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Bridging the Divide: A Systematic Review of the Theory–Practice Gap in Undergraduate Nursing Education

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ABSTRACT

A persistent theory–practice gap exists in undergraduate nursing education worldwide, affecting students' confidence, clinical competence, and preparedness for safe patient care. Although curriculum reforms and clinical learning experiences have been introduced, the mismatch between classroom-based knowledge and clinical practice remains a continuing challenge across nursing programmes. This systematic review aimed to synthesise current evidence on the theory–practice gap in undergraduate nursing education, with specific attention to students' perceptions, contributing factors, and educational strategies used to reduce the gap. The review was conducted in accordance with the PRISMA 2020 guidelines. Three electronic databases, namely Scopus, PubMed, and Web of Science, were searched for peer-reviewed studies published between 2017 and 2024. Studies were included if they empirically examined the theory–practice gap among undergraduate nursing students. A narrative synthesis was conducted on 10 eligible studies. The findings indicate that the theory–several interconnected factors, including misalignment between curriculum content and clinical requirements, inadequate clinical mentorship, limited integration of simulation-based education, and insufficient collaboration between academic and clinical educators influence practice gap. Several educational strategies were identified, including high-fidelity simulation, reflective learning, participatory curriculum revision, and structured preceptorship models. However, challenges related to inconsistent implementation, resource limitations, and institutional coordination remain evident across settings. This review suggests that the theory–practice gap can be reduced through integrated nursing education that aligns academic content with authentic clinical practice. Strengthening academic–clinical partnerships, improving simulation-based learning, and supporting clinical educators are essential to prepare undergraduate nursing students to practise competently and confidently.

Keywords: *Nursing education, Theory–practice gap, Clinical learning, Undergraduate nursing, Simulation-based learning, Curriculum integration*

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INTRODUCTION

Undergraduate nursing students must be able to apply theoretical knowledge to achieve clinical competence and provide safe, effective, and evidence-based patient care (1). Despite educational reforms and curricular advances, a notable mismatch persists between what is taught in the classroom and what is practised in clinical settings. This mismatch, commonly referred to as the theory–practice gap, remains a significant issue in nursing education across both developed and developing countries (2). It may produce graduates who possess theoretical knowledge but experience difficulty applying it confidently and competently in real clinical situations (3).

The theory–practice gap is a multifaceted phenomenon influenced by several educational and organisational factors. These include curriculum design, clinical exposure, mentorship quality, institutional policies, and the level of collaboration between academic and clinical settings (4). Many undergraduate nursing programmes continue to rely heavily on traditional didactic teaching approaches, which may emphasise memorisation rather than clinical reasoning, problem-solving, and the application of skills (5). As a result, students may feel overwhelmed when theoretical concepts do not align with real-time clinical demands, particularly in high-acuity or resource-limited environments (6). This disjunction can increase anxiety, reduce self-efficacy, and create uncertainty regarding students' professional roles during clinical practice (7).

Final-year nursing students may be particularly affected because they are expected to transition from supervised learning to independent professional practice. At many institutions, what students learn in theory does not always correspond with real-world workflows, available technologies, institutional policies, or patient care practices in clinical settings (8, 9). Furthermore, the quality of clinical learning experiences varies according to the availability of learning opportunities, the level of student involvement, and the quality of clinical supervision (10). Clinical instructors and preceptors play an important role in helping students apply classroom learning in practice; however, they may lack formal preparation in teaching methods or be constrained by heavy clinical workloads, limiting their ability to provide consistent supervision and feedback (5).

Simulation-based learning has increasingly been used as an educational strategy to address these challenges. High-fidelity simulation can support the development of psychomotor skills, critical thinking, teamwork, and clinical decision-making when it is integrated into the curriculum and followed by structured debriefing (3). Similarly, reflective practice, including journaling, guided discussion, and self-assessment, can help students connect theoretical knowledge with clinical experiences and develop deeper professional understanding (11). Nevertheless, these strategies require proper planning, trained facilitators, sufficient resources, and alignment with clinical learning outcomes to achieve meaningful impact.

Institutional and systemic factors also contribute to the persistence of the theory–practice gap. Many educational institutions and healthcare facilities operate separately, with limited collaboration between academic faculty and clinical staff. When students receive inconsistent information from classroom lecturers and clinical personnel, confusion may occur, and the gap between theory and practice may widen (12, 13). In addition, limitations such as inadequate clinical placement opportunities, understaffing, heavy workload, and insufficient time for clinical teaching may restrict students' ability to apply theoretical learning meaningfully and consistently (14).

Given these complexities, there is a need to synthesise recent empirical evidence on how nursing education addresses the theory–practice gap. Although many studies have examined this issue in specific contexts, fewer reviews have integrated findings across different educational models, cultures, and pedagogical approaches (15). Therefore, this systematic review aimed to examine empirical studies published between 2017 and 2024 on the theory–practice gap in undergraduate nursing education. Specifically, this review sought to identify key factors contributing to the theory–practice gap, explore students' and educators' perceptions of this issue, and determine educational strategies used to reduce the gap. The findings may provide useful insights for curriculum planners, nurse educators, clinical preceptors, and policymakers in strengthening the integration of theory and practice in undergraduate nursing education.

METHODS

Design and Protocol

As per the PRISMA 2020 statement, a systematic literature review (SLR) design was employed in this study. The aim was to synthesise current empirical evidence regarding the theory-practice gap in undergraduate nursing education. The review was conducted by first formulating the research question, then searching the database, screening the results, extracting data, and finally performing a narrative synthesis.

PICO Framework

To guide the formulation of the research question and inform the search strategy, the PICO model was applied.

P (Population): Undergraduate nursing students

I (Intervention/exposure): Clinical placement, simulation-based learning, reflective practice, or other educational interventions

C (Comparison): Traditional theory-based learning or no structured intervention

O (Outcome): Integration of theory into practice, clinical competence, confidence, and preparedness

This framework helped select studies that directly measured outcomes related to bridging the theory-practice gap in undergraduate nursing contexts.

Eligibility Criteria

Inclusion criteria

This systematic review was conducted based on well-defined inclusion criteria. To be included in the studies, the study must have concentrated on undergraduate nursing students and been published between 2017 and 2024. Research studies have investigated the theory–practice gap in nursing education, focusing on subjects such as student perceptions,

challenges faced in the practice environment, and educational strategies to help close the gap. In this research, only studies with data were considered. Additionally, articles to be included had to appear in peer-reviewed journals and be available in full text and English.

Exclusion criteria

This review was framed using specific exclusion criteria to ensure a transparent methodology and focus. Students were excluded from studies that focused solely on postgraduate or diploma-level programmes, as this review was conducted in the context of undergraduate education. We excluded theoretical papers, literature reviews, editorials, and commentaries because the review focused on empirical studies. Additionally, no articles that did not provide full text or empirical data were excluded. To eliminate inconsistencies in interpretation, non-English publications were excluded from the review process.

Information Sources and Search Strategy

Various electronic databases, including PubMed, Scopus, and Web of Science, were systematically searched for relevant information. The search strategy combined the following terms using Boolean operators: "nursing education" AND "theory-practice gap" OR "clinical learning" OR "clinical placement" OR "experiential learning" AND "undergraduate nursing students" OR "student perception" with filters to retrieve articles published in the peer-reviewed English language from January 2017 to December 2024. The whole search strategy was modified for each database. All references were exported to Mendeley to manage citations and remove duplicates.

Data Extraction

A standardised data extraction table was developed to collect the following from each study:

a. Author(s) and year
b. Authors and publication year
c. Country and setting
d. Study design and sample size
e. Intervention or focus area
f. Theoretical or practical orientation
g. Main findings and recommendations

Quality Appraisal

The quality of the 10 included studies was assessed according to the Mixed Methods Appraisal Tool (MMAT), version 2018. MMAT is a tool that allows for the assessment of qualitative research, randomised controlled trials, non-randomised studies, quantitative descriptive studies, and mixed-methods studies.

The tool was flexible and suited to reviews that employed multiple research designs, as in this case. Two reviewers independently assessed each study against five methodological criteria in its design category. The criteria examined the clarity of the research question, the

appropriateness of the data collection and analysis methods, the representative nature of the sample, and the integration of processes, if applicable.

The overall quality of the studies ranged from moderate to high. Specifically:

a. Three qualitative studies met at least four out of five MMAT criteria, demonstrating methodological coherence and credibility in data interpretation.
b. Four studies were quantitative, descriptive, or cross-sectional and showed strong internal consistency, though some lacked clarity regarding non-response bias or sampling strategy.
c. Two mixed-methods studies satisfied most MMAT items but required more integration between qualitative and quantitative components.
d. One narrative review was appraised descriptively for relevance and conceptual clarity, as MMAT does not apply to purely theoretical papers.

No study was excluded on the basis of quality. Nonetheless, it was noted that the reporting had limitations, particularly because some cross-sectional studies provided limited discussion of bias. The narrative synthesis and interpretation of findings took these issues into account. The use of MMAT ensured that all articles included met the minimum quality standards, thereby enhancing the credibility of the results synthesised in this review article.

Data Synthesis

A narrative synthesis was conducted to analyse and integrate findings from the 10 included studies. The studies varied in design, ranging from qualitative to quantitative, mixed-methods, and narrative reviews, and were conducted in diverse geographical and educational contexts, including Malaysia, Indonesia, Jordan, Iran, South Africa, Qatar, Saudi Arabia, and the United States. Despite differences in setting and methodology, several consistent themes emerged across the literature, highlighting common barriers and potential solutions to bridging the gap between theory and practice in undergraduate nursing education.

Curriculum misalignment with clinical practice

Multiple studies (16) identified that theoretical instruction in nursing curricula often lacks alignment with current clinical practices. Students reported being inadequately prepared for the demands of patient care, citing outdated content, limited procedural training, and insufficient exposure to real-world clinical tools and techniques (17). This misalignment led to difficulties in translating knowledge into practice during clinical placements.

Role of clinical supervision and mentorship

Several studies emphasised the pivotal role of preceptors and clinical instructors in facilitating the transition from classroom to practice (18). Found that consistent, supportive mentorship was associated with higher student confidence and perceived clinical competence. Conversely, the absence of structured mentorship contributed to confusion, anxiety, and reduced clinical performance.

Simulation-based education as a bridging tool

Simulation emerged as a critical strategy in narrowing the theory–practice gap (19). Reported that high-fidelity simulation significantly improved students' readiness, allowing them to develop critical thinking and psychomotor skills in a controlled environment. However, both studies noted that simulation was most effective when paired with reflective debriefing and integrated into the broader curriculum.

Reflective and self-directed learning approaches

Self-directed learning and reflective practices were highlighted as effective in enhancing the integration of theory and practice (20, 21). Found that students who engaged in journaling, self-assessment, or structured reflection reported greater awareness of their clinical capabilities and improved integration of theoretical concepts.

Systemic and institutional barriers

Contextual and institutional factors, such as time constraints, limited clinical placement slots, overworked staff, and poor academic–clinical collaboration, were recurring barriers identified across settings (9, 22). These challenges limit students' exposure to meaningful clinical learning opportunities and hamper faculty efforts to create practice-relevant curricula.

Student perception of readiness and competence

Many studies, including (23, 24), focused on how students perceive their readiness to practice. A recurring finding was that students often feel underprepared to manage real-life patient care upon graduation, even when they perform well academically. This reinforces the need for experiential learning and authentic clinical engagement throughout the training process.

RESULTS

Study Selection

The searches of electronic databases first identified 683 records (PubMed, Scopus, and Web of Science). After deleting 127 duplicates, 556 articles were identified for title and abstract screening. Seventy-eight full-text articles were subsequently screened for eligibility. Ultimately, the synthesis comprised 10 included articles. The PRISMA 2020 flow diagram is illustrated in Figure 1, outlining the process used for study selection.

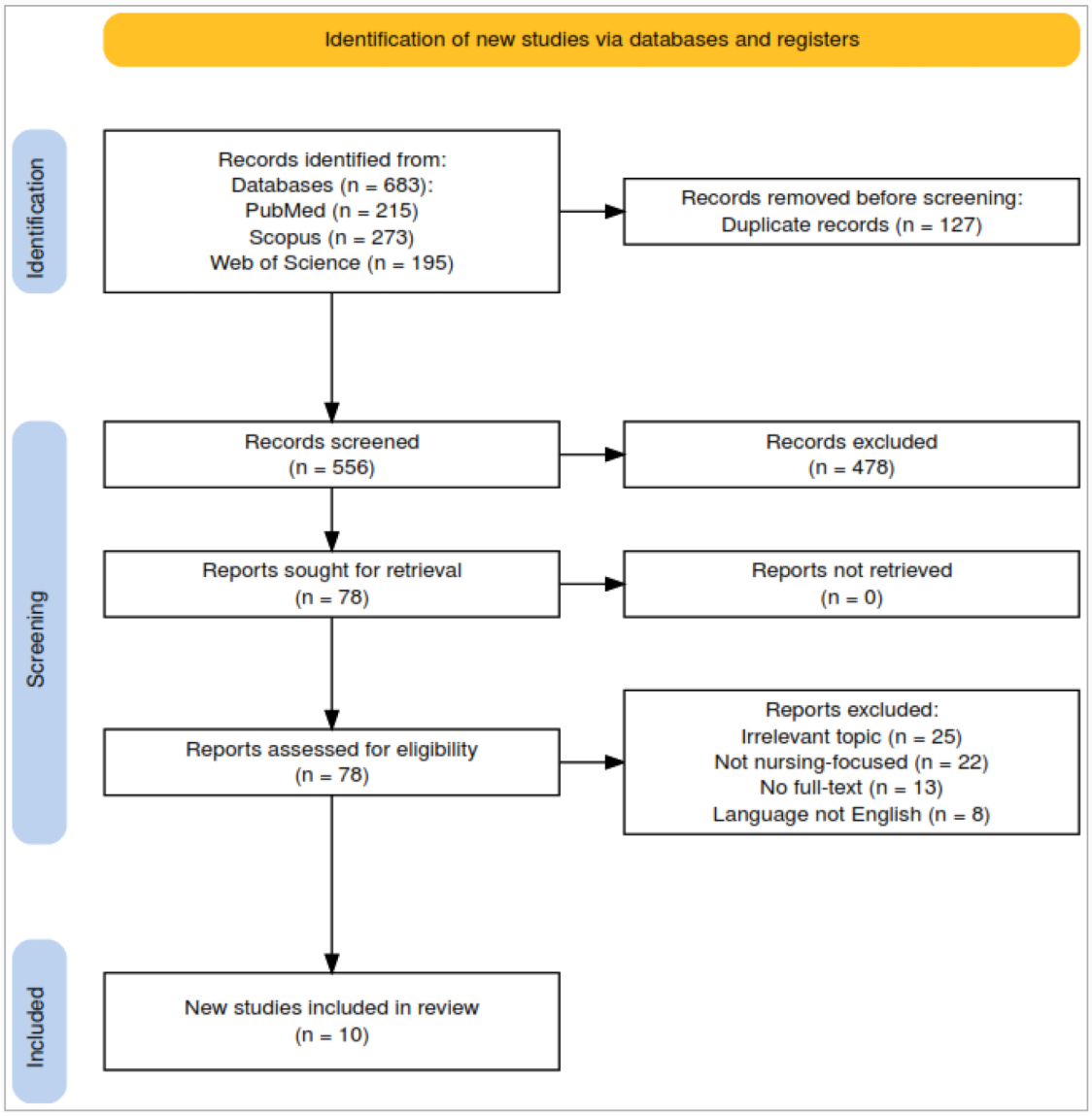

Figure 1: PRISMA flow diagram.

Characteristics of Included Studies

The review encompassed 10 studies from 2017 to 2024, representing various countries and education systems, including Malaysia, Indonesia, Jordan, Iran, South Africa, Qatar, Saudi Arabia, and the United States. Of the eight studies reviewed, three adopted a qualitative design, five a quantitative design, one a mixed-methods design, and another a narrative review design. Most studies focused on undergraduate nursing students (n = 11), while the remaining four involved preceptors, clinical instructors, or new graduates. Sample sizes ranged from 15 to 210. A detailed summary of the characteristics of the included studies is presented in Table 1.

Emerging Themes from Literature

A narrative synthesis of the data yielded several key themes across the studies:

Curriculum and content gaps

Five studies report that current nursing curricula are often not clinically applicable. Participants stated that the theoretical material was outdated, overly abstract, or insufficiently connected to clinical competencies (25, 26).

Importance of simulation

In three studies, simulation was identified as an effective bridge between classroom learning and clinical readiness (7, 25–27). State that genuine simulations improved student confidence, improved decision-making, and practical skills.

Mentorship and clinical supervision

Clinical mentorship has emerged as an essential connection in the gap. A study by (28) revealed that learners under the guidance of a dedicated preceptor showed improved competence and confidence. Unstructured placements made students confused and distracted.

Self-directed and reflective learning

Two studies (29, 30) emphasise the importance of readiness for self-directed learning and the role of reflective practice in effectively integrating theory and practice. These methods promote autonomy and critical thinking among students.

Institutional and systemic constraints

Multiple studies have identified significant institutional challenges, including poor coordination between academic and clinical education, inadequate placements, and insufficient resource (29–32). Highlight these as continuing barriers in tandem arrangements at the international level.

The characteristics of the included studies are summarised in Table 1, including the authors, country, study design, intervention or focus area, theoretical or practical orientation, and main findings.

Table 1: Characteristics of included studies

Author(s) and year	Country	Study design	Intervention/ focus	Orientation	Main findings
Brown (3)	USA	Qualitative (Descriptive)	High-fidelity simulation	Simulation-based learning	Simulation enhances clinical confidence, narrows the gap between theory and practice, and improves the preparedness of new graduate nurses.
Hoeve et al. (30)	Iran	Qualitative	Lived experiences of clinical education	Hermeneutic phenomenology	The gap stems from a curriculum mismatch, instructor attitudes, and the discrepancy between real and taught expectations.
Suyal & Pandey (31)	South Africa	Quantitative (Cross-sectional)	Self-directed learning	Educational autonomy	Readiness for self-directed learning is independent of educational approach (PBL vs traditional).
Karlsen et al. (32)	Saudi Arabia	Quantitative (Survey)	Gap in clinical skill application	Clinical performance	A significant disconnect exists between theoretical preparation and real-life nursing skills.
Zyoud (26)	Jordan	Quantitative (Cross-sectional)	Simulation vs. clinical	Undergraduate education	The theory-practice gap persists despite the use of simulation; therefore, integration into clinical placements is recommended.
Letterstål et al. (33)	Indonesia	Mixed methods	Japanese Indonesian collaboration in nursing education	International partnership	Structural and systemic barriers hinder practical alignment; faculty exchange can improve coherence.
Saifan et al. (2)	Indonesia	Quantitative	Factors contributing to the gap	Learning model evaluation	Communication, supervision, and clinical environment are key contributors to the gap.
Shoghi et al. (34)	Qatar	Narrative review	Theoretical models in health professions education	Theory-practice link	Recommends integrative teaching models to align theory with clinical expectations.
Greenway et al. (14)	Malaysia	Cross-sectional (Descriptive)	Skills lab vs clinical setting	Nursing education in Malaysia	Lack of clinical exposure and staff support contributes to the theory-practice gap.
Al-Riyami et al. (35)	USA	Cross-sectional	Preceptor's role in bridging the gap	Clinical mentorship	Preceptors play a crucial role in reducing the theory-practice gap among nursing students.

Methodological Quality of Included Studies

The methodological quality of the included studies was assessed using the MMAT, version 2018. Table 2 presents the quality appraisal results, including the study design, MMAT score, quality rating, and key methodological comments for each included study.

Table 2: Quality appraisal of included studies using MMAT

Authors and year	Study design	MMAT score (out of 5)	Quality rating	Comments
Brown (3)	Qualitative	5	High	Strong methodology, precise data triangulation
Hoeve et al. (30)	Qualitative	4	High	Limited discussion on sampling strategy
Suyal & Pandey (31)	Quantitative (Cross-sectional)	4	Moderate	Clear objectives, minor sampling limitations
Karlsen et al. (32)	Quantitative (Descriptive)	4	Moderate	Well-structured, limited-bias discussion
Zyoud (26)	Quantitative (Cross-sectional)	4	Moderate	Robust design, minor gaps in reporting
Letterstål et al. (33)	Mixed methods	3	Moderate	Integration between methods could be improved
Saifan et al. (2)	Quantitative (Descriptive)	4	Moderate	Meets core criteria, lacks generalisability
Shoghi et al. (34)	Narrative review	–	Not applicable	Review article, not subject to MMAT scoring
Greenway et al. (14)	Quantitative (Cross-sectional)	4	Moderate	Clear findings, lacks follow-up evaluation
Al-Riyami et al. (35)	Quantitative (Cross-sectional)	4	Moderate	Valid results, limited in external validity

The quality of the 10 studies included in the analysis was assessed using the 2018 version of the MMAT, based on the study design. Most studies (n = 9) were eligible for MMAT scoring. One narrative review (33) was excluded from scoring because the tool's design was not suitable for non-empirical studies. Two qualitative studies scored 4 to 5 out of 5 in the assessment process owing to the clarity of the research questions, appropriate data collection methods, and the rigour of the analysis.

The remaining studies (n = 7) were rated as of moderate quality, with scores of 3 to 4. The most common limitations included insufficient justification for sampling strategies, unclear handling of non-response bias, and insufficient integration within mixed methods designs. The 2019 mixed-methods study by Shimizu and colleagues showed moderate methodological strength. However, the linking of the qualitative and quantitative components in the research was weak. All studies met the minimum quality thresholds, despite their limitations, and were therefore included in the synthesis. The evidence provided is sufficient to support the review's conclusions; however, the findings should be interpreted with caution given the identified methodological shortcomings.

DISCUSSION

This study examined the challenges associated with the theory-practice gap in undergraduate nursing education and identified strategies to mitigate them, summarising findings from 10 studies conducted from 2017 to 2024. The studies are from Malaysia, Indonesia, Iran, Jordan, South Africa, Qatar, Saudi Arabia, and the United States. All studies, regardless of culture, institution, or educational background, have consistently highlighted the same concern: the disconnect between theory and practice continues to hinder the development of competent and practice-ready nurses.

Several studies have recognised a key theme: the curriculum content does not align with actual clinical practices. According to studies (34, 35), nursing students often struggle to apply theoretical knowledge in clinical placements. Most of the time, procedures taught in theoretical modules and those practised in the hospital are overly idealised and outdated. This is especially true in resource-poor settings (33). This dissonance yields confusion and reduced confidence in students, thereby undermining the evidence-based practice that contemporary nursing strives to espouse. The results of this study align with global reviews, indicating significant improvements in curricula and enhanced responsiveness to clinical needs (36).

Simulation-based education has emerged as one of the most promising strategies to address this gap (37, 38). Demonstrated that high-fidelity simulation can increase clinical confidence, as well as critical thinking and decision-making, if effectively implemented in the curriculum. Students who participated in simulation-based learning felt more ready, making it easier to transition to real clinical settings. Some nursing programmes have not been able to use simulations as widely as they could have. This is often due to a lack of resources, inadequate training of facilitators in simulation, or insufficient institutional buy-in (6). Furthermore, the pedagogical impact of simulation is diminished by the fragmented and tokenistic implementation of simulations in programmes. For a simulation to be effective, it should be integrated into the learning outcomes, routinely assessed, and connected with structured debriefing and reflection to ensure its impact.

The review also emphasised the importance of mentoring and clinical supervision (39). Proved that supportive preceptors and clinical instructors can help students navigate complex clinical environments. Students' learning is enhanced when structured mentorship programmes provide real-time feedback, model professional behaviour, and help bridge the gap between theory and practice. On the other hand, when students lack support, they may feel confused and struggle to make sense of their learning. The preceptor role should be formalised, including training, workload, and collaboration between academic and clinical staff, as recommended.

Learning approaches that are reflective and self-directed were identified as essential enablers of the theory-practice gap. According to studies (6), prompting reflection encourages students to recognise dissonance between theory and practice, reason about and process clinical experiences, and enhance their understanding of nursing concepts. Self-directed learning is a more agentic and autonomous approach to learning that includes learning journals, peer feedback, and guided inquiry. The approaches are closely aligned with Constructivist theories of education, which stress the learner's role in knowledge construction. Nevertheless, effectively implementing these strategies requires experienced facilitation, dedicated curriculum time, and an institutional culture that fosters critical reflection.

This review also uncovered conflicting institutional arrangements that contributed to the gap between theory and practice. According to De (27), the quality of the student learning experience was compromised by organisational constraints, including shortages of clinical placement opportunities, insufficient faculty, limited resources, and poor communication between the workplace and academia (8). In lower- and middle-income countries, students may be assigned to overcrowded or under-resourced clinical environments, often without adequate instructional support (40). Additionally, failing to synchronise the academic calendar and clinical training schedule disrupts the consolidation of learning and clinical exposure, thereby hindering the effective integration of knowledge and skills.

Notably, this review also highlights the importance and context of the theory-practice gap. Although the core issues—misalignment of curriculum, underwhelming clinical support, and lack of institutional support—are common, their nature and extent vary by setting (39, 41). For instance, high-income countries may find the overdependence on simulation and bedside teaching problematic, while resource-limited countries may struggle to obtain sufficient supervision and maintain adequate clinical standards. As a result, the strategies to reduce the gap should address the local needs, resources, and cultural expectations.

This review suggests that assessment strategies are not well-aligned with the goal of theory-practice alignment. It is challenging to find clinical competence that aligns with academic assessments and critical reasoning (42). Nursing programmes can improve in this area by ensuring, through case, OSCES, and portfolio-based assessments, that evaluation methods reflect the demands in practice (21).

In conclusion, the studies included in this review had some limitations, which were of moderate to high quality based on the MMAT appraisal. Some of these include underreporting sampling strategies, limited generalisability, and discussions of long-term outcomes. Despite this, the results provide yet another synthesis of the issues and solutions that should inform educational policy and curriculum.

CONCLUSION

The theory-practice gap is a significant problem in nursing globally. This systematic review indicates that the problem persists in undergraduate nursing programmes. The gap between classroom knowledge and the clinical work environment is hindering the development of practice-ready nurses. This literature review demonstrates that outdated curricula, misalignment between academic and clinical expectations, a lack of structured mentorship, underutilisation of simulation, and institutional barriers, including limited placements and inadequate communication between nursing schools and healthcare facilities, contribute to this gap.

Nevertheless, the review identified some strategies to mitigate the challenge faced. When properly integrated and debriefed, simulation-based learning can activate clinical readiness. Learners who actively reflect enhance their critical-thinking capacity and their understanding of the learning context of theories. The role of structured mentorship and preceptorship programs is crucial in helping students navigate the complexities of clinical practice. Additionally, institutional collaborations between academic and clinical stakeholders create opportunities for uniformity and shared learning objectives.

The study illustrates that a multidimensional, contextualised approach is essential for bridging the theory-practice gap. There is no action plan. The entire nursing education

needs to be coherently redesigned, taking into account both teaching and clinical settings. This means the curricula must be revised to reflect the current clinical practices. A close faculty-preceptor relationship must be renewed. Simulation must be introduced as a core teaching strategy. Reflective learning must be promoted as an essential component of nursing education.

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