



EVIDENCE ON PEER LEARNING IN CLINICAL NURSING EDUCATION IN AN UNDERGRADUATE NURSING PROGRAMME: A SCOPING REVIEW

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ABSTRACT: This study aimed at mapping current evidence on peer learning in clinical education and exploring teaching models that integrate theory into practical skills in undergraduate nursing education. A five-step scoping review was conducted, guided by the PICOS framework. The researchers searched databases, including Ebscohost, SAE publications, CINAHL, Wiley Online, and Google Scholar, for relevant studies published between 2013 and 2020. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework was used to identify eligible articles, focusing on clinical nursing education and peer learning. Seven key themes emerged: mentor/preceptorship, supervision, training, consultation, partnership, model development, and feedback. **Conclusion:** The findings addressed knowledge gaps and are expected to inform policy-making and the design of programs that promote peer learning and improve the integration of theoretical knowledge into clinical practice.

KEYWORDS: Clinical nursing education, peer-learning and student nurses.



BACKGROUND

Approximately half of undergraduate nursing curricula involves clinical training (Jamshidi *et al.*, 2016; Warne *et al.*, 2010). This clinical coursework includes advanced studies in human behavior, social environments, and social justice, along with policy, psychopathology, diversity issues, research, and clinical practice. Clinical practicums emphasize diagnosis, prevention, and treatment for individuals, families, and groups (Jamshidi *et al.*, 2016). This review aims to map the current evidence on peer learning in clinical education and to explore how peer learning integrates theory into practical skills in undergraduate nursing education, using contextually appropriate models. The review includes a background, methodology, and summary.

Nursing, as a practice-based profession, requires educators to spend significant time interacting with patients, creating a supportive supervisory dynamic in both classroom and clinical settings. Consequently, nursing students are expected to apply theoretical knowledge and research to clinical practice (Ewertsson *et al.*, 2015; Itson & Harvey, 2016; Günay & Kılınç, 2018; Tommasini *et al.*, 2017). Clinical placements allow students to develop nursing skills, competencies, and clinical reasoning (Günay & Kılınç, 2018; O'Connor, 2014). Students are also expected to observe and assimilate the professional role, although this has not consistently occurred over the past decade (Cheraghi, Salasli & Ahmadi, 2007; O'Connor, 2014).

A study in Europe, focused on developing an assessment tool for nursing students' clinical practice, highlighted ongoing challenges in integrating theory and practice, particularly due to a lack of clinical skills (Ulfvarson & Oxelmark, 2012; Higginson, 2004). The study noted that clinical learning environments (CLEs) have become increasingly busy due to advanced medical technology and shorter patient stays, which, combined with an increased number of nursing students, has made it difficult to provide adequate clinical practice time (Ulfvarson & Oxelmark, 2012). This has led to calls for innovative learning methods to improve clinical environments for nursing students. Conducting a systematic review on peer learning and its influencing factors is crucial to understanding the current evidence in this area.

A study by Anderson and Edberg (2012) in Sweden found that nursing educators' involvement in clinical practice has decreased, leaving clinical staff to supervise students despite shortages and high workloads. This has exposed students to poor role models, negatively affecting their learning and shaping unfavorable attitudes toward nursing (Chipwaza *et al.*, 2019). Peer learning has emerged as a potential solution, offering a collaborative way for students to support each other in the learning process, helping to align theory with practice (Zi & Fitzpatrick, 2016; Topping & Ehly, 1998). Topping and Ehly (1998) describe peer learning as an interaction where peers support each other to achieve learning goals, improving skills such as health promotion and cultural competence. To address the challenges in clinical education, efforts have been made to improve curricula and clinical learning environments (Klopper & Uys, 2012). Innovations such as high-fidelity simulations (Mannix, Wilkes & Luck, 2009; Partin, Payne & Slemmons, 2011; Kunst, Mitchell & Johnston, 2017) and the use of preceptors (Pilhammar, 2009) have been introduced. Nurse educators have also employed new strategies to connect theory with practice, such as didactic teaching, problem-solving approaches, teamwork, and communication-focused methods (Kim, 2017; O'Connor, 2014; Benner, Tanner & Chesla, 2009). However, despite these strategies, teaching methods are rarely evaluated for their effectiveness, and student satisfaction is not consistently assessed.



Peer learning, though relatively new in nursing education, has been shown to be a supportive and cost-effective technique (Zi & Fitzpatrick, 2016). Research has documented positive outcomes from peer learning in various healthcare disciplines across multiple countries, including the United Kingdom, United States, Canada, South Africa, and Australia (Secomb, 2008). Peer learning has been demonstrated to improve reflective skills and bridge the gap between theory and practice, enhancing nursing skills like communication, self-confidence, and competence (Deghan *et al.*, 2013; Burgess *et al.*, 2018).

This study seeks to map the evidence and characteristics that influence peer learning in undergraduate clinical nursing education. Influential factors that enhance peer learning include observing practice, focusing attention, providing feedback, and allowing self-controlled practice (Wulf, Charles & Lewthwaite, 2010). Mapping these influential factors will provide a comprehensive overview of peer learning's role in nursing education and help improve clinical learning environments for nursing students.

This scoping study documented the use of peer learning as a tool for educational outcomes in nursing, guiding future research on developing reflective skills for clinical practice (Boud, Cohen, & Sampson, 2014; Topping, 2017). It also evaluated a teaching model that influenced peer learning in undergraduate nursing, connecting theory to clinical practice (Hoist *et al.*, 2017) and identifying relevant studies on peer learning

Significance of Review

The review is crucial due to the impact of clinical nursing education on nurse practice and patient outcomes. This evaluation assesses student nurses' skills for future practice (Cheng *et al.*, 2014; Kumm *et al.*, 2016), helps reduce nurse attrition, medical errors (Tshiamo *et al.*, 2015), and improves student preparedness for nursing practice. Hatlevik (2012) suggests that as student nurses develop reflective abilities and integrate theory into practice, care practices improve. Mapping current evidence on the theory-practice relationship, along with identifying obstacles in undergraduate nursing curricula, is necessary. This is relevant to nursing faculty, clinicians, instructors, and researchers to identify gaps for further study.

METHODOLOGY

Methodology involves specific techniques adopted in the research process to collect, assemble and evaluate data (Creswell & Creswell, 2017). In this review, a five-step qualitative scoping review was used to achieve the purpose of the study, which was to explore and map “evidence of peer learning and integration of theory – practice in clinical nursing education in an undergraduate Nursing program”. This review method was selected because the method's quality facilitated the mapping of new concepts, types of evidence and gaps related to the question Colquhoun (2014) as well as to improve Nursing practices. Also, not much is written about the issue at stake. The framework of Centre for Reviews and Dissemination (CRD, 2017) guided the study as a result of its relevance and effectiveness in review outcome.

The framework involves the following step:

- (i) Identification of the research question
- (ii) Identification of relevant studies



- (iii) Study selection
- (iv) Charting the data, and
- (v) Collating, Summarizing and Reporting results.

Step 1. Identify the Research Question

The research question was to map evidence on integration of peer – learning into an undergraduate clinical nursing education.

The sub research questions are as follows:

1. What evidence/strategies would develop reflective skills through the use of peer – learning in undergraduate clinical nursing education?
2. What contextually appropriate clinical teaching model would influence the use of peer - learning in undergraduate nursing education?

The study will use Population, Intervention, Context, and Outcomes (PICO) framework to determine the eligibility of research question as illustrated in Table 1 below:

Table 1– PICOS (Population, Intervention, Context, Outcomes, and Study design) framework.

Population	Undergraduate Healthcare professional students
Intervention	Any educational strategy to support students' use of evidence in clinical education, such as Innovative teaching methods by Nursing faculty, clinical instructors, clinical practitioners, preceptors and Registered nurses
Outcomes	Effects on student learning as either: a) Changes in the knowledge, skills, attitudes or behaviors of students as a result of the use of an intervention of peer - learning for integration of theory into practice, or b) Changes in the perceptions or behavior of tutors, CIs, CPs, and RNs that may influence directly or indirectly the effectiveness of student learning when peer – learning is employed.
Study design	All types of study designs would be included; quantitative, qualitative, mixed method studies, and systematic reviews.

Participants: The term ‘undergraduate’ was interpreted in terms of ‘initial training’ inside a higher education setting or professional healthcare facility. For nursing undergraduates or students, beginning training up to first degree level was provided (including post registration first degree courses). Articles referring to strictly academic undergraduate courses known as bachelor in some Countries and are known as first training in other countries were included. Other participants are stakeholders such as Nurse Faculties, Clinical Instructors, Nurse Clinicians, and Registered Nurses or Preceptors depending on what is applicable in the Country



in question. In some countries, Registered nurses or preceptors aid with training the student nurses in the clinical settings, hence are included.

Intervention: Peer – learning an educational strategy to enhance students’ learning in clinical education, as Innovative teaching methods utilized by Nurse Faculty, clinical instructors, clinical practitioners, preceptors and Registered nurses.

Outcome measures: For our review, reviewers interpreted effects on student learning as either:
a) Change in the knowledge, abilities, attitudes or behaviors of students as a result of the use of peer – learning for integration of theory into practice, or.
b) Change in the perceptions or behavior of tutors, CIs, CPs, and RNs that may influence the employment of peer-learning in integration of theory into practice.

Step 2. Identify relevant studies

Literarily, this is the act of picking possibly relevant items needed for examination. This review developed a clear process which includes the databases used, search process, eligibility criteria to ascertain included studies that have the specific information needed to answer the review question and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow chart PRISMA allowed for consistency and gave a summary of reported outcomes.

Primary qualitative, quantitative and mixed methods studies published in peer - reviewed journals, in addition to examining their reference lists for relevant publications to include in the review, as well as hand searches and gray literature that addressed the study issue were included.

An electronic search was done out on pertinent databases in MEDLINE/PubMed, Sabinet and CINAHA. Others were EBSCO and gray literature from World Health Organization (WHO), UNICEF websites were reviewed for data on clinical education on theory – practice integration in undergraduate nursing programmes.

The Authors employed Boolean terms (OR) to separate the keywords. MeSH (Medical Subject Headings) terms were also included during the search. The keyword search results were uploaded to the endnote library and duplicates were deleted. Selected studies were screened using the qualifying criteria. The research search strategy employing the study keywords was piloted to determine the potential of performing this study and the results obtained are displayed in Table 2

Eligibility Criteria

The development of eligibility criteria was ensured that the selected studies contain relevant information to answer this review question as follows:

Inclusion Criteria

Eligible studies fulfilled the following inclusion criteria:

1. Studies that reported on the use of peer – learning and professional skills outcome on undergraduate students in clinical nursing education regardless of geographical location the study emanated from.



2. Studies that reported on contextually appropriate models/strategies to integrate peer – learning in undergraduate clinical nursing education programs.
3. No restriction on study designs. Quantitative, qualitative, and systematic reviews that meet search strategies and written in the English language were included.
4. Eligible studies conducted between 1st January 20th to 30th December 2020 were included to allow studies with recent practices and to obtain the current studies using the search terms “Peer-learning Clinical-nursing education and Student nurses”. All included studies were written in the English language.

Exclusion Criteria:

The systematic study excludes:

Studies that never reported evidence on peer learning integration or outcome makers in undergraduate clinical education or studies not reported on contextually appropriate models to integrate peer – learning into practice in undergraduate clinical education programs.

Again, studies conducted before 1st January, 2013 to 31st December, 2020. The exclusion criteria applied to weed off wrong and obsolete evidence. The lead investigator conducted an all-inclusive search and screened the study titles and abstracts from the specified databases. Independent reviewers examined all entire articles of the included studies for eligibility. The KLOP framework was used to address inconsistencies. The search tactics were piloted to assess the applicability of the specified databases and search phrases. One reviewer shared her Endnote library with the second reviewer to do all searches. The two reviewers jointly completed an all-inclusive title screening utilizing the eligible criteria. Reviewers exported all eligible studies to Endnote X7 reference management software and duplicated studies eliminated with the assistance of EndNote X7 program. See Table 2 below for demonstration of the record of electronic data search.

Record of Electronic Data Searched

Keyword Search	Search Engine Used	Number of Publications Retrieved
Clinical nursing education, peer-learning, Student nurses	Medline/PubMed	976- 2 were eligible, 1 was more eligible, more were abstracts
	CINAHL	255-35 out of that 10- was within the date
	EBSCOHST	1729
	Science Direct	30. 10 was accepted, but has only abstract-.
	Sabinet	20
	Gray literature: WHO/UNICEF	758
	Wiley Online Library	25
	Google Scholar	1,635=Cross reference-28, 8non-english Total=5,428

The University library services to support the search strategy were utilized, accessing full articles not available in the listed databases. Screening results will be presented using an adjusted Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) chart (see Figure 1 below).

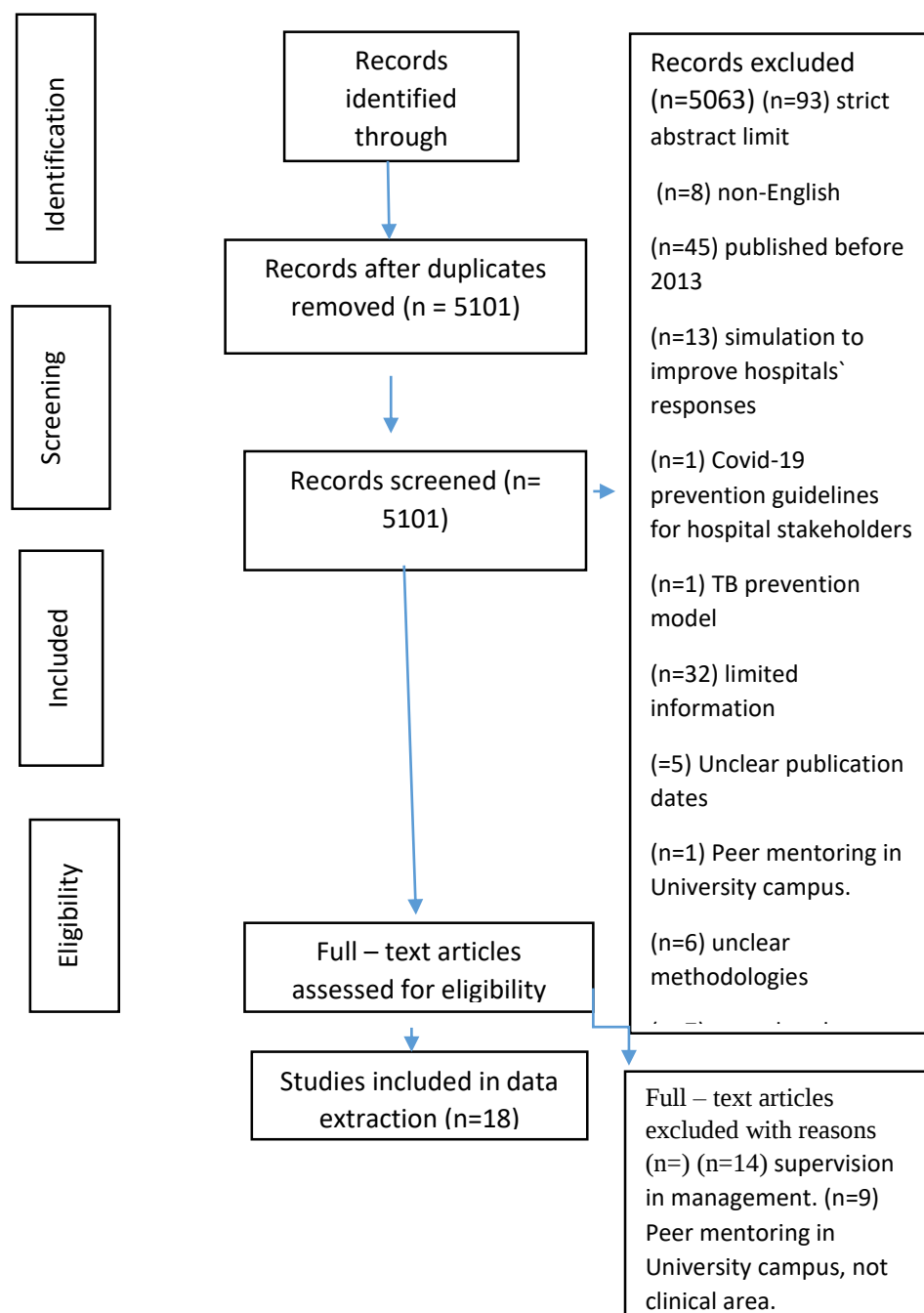


Figure1: PRISMA flow chart demonstrating literature search and selection of studies (University of York, Center for Research and Dissemination, 2009).



From the search, a total of $n=5,428$ results were retrieved. Screening of these articles was conducted in consecutive phases. Out of 5,428 initial search results, titles were screened, and duplicates removed, reducing articles to 5,101. Of these, 5,063 were excluded for reasons including abstract limitations ($n=93$), non-English language ($n=8$), publication before 2013 ($n=45$), and lack of relevance or detail. This left 4,850 articles ineligible, with only 32 retained. In the second screening, full-text assessment of these 32 articles found 14 unrelated to student nurses' peer learning in clinical nursing. Ultimately, 18 articles met eligibility criteria and were evaluated for quality based on methodology and findings.

Step 3. Study Selection (critical appraisal)

Appraisal is a systematic evaluation of quality, successes, or failures (Samuel & Hoffmann, 2016; Webel *et al.*, 2010). This review utilized the Johns Hopkins Nursing Evidence-Based Practice (JHNEBP) checklist version 21, which assesses various nursing research methods. The JHNEBP is particularly effective for appraising common study methodologies, including experimental, observational, and simulation designs in nursing (Newhouse *et al.*, 2007). It evaluates the methodological quality across three domains: mixed methods, qualitative, and quantitative (the latter further divided into randomized, nonrandomized, and descriptive). Each study's quality was assessed according to the appropriate methodological domain, focusing on aspects such as author identity, study design, data collection, analysis, and conclusions. The JHNEBP guidelines provided a scoring system ranging from low to high quality. For qualitative studies, the overall quality score reflected the weakest component. Three reviewers conducted the quality appraisal of the selected studies.

Step 4. Data Charting or conducting evidence summary

In the fourth phase, the researcher used various variables to address the questions in Table 2, including article author and title, design, sample, conclusions, and evidence quality in JHNEBP. Reviewers developed and updated a data charting form. They extracted studies on peer learning and clinical nursing education, validating the data extraction tool with a second reviewer for the initial two studies.

Table 2: Evidence Table of Studies Included for Appraisal. Source: Wankasi *et al.*, (2020) concept.

Authors	Titles	Design/ sample	Findings- (evidence of peer learning and contextually appropriate model)	Rigor & quality of evidence
Jamshidi, <i>et al</i> 2016	The Challenges of Nursing Students in the Clinical Learning Environment:	Individual interviews Sample $n=20$ participants purposive sampling	Findings: there was evidence of peer learning. Strategies were face-to face and group interview sessions.	Qualitative study. The study used an appropriate population and sample size, with data collected through semi-structured interviews and focus



			Influential factors: effective communication, readiness and emotional reactions learners, preceptors/instructors.	groups. Findings supported existing literature. Limitations were noted. The Center for Development of Clinical Research at Nemazee Hospital approved the study. Instrument: JHNEBP (Level 1, Quality B).
Dyar <i>et al</i> 2019	The learning environment on a student ward	Observational study Sample (n=52)	Findings: there was evidence of peer learning. Strategies were frequent interactions, paired students to answer specific questions and supervision. Influential factors: students were kept in a paired student room and feedback was sent to each other (peer students).	Qualitative study The study's population and sample are appropriate, with clear data collection and thematic analysis. Findings align with literature, and limitations and recommendations are noted. Ethical approval was obtained from Stockholm's committee (Dnr 2016/2524-31/2). Instrument: JHNEBP, evidence strength level III, quality C (low).
Nguyen, Karen and McGillion 2020	The effectiveness of partnership models in clinical nursing education	— A scoping review Sample (n=33)	Findings showed evidence of peer learning through strategies like Traditional Clinical Education Model, preceptorship, mentorship, Collaborative Partnership Model, and MASH models. Influential factors	A mixed-method study with an appropriate population and sample. Findings, supported by literature, were clearly presented. Data analysis utilized content analysis. Limitations were noted. Approved by Monash Centre for Scholarship in Health Education, using the



			included preceptorship, communication, collaboration, and a dedicated education unit for effective learning environments.	JHNEBP instrument with level 1 strength and A quality.
Pålsson <i>et al</i> 2016	A peer learning intervention for nursing students in clinical practice education:	Quasi-experimental. undergraduate nursing students (n=87)	Findings: there was evidence of peer learning. Strategies were traditional supervision and peer interaction. Influential factors: communication, cooperation, reflection, self-determination and independence.	Quantitative study Data were collected using a questionnaire analyzed with IBM SPSS Statistics (version 22.0). The study's population and sample size were appropriate. Findings supported literature, included limitations, and were approved by the Faculty of Health University of Gävle, Occupational Studies and Uppsala University. Instrument: JHNEBP. Quality: B Good.
Ignacio & Chen 2020	Cognitive integration in health professions education: Development and implementation of a collaborative learning workshop in an undergraduate nursing program.	Sample (n=125) students Focused group discussions	Findings: showed peer learning through multidirectional approach- collaborative workshops, problem-based and concept-based learning, case teaching, and simulations, debrief, pretest and post-tests. Influential factors included diverse tutor expertise, clear objectives, timing, self-directed learning,	Qualitative study with clear data collection/analysis. Appropriate population, questions, and sample size. Findings align with literature and conclusions are well-based. Limitations acknowledged. Approved by Alice Lee Centre, NUS and National University of Singapore. JHNEBP instrument used; evidence strength: level III, quality: C (Low).



			and student engagement.	
Fard <i>et al.</i> 2020	A comparison of faculty led, mentorship program and peer mentoring on nursing students wound dressing clinical skills	Experimental three-group pre-and post-test design. Sample (n=102) nursing students	Findings: Findings show peer learning through piloted checklists, peer-led groups, mentorship, and faculty-led controls. Key factors: theoretical knowledge, psychomotor skills, critical thinking, problem-solving and decision-making skills.	Quantitative study. The data were analyzed using SPSS version 22 (SPSS Inc., Chicago, IL). Descriptive statistics used. Population and sample size suitable for study questions. Findings align with literature and support conclusions. Limitations noted. Approved by Ilam University of Medical Sciences (ir.medilam.rec.1396.146). Instrument: JHNEBP. Evidence strength: level 11; quality: B (Good).
Burgess & McGregor 2018	Peer teacher training for health professional students:	A systematic review (n=42).	Findings indicate evidence of peer learning through faculty-led, non-mandated programs targeting senior training participants. Common content includes education theory, teaching methods, feedback, and evaluation of teacher training, influenced by students' competence in clinical skills.	Qualitative review. The search protocol is clear, with an appropriate population and sample size for the study questions. Findings are well-presented, supporting the literature. Limitations are noted. The study, a systematic review, used the JHNEBP instrument (evidence level III, quality C).



Gemuhay <i>et al.</i> 2019	Factors Affecting Performance in Clinical Practice among Preservice Diploma Nursing Students in Northern Tanzania	Descriptive analyses and chi-square test. Sample 208 (123 nursing students and 85 nurse tutors).	Findings indicated peer learning benefits from preclinical orientation, clear objectives, and supervision during clinical placements. Tailoring interventions to gender may enhance experiences. Influential factors include student and placement characteristics affecting clinical learning.	Quantitative study. Quantitative study Data collection, analysis, population appropriate, objectives, sample size were appropriate. Findings support literature, conclusions drawn and limitations included. Approved by Chair SERC (Scientific and Ethical Review Committee), School of Medicine and Kenya Methodist University, instrument, JHNEBP. Strength level 11. Quality, B Good.
Lethale, Makhado, & Koen 2019	Factors influencing preceptorship in clinical learning for an undergraduate nursing programme in the North West Province of South Africa	A cross sectional design was conducted among preceptors (n=9), preceptees (n=177) and unit managers (n=38)	Findings indicate peer learning through preceptorship and mentorship, supported by feedback, relationships, knowledge, and a collaborative environment as influential factors.	Quantitative study. Data collection, data analysis, sample sizes, population and study purpose. Findings well-presented. Findings align literature. Conclusion, limitations and recommendations included. Ethical approval by NWU-No. 00144-15-A9 Ethics Committee, Mafikeng NMM District, Provincial and Bophelong Psychiatric Hospitals Mgt. Instrument: JHNEBP. Strength level 11. Quality, B Good.
Ravanipour, Bahrein & Ravanipour 2015	Exploring nursing students' experience of peer	Focus group interviews Sample size (n=28)	Findings indicate evidence of peer learning through paradoxical dualism, mentor-	Qualitative study. Data collection (semi-structured interviews) and content analysis are appropriate.



	learning in clinical practice		like role and peer exploitation from selection and training. Influential factors include socialization practices and less stressful, in-depth learning methods.	Population, sample size, and findings align with the study. Limitations are noted. Approved by Bushehr University of Medical Sciences. Instrument: JHNEBP, evidence strength: level 111, quality: C (low).
KamphindaChilemba 2017	Clinical supervision and support: Perspectives of undergraduate nursing students on their clinical learning environment in Malawi	A sample ($n = 125$) was randomly selected for quantitative and 20 for qualitative	Findings: there was evidence of peer learning. Strategies are; clinical supervision and support. Influential factors: sound peer interactions.	A mixed-methods study with appropriate objectives, sample size, data collection, and analysis clearly outlined. Findings, presented, aligned with the literature, and supported by a conclusion. Limitations acknowledged. Approved by College of Medicine Research Committee (No.P. 08/13/1453). Instrument used: JHNEBP (Strength Level 1, High Quality A).
Kyriakoula, <i>et al</i> 2016	Educational strategies for teaching evidence-based practice to undergraduate health students	Systematic review Sample size ($n=20$)	Findings: evidence of peer learning. Strategies: lectures, workshops, journal clubs, e-learning, model development, appraisals and training using defined curriculum as influential factors.	Qualitative method Data collection, analysis, and sample size align with study questions. Clear protocol, well-presented findings, supported conclusions, and acknowledged limitations. The protocol approved by St George's University Hospitals



				NHS Foundation and Trust, London. Instrument, JHNEBP. Strength level 111. Quality C Low.
Stefaniak & Dmoch-Gajzlerska 2020	Mentoring in the clinical training of midwifery students. A focus study of the experiences and opinions of midwifery students at the Medical University of Warsaw participating in a mentoring program	Focus group interviews Sample (n=12) participants .	Findings indicate peer learning through mentoring; mentor-led training was viewed as an innovative, effective method for midwifery students.	Qualitative study The study appropriately defines its population, questions, and sample size. It clearly outlines the protocol for data collection and analysis. Findings are well-presented and support the literature, with limitations acknowledged. The study proposal has been approved by Medical University of Warsaw (decision code: NZG/PM1/18). Instrument used: JHNEBP. Strength level 111. Quality, C Low .
Horntvedt, <i>et al.</i> , (2018)	Strategies for teaching evidence-based practice in nursing education:	Systematic review Sample size (n=7)	Findings indicated peer learning through EBP teaching, interactive and clinically integrated methods, and continuous feedback during frequent mentor conferences.	Quantitative The study's quantitative approach features an appropriate population and sample size, with a clear protocol for data collection and analysis. Findings align with literature, include limitations, and are supported by the JHNEBP instrument. Evidence strength is level 11, quality B high from University of South-Eastern Norway,



Papastavrou, Tsangaris & Andreou, 2016	Nursing students' satisfaction of the clinical learning environment : a research study	Descriptive , correlation al design. Sample (n=463)	Findings: there was evidence of peer learning. Strategies are; Pedagogical atmosphere, supervisory relationship (mentorship). Influential factors: experience-rich, supportive relationship.	Quantitative Data collection utilized the CLES + T scale and a self-report questionnaire. Descriptive statistics calculated frequencies, means, and standard deviations. The research protocol was approved by the Cyprus National Bioethics Committee, ensuring appropriate population sampling and well-presented findings supporting existing literature. Limitations noted. . Instrument used: JHNEBP. Strength of evidence n=level 11. Quality, B, Good.
Stenberg & Carlson 2015	Swedish student nurses' perception of peer learning as an educational model during clinical practice in a hospital setting	Evaluation & evolutionar y study, Purposive sampling (n = 104)) student nurses.	Findings showed peer learning through strategies like collaborative learning, preceptors, and social groups, where senior students tutor novices. Influential factors included social interaction, comparison, safety, and support programs.	Quantitative study Data collection used a Likert scale questionnaire; analysis involved descriptive statistics and content analysis. Findings align with literature, and conclusions are supported. Evidence strength: level 11, quality: B (good). Instrument used: JHNEBP
Stone, Cooper & Cant 2013	The Value of Peer Learning in Undergradu ate Nursing Education	Systematic review. Sample (n=18)	Findings: Evidence of peer learning; strategies include peer coaching, shadowing, tutoring, role	A mixed-method approach was used, with appropriate data collection and sample size. Inclusion/exclusion criteria were stated, and findings



			playing, and team learning.	supported existing literature. The study received Monash University approval, utilizing the JHNEBP instrument, with strong evidence quality rated A.
Dehgani <i>et al.</i> , 2013.	Evaluation of the efficacy of peer-learning method in nutrition students of Shiraz University of Medical Sciences	A quasi-experimental, pre-test/post-test. Sample (n=35)	In peer learning, ☐ students alternate between teaching and learning roles, enhancing understanding through collaborative note-taking and memory techniques ☐ . ☐ Key factors include an appropriate study environment, comprehension of lessons, active question-answering, and effective communication ☐ .	Mixed-method study with appropriate population. Data collection and analysis indicated. Findings presented; conclusions drawn. Limitations stated. Extracted from MS thesis. Strength of evidence: level 1; quality: A (high).

Data extraction

In the fourth phase, the researcher used various variables to address the questions outlined in Table 2, including author, title, design, sample, conclusions, and evidence quality. Reviewers created and updated a data graphing form. They analyzed studies on peer learning, clinical education, and nursing students. A second reviewer validated the data extraction technique by reviewing the first two investigations.

Step 5. Collating, summarizing and reporting the results

The findings of this systematic review are provided in a narrative style. As stated in the evidence evaluation table, JHNEBP checklist was used to appraise all research, because the purpose of this review was eventually to enhance nursing and educational practices, summary of outcomes are as follows: Out of 18 eligible studies, researchers rated 4 as high quality due to clear methods, objectives, and findings. Seven articles were considered good quality, while 7 were low quality. The review identified both implicit and explicit strategies, which varied by



program type and context. All studies were eligible, focusing on the review's issue, and findings were organized into themes: peer learning, clinical nursing education, and student nurses. A narrative summary was created, analyzing the implications for future research and policy in undergraduate nursing programs.

Ethical considerations

To ensure best review practices, the study was approved by the Faculty of Nursing Sciences research team. Reviewers utilized a librarian from Niger Delta University and engaged a project supervisor for input at every review stage. An independent reviewer was also consulted for the first two articles. The appropriateness of the review question and methodology was confirmed, using a PRISMA flow chart and appraisal tables, with all sources acknowledged in the references.

RESULTS

Breakdown of number of studies were thus; Quantitative studies total $n=7$ (Survey $n=1$, Randomized controlled trial $n=1$, Cross sectional studies $n=1$, descriptive correlation $n=2$, systematic review $n=1$, and quasi-experimental studies $n=1$, experimental study $n=1$). Qualitative studies $n=7$ (focus group $n=4$, observational study $n=1$ & systematic review $n=2$) and the mixed methods articles $n=4$ (quasi-experimental study $n=1$, systematic review $n=1$, scoping review $n=1$ randomized control trial 1). With regards to sample size, sample sizes of eligible articles ranged from ($n=7$)—($n=463$). Again, dates studies were conducted were 2013 ($n=2$), 2015 ($n=2$), 2016 ($n=4$), 2017 ($n=1$), 2018 ($n=2$), 2019 ($n=3$) and 2020 ($n=4$). Furthermore, reviewed studies covered Australia $n=2$, Europe $n=9$, Asian $n=1$ (Singapore), United States of America (Chicago $n=1$, Middle East (Iran Shiraz $n=2$), Africa $n=3$ (Tanzanian= 1 , Republic of South Africa $n=1$, Malawi $n=1$). This review interweaves strategies and influential factors, yielding seven strategies and eight factors identified as follows: Mentor/preceptorship, supervision, training, consultation, partnership, model development and feedback as strategies. Whereas communication, commitment, safety/ supportive environment, readiness, competence, use of experts, curriculum development and sustainability are influential factors. The strategies and influential factors in most cases in this review are inextricable, thus were discussed together.

DISCUSSION

This scoping review is part of a broader study on integrating theory and practice in an undergraduate nursing program in Bayelsa, Nigeria. It aims to identify peer learning strategies and factors that enhance reflective skills among nursing students. The review shows a rise in both quantitative and qualitative research, particularly in 2016 and 2020, with European researchers contributing the most studies.

A key issue is the interchangeable use of evidence and factors; some authors present the same information as both strategies and influences without clear distinctions. Major themes include mentorship and preceptorship, both highlighted as crucial peer learning strategies. Studies by Stenberg and Carlson (2015), Papastavrou et al. (2016), and Stefaniak and Dmoch-Gajzlerska



(2020) stress the importance of supportive environments and collaborative mentoring. Effective clinical learning environments and inter-professional relationships significantly impact student outcomes, as confirmed by Lethale et al. (2019) and Universita Pelita Harapan (2019). Supervision also emerges as a vital strategy; studies indicate that supportive supervision fosters peer interaction and enhances the learning experience. Overall, mentorship/preceptorship and supervision are vital for developing reflective skills in nursing education.

Training This review highlights peer learning strategies to help student nurses develop reflective skills and apply theory in clinical education (Kyriakouli et al., 2016; Ignacio & Chen, 2020; Horntvedt et al., 2018). Horntvedt et al. suggest evidence-based, interactive training to enhance professional performance, emphasizing frequent clinical conferences with mentors. Ignacio and Chen support this, proposing varied training methods, including workshops and simulations. In contrast, Kyriakouli et al. advocate for tutorials and lectures as effective peer learning strategies, aligning with Purpora and Blegen, who found a significant positive relationship between peer interactions and lecture-based training outcomes.

Consultation, Nguyen and McGillion (2020) highlight peer learning as a strategy for student nurses to enhance reflective skills by consulting peers, instructors, and industry experts. This aligns with Aulisio, Arnold, and Youngner (2000), who emphasize the importance of consultation in healthcare skills development. Effective stakeholder consultation can manage crises, ensure continuity of patient care, and support the professional growth of student nurses in clinical education.

Partnership- In this scoping review, many studies highlighted partnership as a crucial strategy for peer learning, interpreted differently by various authors. Stone, Cooper, and Cant (2013) view it as cooperative and team learning. Fard *et al.* (2020) emphasize learning groups, while Stenberg and Carlson (2015), along with others, describe it as collaborative learning. Stenberg and Carlson focus on creating a supportive environment for peer learning in nursing education, whereas Nguyen, Karen, and McGill ion (2020) argue that sustainable partnerships and Dedicated Education Units (DEUs) enhance clinical skills by connecting theory to practice, supporting findings by Moscato et al. (2013) on DEUs' effectiveness.

Model development- Model development involves establishing statistical relationships between variables. This scoping review reveals various interpretations of model development across studies. Horntvedt *et al.* (2018) see it as an evidence-based process, while Kyriakouli *et al.* (2016) view it as curriculum development. Models discussed include the preceptor model (Lethale *et al.*, 2019), traditional clinical education model (Nguyen *et al.*, 2020), partnership model, MASH model, and collaborative learning model (Stenberg & Carlson, 2015). Research by Hashim and Tan (2015) suggests that commitment is essential in model development, helping student nurses enhance reflective skills and integrate theory into clinical practice.

Feedback

According to Nash and Winstone (2017), feedback is a crucial strategy that helps student nurses develop reflective skills and integrate theory into clinical practice. Research by Dyar *et al.* (2019), Burgess and McGregor (2018), Lethale *et al.* (2019), and Horntvedt *et al.* (2018) supports this view. While Burgess and McGregor emphasize procedural competence and communication, Lethale *et al.* highlight the importance of interpersonal relationships, and Horntvedt *et al.* stress frequent interactions with mentors. These variations may stem from



differing contexts in program implementation. Clynes and Raftery (2008) found that feedback boosts student confidence and self-esteem while enhancing clinical practice and interpersonal skills, indicating that feedback is essential for peer learning among nursing students in clinical settings.

CONCLUSION AND RECOMMENDATIONS

Several studies on peer learning in clinical nursing education highlight that using multiple pieces of evidence can help undergraduate nurses integrate theory into practice, improving patient care outcomes. Further research from 1990 to the present is needed to enhance understanding and develop new applications for better patient care.

Author's contributions

EE conceptualized the study and drafted the proposal. EE and HIW developed the research background and design, with HIW leading the quality appraisal. All authors contributed to the methods for data review and synthesis. EE prepared and reviewed the manuscript, with both approving the final version.

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Competing interests

The authors declare no competing interests.

Consent for publication

Yes.

REFERENCES

- Abbott, A. (1998). The causal devolution. *Sociological Methods & Research*, 27(2), 148-181.
- Alexis H, Ntombifikile G and Mtshali Source: Africa Journal of Nursing and Midwifery 21, pp 1 - 20 (2019) <http://dx.doi.org/10.25159>
- Andersson, P. L., and Edberg, A. K. (2012). Swedish nursing students' experience of aspects important for their learning process and their ability to handle the complexity of the nursing degree program. *Nurse education today*, 32(4), 453-457.
- Arksey, H, and O'Malley, L. (2005). Scoping studies: towards a methodological framework. *International journal of social research methodology*, 8(1), 19-32.
- Aulisio, M. P., Arnold, R. M., & Youngner, S. J. (2000). Health care ethics consultation: Nature, goals, and competencies: A position paper from the society for health and human values–society for bioethics consultation task force on standards for bioethics consultation. *Annals of internal medicine*, 133(1), 59-69.
- Benner, P.E., C.A. Tanner, and C.A. Chesla, *Expertise in nursing practice: Caring, clinical judgment, and ethics*. 2009: Springer Publishing Company.



- Boud, D., R. Cohen, and J. Sampson, *Peer learning in higher education: Learning from and with each other*. 2014: Routledge.
- Burgess, A., & McGregor, D. (2018). Peer teacher training for health professional students: a systematic review of formal programs. *BMC Medical Education*, 18(1), 263.
- Carlson, W.-H., Pilhammar, 2009, *Teaching during clinical practice: Strategies and techniques used by preceptors in nursing education*. Nurse Education Today, 2009. 29(5): p. 522-526.
- Centre for Reviews and Dissemination (CRD) (2009). *Systematic Reviews: CRD's Guidance for Undertaking Reviews in Health Care*. York: Centre for Reviews and Dissemination.
- Cheng, C.-Y., et al., *Preparing Nursing Students to be Competent for Future Professional Practice: Applying the Team-Based Learning–Teaching Strategy*. Journal of Professional Nursing, 2014. 30(4): p. 347-356.
- Cheraghi, M. A., Salasli, M., & Ahmadi, F. (2007). Iranian nurses' perceptions of theoretical knowledge transfer into clinical practice: A grounded theory approach. *Nursing & health sciences*, 9(3), 212-220.
- Chipwaza, B., Nyangena, E., Kalolo, A., Mirisho, R., AND Gemuhay, H. M. (2019). Factors Affecting Performance in Clinical Practice among Pre Service Diploma Nursing Students in Northern Tanzania. *Nursing Research and Practice*, 2019, 1-9.
- Clynes, M. P., & Raftery, S. E. (2008). Feedback: an essential element of student learning in clinical practice. *Nurse Education in practice*, 8(6), 405-411.
- Creswell, J. W, and Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.
- Cultural Competence, Health Behaviors and Professional Practice. Journal of Physical Education, Recreation & Dance. 87 (2) 27-32.
- Dehghani, M. R., Amini, M., Kojuri, J., & Nabeiei, P. (2014). Evaluation of the efficacy of peer-learning methods in nutrition students of Shiraz University of Medical Sciences. *Journal of Advances in Medical Education & Professionalism*, 2(2), 71.
- Diesel, H., D. Taliaferro, and P. Ercole, *Comparison of perceptions of HIV/AIDS between Cameroonian, Honduran and American nursing students after Peer-led Education*. Arch Nurs Pract Care, 2017. 3(3): p. 057-063.
- Donough, G., & Van Der Heever, M. (2018). Undergraduate nursing students' experience of clinical supervision. *Curationis*, 41(1), 1-8.
- Dyar, A., Lachmann, H., Stenfors, T., & Kiessling, A. (2019). The learning environment on a student ward: an observational study. *Perspectives on medical education*, 8(5), 276-283.
- Ewertsson, M., et al., *Walking the bridge: Nursing students' learning in clinical skill laboratories*. Nurse Education in Practice, 2015. 15(4): p. 277-283.
- Fard, Z. R., Azadi, A., Khorshidi, A., Mozafari, M., O'Connor, T., Budri, A. M. V., ... & Patton, D. (2020). A comparison of faculty led, mentorship program and peer mentoring on nursing students wound dressing clinical skills. *Nurse Education Today*, 104378.
- Franklin, A. E., Sideras, S., Dodd, C., & Hutson, J. (2020). A Randomized Trial of Multiple-Patient Simulation Preparation to Improve Novice Nurses' Competence and Self-Efficacy. *Nursing Education Perspectives*, 41(3), 146-151.
- Gemuhay, H. M., Kalolo, A., Mirisho, R., Chipwaza, B., & Nyangena, E. (2019). Factors affecting performance in clinical practice among pre service diploma nursing students in Northern Tanzania. *Nursing Research and Practice*, 2019.
- Günay, U., & Kılınç, G. (2018). The transfer of theoretical knowledge to clinical practice by nursing students and the difficulties they experience: A qualitative study. *Nurse education today*, 65, 81-86.



- Hashim, K. F., & Tan, F. B. (2015). The mediating role of trust and commitment on members' continuous knowledge sharing intention: A commitment-trust theory perspective. *International Journal of Information Management*, 35(2), 145-151.
- Hatlevik, I.K.R., *The theory-practice relationship: reflective skills and theoretical knowledge as key factors in bridging the gap between theory and practice in initial nursing education*. Journal of advanced nursing, 2012. **68**(4): p. 868-877.
- Holst, H., et al., *The learning space—interpersonal interactions between nursing students, patients, and supervisors at developing and learning care units*. International Journal of Qualitative Studies on Health and Well-being, 2017. **12**(sup2): p. 1368337.
- Hornstvedt, M. E. T., Nordsteien, A., Fermann, T., & Severinsson, E. (2018). Strategies for teaching evidence-based practice in nursing education: a thematic literature review. *BMC medical education*, 18(1), 172.
- Ibrahim, N., et al., *Effectiveness of peer-led education on knowledge, attitude and risk behavior practices related to HIV among students at a Malaysian public university—A randomized controlled trial*. Preventive medicine, 2012. **55**(5): p. 505-510.
- Ignacio, J., AND Chen, H. C. (2020). Cognitive integration in health professions education: Development and implementation of a collaborative learning workshop in an undergraduate nursing programme. *Nurse Education Today*, 104436.
- Jamshidi N, Molazem Z, Sharif F, Torabizadeh C, and Kalyani MN (2016) The Challenges of Nursing Students in the Clinical Learning Environment: A Qualitative Study. *Scientific World Journal*. 2016; 2016: 1846178.
- Kamphinda S and Chilemba E. B. (2019). Clinical supervision and support : perspectives of undergraduate nursing students on their clinical learning environment in Malawian authors:: curationis 42, pp 1 - 10 <http://dx.doi.org/10.4102/curationis.v42i1.1812>.
- Kim, S., *Redesign of Clinical Practicum for End of Life Care with Integrated Perspectives*. Open Journal of Nursing, 2017. **7**(10): p. 1172.
- Kitson, A.L. and G. Harvey, *Methods to succeed in effective knowledge translation in clinical practice*. Journal of Nursing Scholarship, 2016. **48**(3): p. 294-302.
- Klopper, H. and L. Uys, *The state of nursing and nursing education in Africa: A country-by-country review*. 2012: Sigma Theta Tau.
- Kumm, S., et al., *Senior student nurse proficiency: A comparative study of two clinical immersion models*. Nurse Education Today, 2016. **44**: p. 146-150.
- Kunst, E.L., M. Mitchell, and A.N.B. Johnston, *Using simulation to improve the capability of undergraduate nursing students in mental health care*. Nurse Education Today, 2017. **50**: p. 29-35.
- Kyriakoulis, K., Patelarou, A., Laliotis, A., Wan, A. C., Matalliotakis, M., Tsiou, C., & Patelarou, E. (2016). Educational strategies for teaching evidence-based practice to undergraduate health students: systematic review. *Journal of Educational Evaluation for Health Professions*, 13.
- Lethale, S. M., Makhado, L., and Koen, M. P. (2019). Factors influencing preceptorship in clinical learning for an undergraduate nursing programme in the North West Province of South Africa. *International Journal of Africa Nursing Sciences*, 10, 19-25.
- Lillekroken, D. (2020). "A privilege but also a challenge." Nurse educators' perceptions about teaching fundamental care in a simulated learning environment: A qualitative study. *Journal of Clinical Nursing*, 29(11-12), 2011-2022.
- Lindgren, B., Brulin, C., Holmlund, K., & Athlin, E. (2005). Nursing students' perception of group supervision during clinical training. *Journal of Clinical Nursing*, 14(7), 822-829.



- Llambí, L., et al., *Teaching tobacco cessation to large student cohorts through train-the-trainers and problem based learning strategies*. Education for health, 2016. **29**(2): p. 89.
- Mannix, J., L. Wilkes, and L. Luck, *Key stakeholders in clinical learning and teaching in Bachelor of Nursing programs: A discussion paper*. Contemporary Nurse, 2009. **32**(1-2): p. 59-68.
- Moscato, S. R., Nishioka, V. M., & Coe, M. T. (2013). Dedicated education unit: Implementing an innovation in replication sites. *Journal of Nursing Education*, 52(5), 259-267.
- Newhouse, R.P., Dearholt, S.L., Poe, S.S., Pugh, L.C. and White, K.M., 2007. *Johns Hopkins nursing evidence-based practice model and guidelines*. Indianapolis, IN: Sigma Theta Tau International Honor Society of Nursing.
- Nguyen, V. N., Lawrence, K., and McGillion, A. (2020). The effectiveness of partnership models in clinical nursing education—A scoping review. *Nurse Education Today*, 104438.
- Nursing students' perceptions and expectations regarding the use of technology in nursing education Authors:
- O'Connor, A.B., *Clinical Instruction & Evaluation: A Teaching Resource*. 2014: Jones & Bartlett Publishers.
- Pålsson, Y., Mårtensson, G., Swenne, C. L., Ädel, E., & Engström, M. (2017). A peer learning intervention for nursing students in clinical practice education: A quasi-experimental study. *Nurse education today*, 51, 81-87.
- Papastavrou, E., Dimitriadou, M., Tsangari, H., & Andreou, C. (2016). Nursing students' satisfaction of the clinical learning environment: a research study. *BMC nursing*, 15(1), 44.
- Partin, J.L., T.A. Payne, and M.F. Slemmons, *Students' Perceptions of Their Learning Experiences Using High-Fidelity Simulation to Teach Concepts Relative to Obstetrics*. Nursing Education Perspectives, 2011. **32**(3): p. 186-188.
- Porta, M. S., Greenland, S., Hernán, M., dos Santos Silva, I., Last, J. M. (2014). *A dictionary of epidemiology*. New York: Oxford University Press.
- Purpora, C., & Blegen, M. A. (2015). Job satisfaction and horizontal violence in hospital staff registered nurses: the mediating role of peer relationships. *Journal of clinical nursing*, 24(15-16), 2286-2294.
- Rassool, G. H., & Rawaf, S. (2007). Learning style preferences of undergraduate nursing students. *Nursing Standard (through 2013)*, 21(32), 35.
- Ravanipour, M., Bahreini, M., & Ravanipour, M. (2015). Exploring nursing students' experience of peer learning in clinical practice. *Journal of education and health promotion*, 4.
- Samuel, G.O., Hoffmann, S., Wright, R.A., Lalu, M.M., Patlewicz, G., Becker, R.A., De-George, G.L., Fergusson, D., Hartung, T., Lewis, R.J. and Stephens, M.L., 2016. Guidance on assessing the methodological and reporting quality of toxicologically relevant studies: A scoping review. *Environment international*, 92, pp.630-646.
- Secomb, J. (2008). A systematic review of peer teaching and learning in clinical education. *Journal of clinical nursing*, 17(6), 703-716.
- Stefaniak, M., & Dmoch-Gajzlerska, E. (2020). Mentoring in the clinical training of midwifery students. A focus study of the experiences and opinions of midwifery students at the Medical University of Warsaw participating in a mentoring programme.
- Stenberg, M., & Carlson, E. (2015). Swedish student nurses' perception of peer learning as an educational model during clinical practice in a hospital setting—an evaluation study. *BMC nursing*, 14(1), 48.



- Stone, R., Cooper, S., & Cant, R. (2013). The value of peer learning in undergraduate nursing education: A systematic review. *ISRN nursing*, 2013.
- Thato, R. and J. Penrose, *A brief, peer-led HIV prevention program for college students in Bangkok, Thailand*. Journal of pediatric and adolescent gynecology, 2013. **26**(1): p. 58-65.
- Tommasini, C., et al., *Competence evaluation processes for nursing students abroad: Findings from an international case study*. Nurse Education Today, 2017. **51**: p. 41-47.
- Topping, K., & Ehly, S. (Eds.). (1998). *Peer-assisted learning*. Routledge.
- Topping, K., et al. (2017) *Effective Peer Learning: From Principles to Practical Implementation*. Routledge.
- Tshiamo, W.B., et al., *The role of nursing education in preventing medication errors in Botswana*. International Journal of Africa Nursing Sciences, 2015. **3**: p. 18-23.
- Turrentine, F. E., Schroen, A. T., Hallowell, P. T., Quatrara, B. A., Smith, P. W., Williams, M. D., & Haizlip, J. A. (2020). Enhancing Medical Students' Interprofessional Teamwork Through Simulated Room of Errors Experience. *Journal of Surgical Research*, 251, 137-145.
- Ulfvarson, J., and Oxelmark, L. (2012). Developing an assessment tool for intended learning outcomes in clinical practice for nursing students. *Nurse Education Today*, 32(6), 703-708.
- Universita Pelita Harapan (2019). Mentorship Time: A Mentor-Mentee Moment Becomes A Blessing <https://www.uph.edu/2019/08/15/mentorship-time-momen-kebersaman-mentor-mentee-me>.
- Washington T, S and Ndatinda S. I (2019). Learning style preferences of undergraduate nursing students : a systematic review Source: Africa Journal of Nursing and Midwifery 21, pp 1 - 25 (2019) <http://dx.doi.org/10.25159/2520-5>
- Webel, A.R., Okonsky, J., Trompeta, J. and Holzemer, W.L., 2010. A systematic review of the effectiveness of peer-based interventions on health-related behaviors in adults. *American journal of public health*, 100(2), pp.247-253.
- Wulf, G., Shea, C., & Lewthwaite, R. (2010). Motor skill learning and performance: a review of influential factors. *Medical education*, 44(1), 75
- Zi Y and FitzPatrick K. 2016. in Undergraduate Education through Peer Learning.