NHSJ Nursing and Health Sciences Journal
Volume 06 Number 01 (March 2026)
e-ISSN: 2798-5067; p-ISSN: 2798-5059

Transforming nursing education through caring pedagogy: A systematic review of the experiential learning approach

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Article Info:
Submitted:
20-11-2025
Revised:
05-03-2026
Accepted:
06-03-2026
Published:
17-03-2026

Keywords:
caring pedagogy, experiential learning, nursing education, nursing students

ABSTRACT

The increasing complexity of healthcare demands nursing education that effectively bridges the theory-practice gap while cultivating caring competence and professionalism. Traditional didactic methods often fail to adequately prepare students for clinical realities, necessitating a shift toward innovative pedagogical strategies. This systematic review evaluates the effectiveness of caring pedagogy and experiential learning approaches in transforming nursing education outcomes. Following the PRISMA 2020 guidelines, a comprehensive search was conducted across Scopus, PubMed, and ProQuest for studies published between 2022 and 2026. Methodological quality was appraised using the Joanna Briggs Institute (JBI) critical appraisal tools specific to each study design. From 250,393 identified records, 11 studies met the inclusion criteria. The included studies comprised seven randomized controlled trials, two quasi-experimental studies, one prospective cohort study, and one non-equivalent control group study. Quality appraisal rated three studies as high, seven as moderate, and one as low-moderate. Interventions included simulation-based learning, problem-based learning, role-play, peer education, and structured training programs. Synthesis of findings demonstrated significant improvements in professional competence, communication skills, psychomotor skills, critical thinking, self-efficacy, creativity, and patient safety adherence among nursing students and nurses. Caring pedagogy and experiential learning approaches are effective strategies for enhancing nursing competence and professionalism. Educational institutions should integrate these evidence-based interventions into curricula to better prepare nurses for contemporary healthcare challenges and ensure a workforce capable of delivering compassionate, high-quality care.

https://doi.org/10.53713/nhsj.v6i1.623

INTRODUCTION

Nursing education serves as a foundational pillar in shaping the future healthcare workforce, preparing graduates who possess both technical proficiency and strong professional competencies (Sumpter et al., 2022). The increasing complexity of modern healthcare systems demands that nursing students develop not only clinical skills but also the critical thinking and ethical reasoning necessary for safe practice (İlaslan et al., 2022). Traditionally, nursing curricula have relied heavily on didactic instruction and passive learning, yet there is a growing global consensus that these methods are insufficient to meet contemporary demands (Al-Worafi et al., 2024). To ensure readiness for clinical practice, educational frameworks must evolve to integrate theoretical knowledge with practical application, fostering holistic professional development (Choperena et al., 2025).

Despite advancements in medical science, a persistent theory-practice gap remains a significant challenge within nursing education globally (Singh et al., 2023). Traditional teaching methods often fail to adequately cultivate critical thinking, clinical judgment, and the essential humanistic aspects of care required for patient safety (Oh et al., 2024). Students frequently struggle to transition from academic environments to real-world clinical settings, often lacking confidence in their psychomotor skills and interprofessional communication abilities (Aryuwat et al., 2024). Furthermore, the rapid integration of technology in healthcare poses a risk of eroding caring behaviors, necessitating a pedagogical shift that prioritizes both clinical competence and compassion to maintain the core values of the nursing profession (Wynn, 2025).

To address these deficiencies, educational institutions are increasingly adopting innovative strategies centered on caring pedagogy and experiential learning (Labrague & Obeidat, 2025). Caring pedagogy emphasizes the relational and ethical dimensions of nursing, fostering an environment where empathy and professionalism are cultivated alongside technical skills (Petrovic et al., 2023). Experiential learning complements this by engaging students in active participation through simulations, problem-based learning, and clinical immersions (Chang & Hwang, 2023). These approaches encourage reflection and active knowledge construction, allowing learners to practice decision-making in safe yet realistic scenarios before entering professional practice, thereby bridging the gap between classroom theory and clinical reality (Cheng et al., 2025).

While numerous studies have explored various active learning strategies, the evidence remains fragmented across different geographical contexts and educational designs (Mancin et al., 2025). There is a pressing need to consolidate findings to understand the actual impact of these interventions on specific outcomes, such as caring competence, professionalism, and clinical skills (Azzouzi & Gantare, 2024). Much of the existing literature varies in methodological quality, and a comprehensive synthesis is required to distinguish effective interventions from those with limited impact (Ahmady & Khani, 2021). Understanding the breadth of evidence is crucial for educators seeking to implement evidence-based teaching modifications that can be standardized across diverse nursing programs (Santos et al., 2022).

This systematic review aims to evaluate the effectiveness of caring pedagogy and experiential learning approaches in transforming nursing education. By synthesizing data from recent high-quality studies, this review seeks to identify patterns in how these pedagogical models influence nursing student outcomes regarding competence and professional behavior (Demagny-Warmoes et al., 2025). The findings will provide valuable insights for curriculum developers, policymakers, and nurse educators seeking to enhance the quality of nursing training through evidence-based strategies (Bhatarasakoon & Chiaranai, 2024). Ultimately, this work contributes to the broader goal of preparing a nursing workforce that is both clinically competent and deeply committed to the art of caring (Castellano, 2025).

METHOD

Study Design and Research Framework

This research employed a systematic review design following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 protocol to ensure transparency and reproducibility of the literature search and selection process. The PRISMA protocol was chosen as it represents an international standard proven to enhance the quality and consistency of systematic reviews in health research. Research questions were formulated using the PICO framework (Population, Intervention, Comparison, Outcome), focusing on nursing

students in Indonesia as the population, caring pedagogy and experiential learning as interventions, and caring competence and professionalism as measured outcomes.

Search Strategy and Eligibility Criteria

A comprehensive search was conducted to identify all relevant literature. Literature search strategies were implemented across three primary databases: Scopus, PubMed, and ProQuest, using combinations of keywords in English: "caring pedagogy", "experiential learning", "nursing education". Searches were conducted for articles published between 2022 and 2026 to ensure relevance and currency of information in the context of contemporary nursing education development. Boolean operators (AND, OR) were used to optimize search results and ensure the sensitivity and specificity of literature retrieval. Inclusion criteria: Open access, English language, full text, Ethical clearance, and active DOI. Exclusion criteria: Duplicates, abstracts, case reports, conference presentations, reviews without original data, editorials, and expert opinions.

Study Selection and Quality Assessment

The selection process was conducted independently by two researchers, with inter-rater reliability assessed using Cohen's Kappa; discrepancies were resolved through discussion or by involving a third researcher as arbiter. Methodological quality assessment was conducted using the Joanna Briggs Institute (JBI) to accommodate the various research designs identified.

Data Extraction and Synthesis

Data extraction was performed using standardized forms, including study characteristics (authors, year, research design); participant characteristics (number, education level, institution); implemented caring pedagogy and experiential learning interventions; measurement instruments used; and main findings related to caring competence and professionalism outcomes. Data analysis employed a thematic approach to identify patterns, themes, and sub-themes emerging from the reviewed literature, with narrative synthesis to describe overall findings. Quantitative data from homogeneous studies were synthesized descriptively, while qualitative findings were analyzed using a thematic synthesis framework to generate an in-depth understanding of the phenomena under examination.

RESULT

Literature Search and Identification Process

The initial literature search across three electronic databases yielded a total of 250,393 records: 4 from Scopus, 109,465 from PubMed, and 140,924 from ProQuest. Before the screening process began, 247,549 non-research articles were removed, leaving 2,844 records for screening. This substantial reduction at the identification stage reflects the application of preliminary filters to eliminate publications that do not meet basic research-article criteria.

Screening and Eligibility Assessment

During the screening phase, 2,844 records were evaluated, of which 1,522 records were excluded based on the 5-year publication timeframe criterion (2022-2026). An additional 1,311 reports were excluded based on predetermined inclusion and exclusion criteria. The inclusion criteria required studies to be open access, published in English, available in full text, have ethical clearance, and possess an active DOI. Exclusion criteria eliminated duplicates, abstracts only,

case reports, conference presentations, reviews without original data, editorials, and expert opinions. Following this rigorous screening process, 1,322 reports were assessed for full-text eligibility.

Final Study Selection

After a comprehensive eligibility assessment, 11 studies were included in the systematic review. The distribution of included studies by database was: 1 study from Scopus, 7 studies from PubMed, and 3 studies from ProQuest. This final selection represents studies that met all methodological quality standards and relevance criteria for examining caring pedagogy and experiential learning in nursing education within the Indonesian context.

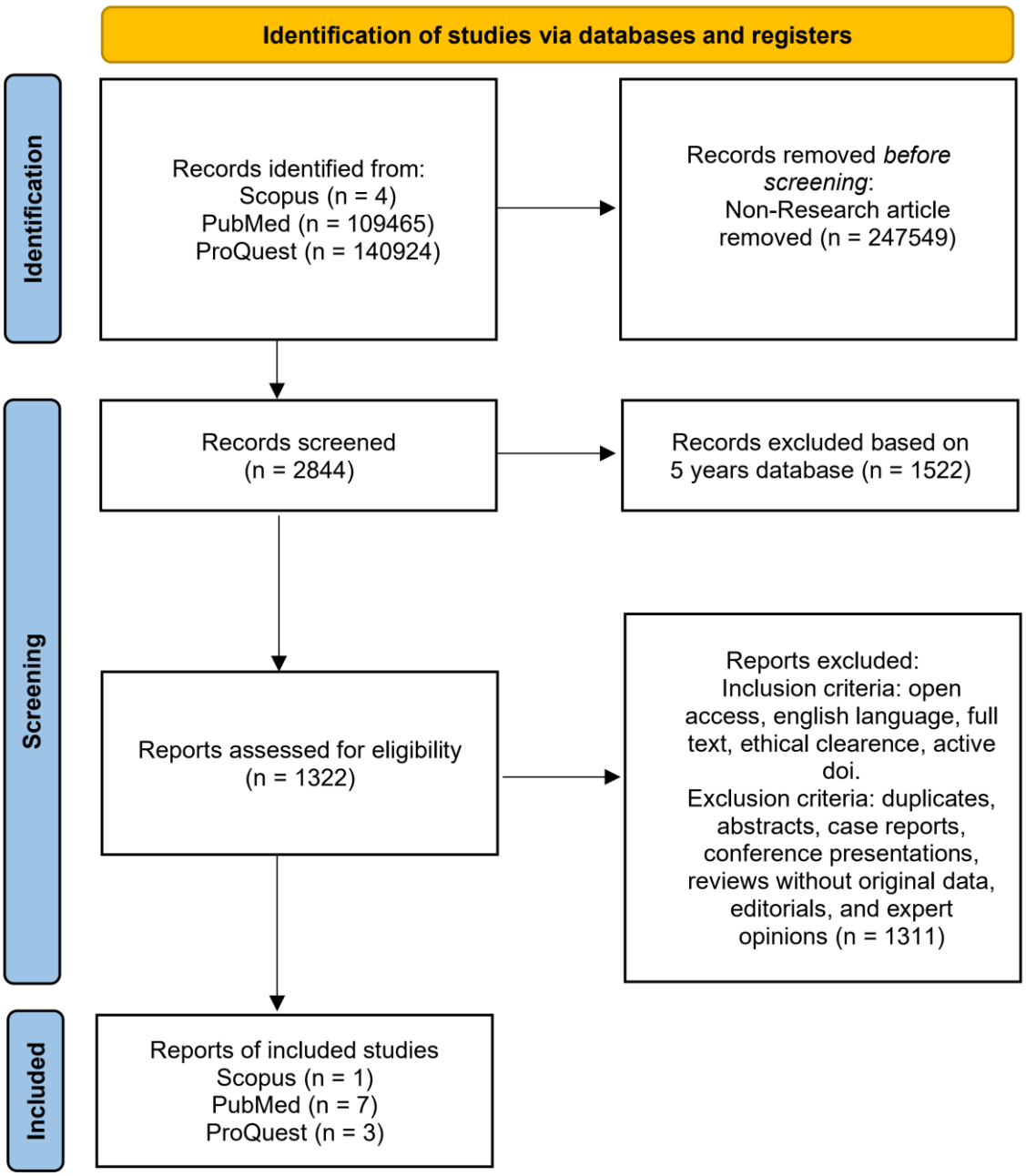

Figure 1. PRISMA flow chart for literature search

Characteristics of Included Studies

The systematic review included 11 studies published between 2022 and 2025, spanning a variety of research designs to evaluate pedagogical interventions in nursing education. The majority of the studies employed randomized controlled trials (Lin et al., 2023; Silva et al., 2025; Chung et al., 2022; Baran & Özdemir, 2025; Chen et al., 2025; Faridi et al., 2025; Moghadam et al., 2024), while others utilized quasi-experimental designs (Noviani et al., 2023; Azfar et al., 2025), prospective cohort studies (Xue et al., 2025), and non-equivalent control group designs (Lee & Son, 2022). The geographical distribution of the research was diverse, including studies conducted in Indonesia (Noviani et al., 2023), China (Xue et al., 2025; Chung et al., 2022; Chen et al., 2025), the Republic of Korea (Lee & Son, 2022), Pakistan (Azfar et al., 2025), Taiwan (Lin et al., 2023), Brazil (Silva et al., 2025), Turkey (Baran & Özdemir, 2025), and Iran (Faridi et al., 2025; Moghadam et al., 2024). Sample sizes varied significantly across the studies, ranging from 44 nursing students (Moghadam et al., 2024) to 142 nursing interns (Xue et al., 2025), ensuring a broad representation of participant groups, including undergraduate students, interns, and practicing nurses.

Table 1. Results of included studies

Author, Country	Objectives	Study Design	Sample Size (N)	Intervention	Instrument	Main Findings
Noviani et al. (2023), Malaysia	To investigate the effects of socialization in professional reality integration for nursing student transition (SPRINT) to improve the professional competence of undergraduate NS in Indonesia.	A quasi-experimental study.	120 nursing students.	Socialization in professional reality integration for nursing student transition (SPRINT).	Nurse Professional Competence short-form (NPC-SF) scale.	A "SPRINT" as an innovative educational program developed in collaboration with academia and clinical preceptors could improve professional competence.
Xue et al. (2025), China	To investigate the effect of Problem-Based Learning (PBL) on the health education ability of nursing interns to promote the development of nursing education.	A prospective cohort study.	142 nursing interns.	The control group used the traditional teaching mode, and the observation group used the PBL teaching mode.	Assessment scores, health education ability, self-directed learning ability, critical thinking ability, and overall teaching satisfaction.	The PBL Teaching Group demonstrated significantly higher posttest scores than the Traditional Teaching Group.
Lee & Son (2022), Republic of Korea	To verify the effects of simulation problem-based learning on nursing students' communication skills, communication attitudes, and team efficacy.	Non-equivalent control group pretest-posttest design.	93 Nursing students who were classified as advanced beginners.	The simulation-based problem-solving learning for cesarean section in maternity nursing.	Communication skills, communication attitudes, and team efficacy were measured using a self-reported questionnaire.	As compared with the pretest, the communication attitudes increased significantly in the posttest for the experimental group. The communication skills and team efficacy were not

Author, Country	Objectives	Study Design	Sample Size (N)	Intervention	Instrument	Main Findings
						statistically significant.
Azfar et al. (2025), Pakistan	Compares the effectiveness of Video-Based Learning (VBL) and Role Play (RP) in enhancing interprofessional communication (IPC) and teamwork skills among undergraduate medical and nursing students.	A mixed-method approach encompassed a quasi-experimental design	64 undergraduate medical and nursing students.	Video-Based Learning (VBL) and Role Play (RP).	Two independent raters utilized the Communication and Teamwork Skills (CATS) assessment instrument to evaluate improvements in coordination, situational awareness, cooperation, and communication skills before and after the interventions.	Role Play (RP) significantly outperforms Video-Based Learning (VBL) in enhancing IPC and teamwork skills, making it a superior tool for healthcare education.
Lin et al. (2023), Taiwan	To evaluate the effectiveness of a structured Disaster Management Training Program (DMTP) on nurses' readiness for response to disasters.	A randomized controlled trial.	100 nurses.	Structured Disaster Management Training Program (DMTP) delivered by transdisciplinary collaborations through multiple teaching strategies (lectures, simulations, problem-solving lessons, demonstrations, tabletop exercises, discussions, group presentations, and reflections).	Readiness for disaster response consists of four subscales (emergency response, clinical management, self-protection, and personal preparation).	A two-day, structured DMTP that utilizes multiple teaching strategies through transdisciplinary collaborations is recommended to enhance hospital nurses' readiness for disaster response.
Silva et al. (2025), Brazil	To compare clinical simulation with a standardized patient with rapid-cycle deliberate practice in knowledge acquisition,	A randomized clinical trial.	134 under-graduate nursing students.	Clinical simulation with rapid-cycle deliberate practice (RCDP) in knowledge	Educational Practices Questionnaire and the Simulation Design Scale.	Clinical simulation with rapid-cycle deliberate practice (RCDP) is effective and recommended in

Author, Country	Objectives	Study Design	Sample Size (N)	Intervention	Instrument	Main Findings
	perception of experience, and scenario design in the care of patients with suspected stroke.			acquisition, perception of experience, and scenario design.		nursing education.
Chung et al. (2022), China	To examine the efficacy of a blended learning program on the communication skill competence and self-efficacy of final-year nursing students in conducting clinical handovers.	A randomized controlled design.	96 final-year baccalaureate nursing students.	a blended learning program with face-to-face training and an online module on handover practice.	the communication skill competence and the self-efficacy.	The efficacy of a blended learning approach in improving the communication skill competence and self-efficacy of final-year nursing students in conducting clinical handovers.
Baran & Özdemir (2025), Turkey	To evaluate the effects of Peer education (PE) on the psychomotor skills and self-efficacy of nursing students.	single-blind randomized controlled trial.	63 undergraduate nursing students.	Peer education (PE).	Individual Descriptive Information Form, "Intramuscular Injection Knowledge Level Assessment Form", "Intramuscular Injection Psychomotor Skills Assessment Form", and the "General Self-Efficacy Scale".	Nursing students who received Peer education (PE) demonstrated significantly better psychomotor skills than those taught using traditional methods.
Chen et al. (2025), China	To assess the effectiveness of the Nursing Simulation Teaching Information System (NSTIS) in the training course and refine both the system and teaching scheme based on student feedback.	a randomized controlled trial.	114 nursing students.	The Nursing Simulation Teaching Information System (NSTIS).	A self-designed classroom teaching effect questionnaire and a case workshop scoring form.	Integrating NSTIS into a comprehensive training course can enhance the effectiveness of case simulations.
Faridi et al. (2025), Iran	To investigate the effectiveness of multimedia electronic training in improving nurses' adherence to patient safety principles.	Randomized controlled trial.	60 nurses.	Multimedia electronic training program on patient safety principles	An individual characteristics questionnaire, and a patient safety adherence scale.	Multimedia electronic training is a practical approach to enhancing nurses' adherence to

Author, Country	Objectives	Study Design	Sample Size (N)	Intervention	Instrument	Main Findings
						patient safety principles.
Moghadam et al. (2024), Iran	To evaluate the effect of scenario-based group discussion training on the creativity level of nursing students.	A randomized controlled educational trial.	44 nursing students.	Scenario-based group discussion training.	Validated creativity questionnaire.	Scenario-based group discussion training is efficacious in improving the fluency, originality, and creativity of nursing students.

Implemented Pedagogical Interventions

The reviewed literature highlighted a wide array of innovative teaching strategies focused on experiential learning and caring pedagogy. Several studies investigated simulation-based approaches, such as simulation problem-based learning for maternity nursing (Lee & Son, 2022), clinical simulation with rapid-cycle deliberate practice for stroke care (Silva et al., 2025), and the integration of a Nursing Simulation Teaching Information System (Chen et al., 2025). Problem-based learning (PBL) was also a prominent intervention, utilized to enhance health education abilities and critical thinking (Xue et al., 2025), as well as in blended learning programmes for clinical handovers (Chung et al., 2022). Other active learning strategies included role play versus video-based learning for interprofessional communication (Azfar et al., 2025), scenario-based group discussion training to foster creativity (Moghadam et al., 2024), and peer education for psychomotor skills (Baran & Özdemir, 2025). Additionally, structured training programs were evaluated, including the SPRINT program for professional reality integration (Noviani et al., 2023), a Disaster Management Training Program (Lin et al., 2023), and multimedia electronic training for patient safety adherence (Faridi et al., 2025).

Effects on Nursing Competence and Professionalism

The synthesis of findings demonstrated that the implemented interventions generally yielded positive outcomes regarding nursing competence, professionalism, and specific skill acquisition. Programs focused on professional integration and simulation, such as the SPRINT program and clinical simulation with deliberate practice, were found to improve professional competence and knowledge acquisition significantly (Noviani et al., 2023; Silva et al., 2025). Communication skills and teamwork were notably enhanced through role-play interventions and blended learning approaches, with role play outperforming video-based learning in interprofessional communication contexts (Azfar et al., 2025; Chung et al., 2022). Furthermore, specialized training programs proved effective in niche areas; for instance, the Disaster Management Training Program enhanced nurses' readiness for emergency response (Lin et al., 2023), while multimedia electronic training improved adherence to patient safety principles (Faridi et al., 2025). Psychomotor skills and self-efficacy were significantly higher among students receiving peer education than with traditional methods (Baran & Özdemir, 2025), and scenario-based discussions were effective in improving creativity dimensions such as fluency and originality (Moghadam et al., 2024). Overall, the evidence suggests that experiential and caring pedagogical approaches are superior to traditional teaching modes in fostering comprehensive nursing competencies.

JBI Critical Appraisal for Included Studies

The methodological quality of the 11 included studies was assessed using the Joanna Briggs Institute (JBI) Critical Appraisal Checklists appropriate to each study design: the JBI Checklist for Randomized Controlled Trials, the JBI Checklist for Quasi-Experimental Studies, and the JBI Checklist for Cohort Studies. Below is a summary of the appraisal results.

Table 2. JBI Critical Appraisal Results for Included Studies

Study (Author, Year)	Design	JBI Checklist Used	True Rando-mization	Allocation Con-cealment	Baseline Similarity	Blinding of Parti-cipants/ Personnel	Blinding of Outcome Assessment	Complete Follow-up / Attrition <10%	Intention-to-Treat Analysis	Appropriate Statistical Analysis	Reliable Outcome Measurement	Overall Quality Rating
Lin et al. (2023)	RCT	JBI RCT Checklist	Yes	Yes	Yes	No	Unclear	Yes	Yes	Yes	Yes	High
Silva et al. (2025)	RCT	JBI RCT Checklist	Yes	Yes	Yes	No	Unclear	Yes	Unclear	Yes	Yes	High
Chung et al. (2022)	RCT	JBI RCT Checklist	Yes	Unclear	Yes	No	No	Yes	Yes	Yes	Yes	Moderate
Baran & Özdemir (2025)	RCT	JBI RCT Checklist	Yes	Yes	Yes	Yes (single-blind)	Yes	Yes	Yes	Yes	Yes	High
Chen et al. (2025)	RCT	JBI RCT Checklist	Yes	Unclear	Yes	No	Unclear	Yes	Unclear	Yes	Yes	Moderate
Faridi et al. (2025)	RCT	JBI RCT Checklist	Yes	Unclear	Yes	No	Unclear	Yes	Unclear	Yes	Yes	Moderate
Moghadam et al. (2024)	RCT	JBI RCT Checklist	Yes	Unclear	Yes	No	Unclear	Yes	Unclear	Yes	Yes	Moderate
Noviani et al. (2023)	Quasi-experi-mental	JBI Quasi-Experimental Checklist	N/A	N/A	Yes	No	No	Yes	N/A	Yes	Yes	Moderate
Azfar et al. (2025)	Quasi-experi-mental	JBI Quasi-Experimental Checklist	N/A	N/A	Yes	No	No	Yes	N/A	Yes	Yes	Moderate
Xue et al. (2025)	Pros-pective Cohort	JBI Cohort Checklist	N/A	N/A	Yes	N/A	Unclear	Yes	N/A	Yes	Yes	Moderate
Lee & Son (2022)	Non-equivalent Control Group	JBI Quasi-Experimental Checklist	N/A	N/A	Unclear	No	No	Yes	N/A	Yes	Yes	Low-Moderate

Overall Quality Distribution of Included Studies

The JBI critical appraisal of the 11 included studies revealed a generally moderate-to-high methodological quality across the body of evidence. Three studies (27%) were rated as High quality: Lin et al. (2023), Silva et al. (2025), and Baran & Özdemir (2025). Seven studies (64%) received a Moderate quality rating: Chung et al. (2022), Chen et al. (2025), Faridi et al. (2025), Moghadam et al. (2024), Noviani et al. (2023), Azfar et al. (2025), and Xue et al. (2025). Only one study (9%), Lee & Son (2022), was rated as Low-Moderate quality due to unclear baseline comparability and limitations in blinding. This distribution suggests that the systematic review findings are primarily supported by methodologically sound research, though some caution is warranted when interpreting results from moderate-quality studies.

Key Methodological Strengths Across Studies

Several consistent strengths emerged across the appraised studies. First, baseline similarity between the intervention and control groups was reported as "Yes" in 10 of 11 studies, indicating that the groups were generally comparable at the start of the interventions—a critical factor for internal validity. Second, complete follow-up with attrition below 10% was achieved in all studies, minimizing bias from participant dropout. Third, all studies employed appropriate statistical analyses and used reliable, validated outcome measurement instruments, such as the NPC-SF scale, the CATS assessment, and the Simulation Design Scale. These strengths

enhance confidence in the reported effects of caring pedagogy and experiential learning interventions on nursing competence outcomes.

Common Methodological Limitations

Despite overall sound quality, several recurring limitations were identified. The most frequent issue was blinding of participants and personnel, which was marked "No" in 9 of 11 studies. This is inherent mainly to educational interventions, where participants and instructors cannot be blinded to the teaching method being delivered. However, this introduces potential performance and detection bias. Additionally, allocation concealment was reported as "Unclear" in 5 of the 7 RCTs (Chung et al., 2022; Chen et al., 2025; Faridi et al., 2025; Moghadam et al., 2024), raising concerns about selection bias. Blinding of outcome assessment was also frequently "Unclear" (6 studies), which may affect the objectivity of self-reported outcomes such as communication attitudes or self-efficacy. These limitations should be considered when weighing the strength of evidence for specific outcomes.

Design-Specific Observations

Randomized Controlled Trials (RCTs): The seven RCTs generally demonstrated stronger internal validity, with consistent randomization and high-quality outcome measurement. Baran & Özdemir (2025) were the only study to employ a single-blind design with blinded outcome assessment, serving as a methodological benchmark for future educational RCTs.

Quasi-Experimental Studies: Noviani et al. (2023) and Azfar et al. (2025) appropriately used the JBI Quasi-Experimental Checklist. Both studies reported baseline similarity and complete follow-up but lacked blinding, a feature typical of this design. Their moderate ratings reflect acceptable rigor for evaluating complex educational interventions where randomization is not feasible.

Cohort and Non-Equivalent Designs: Xue et al. (2025) (prospective cohort) and Lee & Son (2022) (non-equivalent control group) showed more variability. Lee & Son (2022) received the lowest rating due to unclear baseline comparability, suggesting that observed improvements in communication attitudes should be interpreted cautiously.

Implications for Synthesis and Interpretation

The JBI appraisal results directly inform how findings from this systematic review should be synthesized and interpreted. High-quality studies (Lin et al., 2023; Silva et al., 2025; Baran & Özdemir, 2025) provide the most substantial evidence that experiential learning interventions—such as disaster management training, rapid-cycle deliberate practice simulation, and peer education—significantly enhance nursing competence, psychomotor skills, and self-efficacy. Moderate-quality studies still contribute valuable insights, particularly regarding contextual applicability in diverse settings (e.g., Indonesia, Pakistan, Iran), but their findings should be corroborated by higher-quality evidence where possible. The single low- to moderate-quality study (Lee & Son, 2022) highlights the need for more rigorous control of confounding variables in simulation-based learning research. Overall, the appraisal supports a graded confidence approach: strong confidence in outcomes related to skill acquisition and knowledge retention, and moderate confidence in outcomes reliant on self-reported attitudes or teamwork measures. Future primary research should prioritize allocation concealment, outcome assessor blinding, and objective performance metrics to strengthen further the evidence base for caring pedagogy in nursing education.

DISCUSSION

Synthesis of Experiential Learning Outcomes

The systematic review identified 11 studies that collectively demonstrate the efficacy of experiential learning approaches in enhancing nursing education outcomes. The synthesis of data from the final included studies reveals that active learning strategies, such as simulation-based learning and problem-based learning (PBL), consistently outperform traditional teaching methods. For instance, clinical simulation with rapid-cycle deliberate practice was found to be effective for knowledge acquisition and for perceptions of scenario design among undergraduate students (Silva et al., 2025). Similarly, integrating a Nursing Simulation Teaching Information System (NSTIS) enhanced the effectiveness of case simulations, suggesting that technology-supported experiential learning adds value to traditional clinical training (Chen et al., 2025). Problem-based learning also showed significant benefits, with interns in PBL groups demonstrating improved health education abilities, self-directed learning, and critical thinking compared to those in traditional teaching modes (Xue et al., 2025). These findings align with the core premise of experiential learning, where knowledge is constructed through experience and reflection, thereby transforming passive recipients of information into active learners.

The Role of Caring Pedagogy in Professional Formation

While experiential learning provides the methodological framework, caring pedagogy underpins the development of professionalism and the essential soft skills for nursing practice. The review highlights that interventions fostering interaction and empathy significantly improve communication and teamwork. Role-play interventions, for example, were superior to video-based learning in enhancing interprofessional communication and teamwork skills, indicating that embodied practice fosters deeper interpersonal competence (Azfar et al., 2025). Furthermore, simulation problem-based learning improved communication attitudes in maternity nursing contexts, although effects on team efficacy varied (Lee & Son, 2022). Professional competence was notably enhanced through the SPRINT program, which facilitated socialization into professional reality and bridged the gap between academia and clinical practice (Noviani et al., 2023). Additionally, adherence to patient safety principles—a fundamental aspect of patient care—was improved through multimedia electronic training, reinforcing that pedagogical innovations can cultivate a culture of safety and care (Faridi et al., 2025). These outcomes suggest that caring pedagogy is not merely theoretical but is actualized through structured experiential interventions that prioritize human interaction and ethical practice.

Implications for Nursing Curriculum Development

The findings from this review have substantial implications for nursing curriculum development, particularly in Indonesian nursing education, where local evidence remains limited. With only one included study conducted in Indonesia (Noviani et al., 2023), there is a clear opportunity to adapt successful global strategies to the local context. The diversity of effective interventions—from disaster management training (Lin et al., 2023) to peer education for psychomotor skills (Baran & Özdemir, 2025)—suggests that nursing curricula should move away from single-mode, lecture-based teaching toward blended, diversified learning models. For instance, the success of blended learning in improving communication competence during clinical handovers supports integrating online modules with face-to-face training (Chung et al., 2022). Moreover, the effectiveness of scenario-based group discussions in enhancing creativity suggests that curricula should incorporate open-ended problem-solving tasks to foster innovative

thinking among future nurses (Moghadam et al., 2024). Educational institutions should prioritize faculty development to support these pedagogical shifts, ensuring educators are equipped to facilitate experiential, caring-based learning environments.

Strengths and Limitations of the Review

This systematic review adhered to the PRISMA 2020 guidelines, ensuring a transparent and rigorous selection process that screened over 250,000 records to identify high-quality evidence (Figure 1). The inclusion of various study designs, assessed using the Mixed Methods Appraisal Tool (MMAT), allowed for a comprehensive understanding of the phenomena. However, several limitations must be acknowledged. First, there is a geographical imbalance in the literature. At the same time, the review focused on implications for Indonesia; most included studies were conducted in Asia and the Middle East, with only one study directly addressing the Indonesian context (Noviani et al., 2023). Second, the heterogeneity of interventions and measurement instruments across the 11 studies limited the ability to perform a meta-analysis, necessitating a narrative synthesis. Finally, the publication timeframe (2022-2026) ensures currency but may exclude foundational studies on caring pedagogy published prior to 2022.

CONCLUSION

This review provides robust evidence that transforming nursing education through caring pedagogy and experiential learning approaches significantly enhances nursing competence, professionalism, and specific clinical skills. The convergence of findings from randomized controlled trials and quasi-experimental studies supports the adoption of simulation, PBL, and role-play as standard pedagogical tools. Future research should prioritize conducting high-quality experimental studies within Indonesia to validate these global findings locally and address the current scarcity of domestic literature. Additionally, longitudinal studies are recommended to assess the long-term impact of these pedagogical interventions on actual patient care outcomes and nurse retention rates. By embracing these innovative teaching strategies, nursing education can better prepare graduates to meet the complex demands of contemporary healthcare with competence and compassion.

ACKNOWLEDGMENT

We also acknowledge the peer reviewers and colleagues who offered insightful comments on the manuscript. Appreciation is extended to both institutions that supported access to full-text databases and reference management software.

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