applications across the entire medication workflow. This scoping review examines the characteristics of medication safety CDSSs implemented throughout the medication workflow to inform future nurse-focused CDSS development.

Methods : A scoping review was conducted according to Arksey and O'Malley's five-stage methodological framework, supplemented by JBI guidance for scoping reviews. We conducted comprehensive searches in CENTRAL, Ovid MEDLINE, Embase, CINAHL, and Scopus, without publication date restrictions. Studies investigating medication safety CDSSs used by healthcare professionals in acute care hospitals were included. Two researchers independently screened studies, extracted data, and analyzed them descriptively.

Results : Among 20,040 studies identified, 11 met the inclusion criteria. All studies implemented CDSSs at the prescribing stage: nine were limited to prescribing, one extended to dispensing, and one to administration. The primary users were physicians (81.8%) and pharmacists (18.2%); no studies involved nurses. Input data comprised patient-specific parameters (age, weight, vital signs, laboratory results), and reasoning mechanisms included rule-based (63.6%), knowledge-based (9.1%), algorithm-based (18.2%), and machine learning-based (9.1%) approaches. Alerts primarily addressed drug-drug interactions (45.5%), dosage (36.4%), duplication (18.2%), and allergies (27.3%), with some studies utilizing multiple alert types.

Conclusions : This study found that medication safety CDSSs predominantly focus on the prescribing stage, primarily target physicians and pharmacists, and rely mainly on patient-specific data and rule-based reasoning. No CDSSs specifically designed for nurses were identified, and application beyond prescribing is limited. Future CDSS development should prioritize nurse-oriented interfaces, integration of nursing-relevant data, and incorporation of diverse reasoning mechanisms to support nurses' medication-related decision-making throughout the medication workflow.

Keywords : Decision support systems, clinical, Health care professionals, Medication errors, Patient safety



Nurses' Perceptions and Experiences of Drug Diversion in Healthcare Settings: A Qualitative Content Analysis

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Purpose : Drug diversion is the unauthorized use or transfer of medications prescribed for patient administration. In hospital settings, this may involve nurses self-administering leftover analgesics or intravenous fluids, or informally preparing and using medications to compensate for supply delays and workload pressures. Such practices frequently go undetected and may compromise patient safety and nurses' well-being. This study aimed to explore how hospital nurses perceive and experience drug diversion.

Methods : A qualitative study using an interpretive approach was conducted. Fifteen nurses (eight women, seven men; aged 27–51 years) working in long-term care, psychiatric, general, and tertiary hospitals in South Korea were recruited through purposive and snowball sampling. All participants handled both controlled and non-controlled medications. Data were collected in February 2026 through up to two semi-structured individual interviews per participant, addressing perceptions of drug diversion, personal experience, organizational culture, and institutional systems. Data were analyzed using qualitative content analysis as described by Graneheim and Lundman.

Results : Controlled substances were subject to strict monitoring, whereas other medications occupied an ambiguous zone between routine preparation and unauthorized use. Five categories and seventeen subcategories were identified through the analysis. The five categories comprised: a common experience that went unrecognized; ambivalent perceptions of drug diversion; multidimensional working conditions that sustain drug diversion; risks and nurses left in the shadow of diversion; and demands for a safe medication environment and the protection of nurses.

Conclusions : Drug diversion was reported primarily with non-controlled medications, which received less oversight than controlled substances, and was perceived as an extension of routine nursing work. Its acceptability was determined by individual responsibility and ethical standards rather than explicit criteria, resulting in inconsistent practice across settings and potential risk to both patients and nurses. A shared definition of drug diversion, alongside system-level safeguards and targeted education, is needed.

Keywords : Drug diversion, Nurses, Qualitative research

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