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Exploring Clinical Competence Among Nursing Students: A Narrative Review

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Abstract

Clinical Competence includes knowledge, hand and technical skills, critical thinking, decision-making, and attitudes required for providing safe and effective patient care. This review aims to explore information on clinical competencies among nursing students. Fifteen (15) full-text articles for this review were selected from openly accessed through ScienceDirect (3), ResearchGate (7), PubMed Central (2), CINAHL (1), and Google Scholar (2). Among them, 11 articles were published within the last five years while 3 were published in 2019 and one was published in 2018. Nursing education faces significant challenges, including inadequate clinical supervision, a lack of resources and facilities in clinical areas, and insufficient clinical guidelines. To address these issues and produce competent graduates, a multi-faceted approach is essential. This strategy must integrate innovative pedagogies like simulation, case-based learning and evidence-based nursing to develop clinical skills and critical thinking. Furthermore, the clinical learning environment requires improvement through better resources, positive staff attitudes, and formalised supervision. Finally, these efforts must be supported by a curriculum that embeds competencies to develop clinical competence among nursing students.

Keywords: Nursing students; Clinical competence; Theoretical knowledge; Simulation-based learning; Case-based learning; Clinical supervision

Introduction

Clinical competence refers to the ability to integrate cognitive domain which includes knowledge and reasoning, affective domain which includes attitudes and values and psychomotor domain includes clinical skills in real clinical settings, such that a nurse can demonstrate mastery of knowledge, skills, and attitudes to make informed decisions and execute appropriate interventions for quality patient care (Castillo-Ramírez et al., 2024; Amsalu et al., 2020). It is evident that adequate knowledge is a guiding tool to improve clinical competence (Amsalu et al., 2020). Amsalu et al. (2020) further point out that academic performance relevant to theoretical knowledge correlates with clinical competence. Knowledge together with critical thinking is significant and applied to solve patients' problems and make decisions with creativity to enhance the quality of nursing care which is an essential process for a safe, efficient and skilful nursing intervention (Silva et al., 2023). Attitudes in nursing competence which refer to the set of emotional components include values such as empathy, responsibility, professionalism, ethical commitment, respect for patients, safety awareness, accountability, self-confidence, readiness to learn, interaction skills, and emotional resilience are essential during the delivery of nursing care (Castillo-Ramírez et al., 2024; Amsalu et al., 2020). Clinical skills, primarily hand skills within the psychomotor domain, must be integrated with

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theoretical knowledge and attitudes to develop nursing competence (Amsalu et al., 2020; Castillo-Ramírez et al., 2024; Zieber & Sedgewick, 2018). Simulation-based learning enhances skills, knowledge, and reflective attitudes (Nair et al., 2024; Ha, 2020; Murn, 2019), while case-based learning (CBL) strengthens critical thinking and problem-solving abilities (Rezaee et al., 2022; Raza et al., 2019). Moreover, clinical supervision and teaching support the integration of knowledge, skills, and attitudes within safe and effective clinical practice (Butterworth, 2022; Silva et al., 2023; Alammar et al., 2020; Amarasekara et al., 2023)

With the rapid evolution of healthcare demands, nursing education globally has been challenged to adopt advanced teaching methodologies, such as simulation-based learning, case-based learning, and structured supervision, to enhance critical thinking, problem-solving, and ethical decision-making (Zieber & Sedgewick, 2018; Castillo-Ramírez et al., 2024). These approaches are particularly important as evidence indicates that while knowledge acquisition is fundamental, the development of professional attitudes, reflective practice, and practical competence requires structured guidance and experiential learning opportunities (Silva et al., 2023). Therefore, exploring current evidence on strategies that strengthen clinical competence among nursing students is essential in nursing education.

Materials and Methods

This is a literature review which focuses on clinical competencies among nursing students. Fifteen (15) articles for this review were selected from openly accessed databases. Full-text peer-reviewed articles used for this review were selected from ScienceDirect (3), ResearchGate (7), PubMed Central (2), CINAHL (1), and Google Scholar (1) databases and EMAP website (1). Among them, 11 articles were published within the last five years while 3 were published in 2019 and one was published in 2018. Research designs of the studies used for the review include 05 cross-sectional studies, 01 qualitative study, 06 Pre-test post-test experimental studies, 02 mixed method research and 01 descriptive explanatory conceptual discussion. This review aims to explore information on clinical competence among nursing students. As inclusion criteria, articles written in English medium were chosen for the review. The key words: nursing students, clinical competence, theoretical knowledge, simulation-based learning, case-based learning and clinical supervision were used for this review.

Table 1. *Summary of the literature review*

Author(s) & Year	Country	Study Design & Sample	Focus / Intervention	Key Findings & Conclusions
Zieber & Sedgewick (2018)	Canada	Mixed methods; 204 nursing students	One-day advanced cardiac skills and simulation training	Significant long-term improvement in knowledge, confidence, and competence ($p = 0.007$). Advanced simulation-based learning enhances retention and self-efficacy.
Murn (2019)	United States	Pretest–posttest; 33 perinatal nurses	Continuous Labor Support (CLS) educational intervention	Significant knowledge gain ($p = .001$). Intervention improved competence and evidence-based clinical practice.
Nemati-Vakilabad et al. (2023)	Iran	Cross-sectional; 246 nursing students	Factors affecting critical thinking ability	63% showed low and 37% moderate critical thinking. Predictors explained 19.3% variance ($p < 0.001$). Curricula should prioritize critical thinking development.
Pingue-Raguini et al. (2020)	Saudi Arabia	Descriptive cross-sectional; 142 students	Satisfaction with simulation (debriefing, reasoning, reflection)	High satisfaction ($M = 3.81$), highest in clinical learning ($M = 3.86$). Simulation promotes reasoning and reflective learning.

Castillo-Ramírez et al. (2024)	Mexico	Quasi-experimental; 38 students (intervention/ control)	Clinical simulation for labour management competency	Intervention group showed significant improvement ($p < 0.001$). Simulation is effective for competence enhancement.
Nair, Muthu, & Abuijlan (2024)	United Arab Emirates	Quasi-experimental; 65 second-year nursing students	High-Fidelity Simulation (HFS)	52.3% achieved higher competence; strong correlation with academic performance. HFS improves readiness, confidence, and competence.
Raza, Qazi, & Umer (2019)	Pakistan	Quantitative cross-sectional; 400 students	Case-Based Learning (CBL) and student engagement	CBL enhanced engagement, learning motivation, and performance. Should be incorporated into nursing curricula.
Rezaee et al. (2022)	Iran	Pre–post design; 128 nursing students	Case-Based e-Learning (CBEL) in nutrition course	Improved academic performance ($p < 0.001$) though problem-solving confidence decreased. CBEL strengthens problem-solving and academic ability.
Ha (2019)	South Korea	Quasi-experimental; 69 nursing students	Peer-led written vs. observed debriefing after CBL simulation	Both debriefing methods improved competence; observed debriefing improved communication ($p = .047$). Effective for autonomy and self-evaluation.
Amarasekara et al. (2023)	Sri Lanka	Mixed-methods; 78 nursing students	Clinical placement experiences and supervision	Mixed satisfaction; concerns about resources, guidance, and facilities. Improved supervision and resources essential for competence development.
Doğan & Göçmen Baykara (2024)	Turkey	Mixed-methods; 95 third-year students	Theory-based video and case analysis education	Improved ethical attitudes and caring behaviors ($p < 0.05$). Theory integration enhances motivation and ethical competence.
Amsalu et al. (2020)	Ethiopia	Cross-sectional; 105 nursing students	Clinical practice competence assessment	Competence inadequate; anxiety and stress caused errors. Collaboration between academics and clinicians needed to improve competence.
Alammar et al. (2020)	Saudi Arabia	Cross-sectional; 90 nursing students	Clinical learning environment and supervision	High satisfaction; poor teacher-student communication and supervision noted. Enhanced communication improves supervision quality.
Butterworth (2022)	United Kingdom	Descriptive-explanatory; literature-based	Clinical supervision formats and benefits	Clarified supervisory purposes and roles. Role clarity improves learning and practice confidence.

Results

Innovative and Advanced teaching methodologies used in nursing education

Zieber and Sedgewick (2018) conducted a mixed-methods study in Canada with 204 nursing students to examine the impact of a one-day advanced cardiac skills and simulation intervention on competence, confidence, and knowledge. Using a three-test design (pretest, immediate post-test, and three-month post-test), the study found significant long-term knowledge retention and increases in confidence and competence, as evidenced by the results from pre-test to the three-month post-test ($F (1.31, 24.81) = 7.55$, $p = 0.007$). The findings confirmed that advanced skill-based learning is highly valuable for long-term knowledge retention and enhances student confidence and competence (Zieber & Sedgewick, 2018).

Murn (2019) conducted a pretest–post-test study in the United States to evaluate nurses' knowledge and practices after the intervention of continuous labour support (CLS) to enhance perinatal nurses' knowledge

and clinical practice with 33 perinatal nurses selected through convenience sampling. Findings showed a significant increase in knowledge scores ($p = .001$) following the program. The study concluded that nurses' knowledge and clinical practice skills, empowering them to provide more effective, evidence-based CLS and thereby improve the overall quality of maternity care following the targeted educational intervention for developing competence.

A cross-sectional study by Nemati-Vakilabad et al. (2023) in Iran with 246 nursing students identified factors affecting critical thinking ability. The students demonstrated low (63%) or moderate (37%) levels, with the lowest scores in the technical domain. Regression analysis identified predictors explaining 19.3% of the variance ($F = 9.396$, $p < 0.001$). The study concluded that critical thinking abilities were inadequate and recommended prioritizing their development in nursing curricula to improve safe and effective care in clinical environments (Nemati-Vakilabad et al., 2023).

Pingue-Raguini et al. (2020) carried out a descriptive cross-sectional study in the Kingdom of Saudi Arabia with the aim of evaluating satisfaction with nursing skills demonstrations focusing on debriefing and reflection, clinical reasoning, and clinical learning among undergraduate nursing students. Satisfaction with Simulation Experience Scale (SSES) was completed by 142 students who had engaged in skills laboratory demonstrations. Overall satisfaction level was high (Mean = 3.81), with a higher rating (Mean = 3.86; $\chi^2 = 93.285$) in clinical learning, (Mean = 3.80; $\chi^2 = 77.632$) in clinical reasoning, and (Mean = 3.77; $\chi^2 = 90.796$) in debriefing and reflection. The study concluded that nursing students greatly valued the skills demonstrations with higher satisfaction regarding their contributions to clinical reasoning.

A quasi-experimental study by Castillo-Ramírez et al. (2024) evaluated the effect of clinical simulation on nursing students' competency in labour management. Involving 38 students divided into intervention and control groups, the study used the ClinSimCAT tool for assessment. Results showed the intervention group significantly improved their competence, with significant pretest post-test differences ($p < 0.001$) and significant differences between groups ($t = 7.598$, $p < 0.0001$). The study concluded clinical simulation is an effective strategy for enhancing nursing competencies (Castillo-Ramírez et al., 2024).

A quasi-experimental study by Nair, Muthu, and Abuijlan (2024) evaluated the effectiveness of high-fidelity simulation (HFS) in developing clinical competence among 65 second-year nursing students. Using demographic forms, OSCE scales, and academic scores, the study found that HFS significantly improved competence to a higher level in 52.3% of students and revealed a positive correlation between academic performance and clinical competence. The authors concluded that high-fidelity simulation is highly effective for preparing nursing students for clinical placements, as it enhances both competence and confidence (Nair, Muthu, & Abuijlan, 2024).

A quantitative, cross-sectional survey which was conducted by Raza, Qazi, and Umer (2019) in Pakistan examined the impact of case-based learning (CBL) on learning, motivation, performance and university students' engagement. Further the relationship between behavioural, emotional, cognitive and agentic dimensions and performance was also studied from 400 undergraduate, graduate, and postgraduate students across various programs. The study highlights the importance of incorporating CBL into curricula of nursing education programmes to enhance student engagement and learning.

A pre- and post-test study by Rezaee et al. (2022) evaluated the effectiveness of case-based e-learning (CBEL) for 128 nursing students in a nutrition course. The results demonstrated that while academic performance improved significantly ($p < 0.001$), scores on the problem-solving inventory for problem-solving confidence, approach-avoidance style, and personal control decreased significantly ($p < 0.001$). The study concluded that CBEL positively impacts academic performance and supports students' capacity to address learning problems, thereby preparing them for future clinical challenges (Rezaee et al., 2022).

A quasi-experimental study by Ha (2019) with 69 nursing students compared two peer-led debriefing methods following case-based learning simulation. Results showed both written (PLWD) and observed debriefing (PLOD) significantly improved clinical competency. However, the PLOD group demonstrated

statistically superior enhancement in communication skills (t = -2.150, p = .047). The findings indicate that both methods are effective, observed debriefing provides additional benefits for communication skills development. Furthermore, case-based learning enhances self-evaluation, autonomy, and student motivation (Ha, 2019).

Clinical training environment and clinical supervision

A mixed method study which was conducted by Amarasekara et al. (2023) in Sri Lanka, revealed that nursing students were concerned that they have sufficient clinical appointments and had positive experiences in clinical placements at certain hospitals while they have been dissatisfied with some of the hospital facilities, the availability of equipment, and the guidance from the nurses. Further, participants have experienced transportation problems, a lack of facilities in changing rooms, and meal facilities. Participants were concerned about the requirement of adequate clinical supervision, providing clearer learning objectives, and procedure guidelines for clinical placements. The study suggests that enhancing clinical experience requires adequate resources, developing positive attitudes among students, and improving support and supervision by academics and clinical practitioners must be addressed. Further, the study recommended providing adequate physical and human resources, raising awareness among staff nurses to support students, and developing strategies to improve their clinical competence.

Doğan and Göçmen Baykara (2024) investigated the impact of education based mixed-methods design with 95 third-year nursing students in Turkey. Two groups received theoretical education, followed by either video-supported training or case analysis. Findings showed significantly enhanced ethical attitudes and caring behaviors after the intervention ($p < 0.05$), with a positive, moderate relationship identified between the two. Students also reported increased satisfaction, motivation and caring ethical behaviours reporting the effectiveness of both case analysis and video-supported learning. The study suggested that incorporating of an appropriate theory such as "Theory of Human Caring" into nursing curricula may be useful to strengthen ethical care attitudes and behaviours.

In the cross-sectional study conducted having a total number of 105 nursing students by Amsalu et al. (2020), it was identified that the competence of clinical practice among nursing students was inadequate for providing safe, quality and effective nursing care. participated in the study. Meeting the patients' holistic needs was unsuccessful while creating anxiety, stress and fear among students that cause unwanted errors by them at clinical settings. The study concluded that nursing students' clinical competence was inadequate so that there was a problem of quality, safety and satisfying nursing care causing potential errors and unmet patient needs in clinical settings. Further Amsalu et al. (2020) recommended that nursing academics from the schools and nursing professionals from teaching hospitals should work together to uplift clinical practice competence among nursing students.

Alammar et al. (2020) conducted a cross-sectional study with 90 nursing undergraduates nursing students' perception of the clinical learning environment. Study found that overall, student satisfaction was high, while the leadership style of the ward manager was highly attractive and type of supervision and frequent teacher visits and academic performance have successfully impacted students' perceptions (Alammar et al., 2020). Further Alammar et al., (2020) found that nursing teacher's role in clinical supervision has not been effective with lower mean score and suggested that better communication between the teacher and the student is required for the enhancement of clinical learning. It is increasingly evident that there is a need for formalised support from nurses' even in the busy practice setting for nursing students to improve the quality of clinical supervision in healthcare (Alammar et al., 2020).

Butterworth (2022) provided a descriptive and explanatory study aiming to clarify purposes and benefits, and to discuss the different formats of clinical supervision which can be delivered in nursing practice. During regular supervisory sessions, students used to meet knowledge and practice their competencies under supervisor's constructive criticism to confirm their methods of practicing and clear doubts and is an opportunity to share knowledge and experience on clinical practice (Butterworth, 2022). Meanwhile

Butterworth (2022) suggest that clinical supervisors should know how to define their roles and responsibility, while the nursing student, the supervisee, should also be able to define their roles and responsibilities in the practice during clinical supervisory sessions although clinical schedules may vary in different nursing programmes, but nursing students need to be aware of the schedule of clinical supervision.

Silva et al. (2023) conducted a qualitative study in a nursing programme in Portugal to identify the perception of students on supervisory strategies for development of their critical thinking skills in clinical teaching with 8 students by using focus group discussion. Students were concerned that there were no enough supervisory strategies used to develop their critical thinking abilities and highlighted that there was a need to establish clinical supervision strategies to promote critical thinking for the development of skills, good clinical judgment, problem solving abilities, and safe, effective, and ethical decision-making skills.

Discussion and Conclusion

The synthesis of recent research reveals three interconnected pillars essential for developing clinically competent and confident nursing graduates: the effective use of innovative pedagogies, critical importance of a supportive clinical environment, and the strategic development of competencies development through curriculum and policy.

Theme 1: The Efficacy of Active and Innovating Learning in Bridging the Theory-Practice Gap

A dominant finding across the literature is the superior effectiveness of active, experiential learning methods over traditional, passive approaches in developing clinical competence and cognitive skills. Simulation-based education, in its various forms, has proven particularly impactful. For instance, Castillo-Ramírez et al. (2024) and Nair, Muthu, and Abuijlan (2024) demonstrated that clinical simulation and high-fidelity simulation (HFS) led to significant improvements in clinical competency, with the latter also noting a positive correlation with academic performance. These simulated environments provide a risk-free space for students to practice complex skills, such as labour management, thereby building confidence before entering real clinical settings. The value of these methods is further underscored by high student satisfaction, particularly regarding their contribution to clinical reasoning and learning (Pingue Raguini et al., 2020). The benefits of such immersive learning extend beyond immediate skill acquisition to long-term knowledge retention. Zieber and Sedgewick (2018) found that an advanced cardiac skills simulation intervention resulted in significant knowledge retention and increased confidence even three months post-intervention. Similarly, Case-Based Learning (CBL) and its digital extensions foster deeper engagement and problem-solving abilities. Raza, Qazi, and Umer (2019) highlighted CBL's positive impact on motivation and performance, while Rezaee et al. (2022) found that case-based e-learning (CBEL) significantly improved academic performance and students' capacity to address learning problems. The integration of peer-led debriefing with CBL, as explored by Ha (2019), further enhances clinical performance and communication skills, promoting self-evaluation and autonomy among students.

Theme 2: The Clinical Learning Environment as a Determinant of Competence

While innovative teaching prepares students theoretically, the clinical placement remains the crucible where competence is forged. Alarmingly, the evidence consistently identifies the clinical learning environment as a significant barrier to student development. Studies from Turkey, Sri Lanka, and Ethiopia describe environments characterized by inadequate resources, negative attitudes from nursing staff, and insufficient supervision (Akyüz & Ergöl, 2022; Amarasekara et al., 2023; Fetene et al., 2023). Akyüz & Ergöl (2022) reported that 67.5% of negative challenges were directly linked to the attitudes and behaviours of nurses, creating a demotivating and often hostile atmosphere. The consequence of such environments is a direct impairment of clinical competence. Amsalu et al. (2020) and Getie et al. (2021) directly link poor

supervision and unsupportive staff-student relationships to low competence levels. Students who lack clear orientation, mentoring, and permission to perform tasks are unable to practice and refine their skills, leading to anxiety and potential errors. Tran (2019) emphasizes that without a student-centred approach and clear guidance in clinical settings, the gap between school and practice widens. Effective clinical supervision is therefore not a luxury but a necessity. Butterworth (2022) advocates for formalised, regular supervisory sessions to provide constructive feedback, while Alammar et al. (2020) and Silva et al. (2023) call for more effective communication from clinical teachers and the implementation of supervisory strategies explicitly designed to develop critical thinking and clinical judgment.

Theme 3: Curricular Integration into development of Clinical Competence

The challenges and solutions identified in the first two themes culminate in the necessity for deliberate curriculum development and supportive policy. A modern nursing curriculum must be a dynamic framework that intentionally integrates the development of essential soft skills, critical thinking, and ethical comportment. The work of Azzouzi and Gantare (2024) provides a clear model, showing that integrating active learning strategies focused on communication, teamwork, and stress management directly into curriculum modules leads to significant skill improvement. This aligns with the identified need to prioritize critical thinking as a central learning objective, given its current inadequacy among students (Nemati-Vakilabad et al., 2023). Furthermore, the curriculum should be designed to foster professional values. Doğan and Göçmen Baykara (2024) demonstrated that incorporating a theoretical framework like the "Theory of Human Caring" through video-supported training or case analysis can significantly strengthen students' ethical attitudes and caring behaviours. Ultimately, these curricular advancements require enabling policies. This collaboration is vital to ensure that the clinical environments, which are integral to the curriculum, are conducive to learning and that academic and clinical staff work in unison to develop student competence, as recommended by Amsalu et al. (2020).

Conclusion and Recommendations

In conclusion, the reviewed studies collectively affirm that advancing nursing education requires an integrated approach that combines innovative pedagogies, supportive clinical environments, and structured supervision aligned with curricular frameworks. Active and simulation-based learning methods, case-based learning, peer-led debriefing and evidence-based consistently enhance competence, confidence, and knowledge retention, while clinical placements remain pivotal in translating theory into practice. However, inadequate resources, negative staff attitudes, and insufficient supervision continue to hinder the development of safe, competent practitioners. To bridge these gaps, nursing curricula must deliberately embed critical thinking, ethical values, professional skills and evidence-based practice alongside technical competence, supported by enabling institutional and policy frameworks. It is therefore recommended that nursing education programmes adopt blended pedagogical models, strengthen supervision strategies, and foster collaborative partnerships between academia and clinical institutions to ensure well-resourced learning environments that produce clinically competent, confident, and ethically grounded graduates.

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