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Transitioning Maternity Nursing Practicum to Simulation-based Learning: Faculty Perspectives in Egypt

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Abstract

Clinical practicum is a core component of maternity nursing education; however, increasing student numbers, limited clinical placement opportunities, and concerns related to patient safety have challenged traditional practicum models in many low- and middle-income countries, including Egypt. Simulation-based learning has emerged as a potential alternative to support clinical competence development in maternity nursing education. This study aimed to explore nursing faculty perspectives on the transition from traditional maternity nursing practicum to simulation-based learning within Egyptian nursing education programs. An exploratory descriptive approach was used. Data were collected through in-depth discussions with maternity nursing faculty members involved in undergraduate clinical education. The focus was on faculty experiences with simulation implementation, perceived educational value, and challenges encountered during the transition process. Faculty perspectives highlighted simulation-based learning as a valuable approach for enhancing student confidence, clinical preparedness, and patient safety in the maternity nursing practicum. Participants emphasized the role of simulation in compensating for limited clinical exposure and in supporting standardized learning experiences. However, challenges were identified, including limited simulation resources, increased faculty workload, insufficient training, and the need for institutional and policy-level support to sustain effective implementation. Transitioning the maternity nursing practicum to simulation-based learning is a promising educational strategy in the Egyptian context. Faculty perspectives underscore both the potential benefits and the structural challenges associated with this transition. These findings support the need for strategic investment in simulation infrastructure, faculty development, and curriculum planning to optimize the integration of simulation-based learning into maternity nursing education in Egypt.

Keywords: *Maternity nursing education, Simulation-based learning, Clinical practicum, Nursing faculty, Egypt*

1. Introduction

Egypt has achieved measurable progress in maternal health outcomes over recent decades; however, preventable morbidity and mortality remain sensitive to the timeliness and quality of intrapartum and immediate postpartum care, particularly in higher-risk or resource-limited settings [1][2]. The clinical contribution of nurses and midwives is central to this agenda

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because these nurses provide continuous surveillance, early recognition of deterioration, and first-line responses to obstetric emergencies (e.g., postpartum hemorrhage and hypertensive crises) across facility levels [1]. At the same time, preparing a practice-ready maternity nursing workforce is increasingly constrained by structural pressures on clinical education—high student-to-instructor ratios, limited clinical placement capacity, variable case exposure, and safety/quality expectations that restrict novice participation in high-acuity situations [3].

Within Egyptian nursing education, these constraints are particularly salient in maternity courses because labor and delivery environments are time-critical, privacy-sensitive, and clinically complex. Students may graduate with uneven exposure to rare-but-lethal events (e.g., severe hemorrhage, eclampsia), while clinical supervisors may have limited opportunity to provide repeated coached practice under standardized conditions [3]. Consequently, educational strategies that can produce deliberate practice, consistent assessment, and safe rehearsal of emergency responses have become a practical necessity rather than a curricular enhancement [4][5].

Simulation-based education addresses these needs by providing structured, repeatable clinical scenarios that can be calibrated to learner level, aligned with competency outcomes, and delivered without risk to patients [6]. Contemporary best-practice standards emphasize explicit learning objectives, scenario design, psychological safety, and outcomes-based evaluation to ensure simulation is implemented with educational rigor and fidelity to clinical realities [7]. Evidence syntheses in nursing education further indicate that simulation contributes to learning gains in knowledge, confidence, and clinical performance when intentionally integrated into pre-licensure curricula and supported by appropriate facilitation and debriefing [8]. Debriefing, in particular, functions as the analytic bridge between performance and learning, with structured approaches associated with improved learning outcomes compared with unstructured discussion [9].

In maternity nursing, simulation is especially valuable because it can expose learners to both routine intrapartum workflows and high-risk complications that are unpredictable in real placements, while still enabling repeated rehearsal of team communication and clinical decision-making [10]. A focused synthesis of delivery-care simulation literature highlights that many programs still focus on normal birth processes and measure proximal outcomes (knowledge, satisfaction, competency), while recommending stronger integration of pre- and post-assessment, robust debriefing, and more scenarios for high-risk delivery events [10]. These gaps are directly relevant to the Egyptian context, where placement constraints and variable case-mix can limit consistent exposure to obstetric emergencies across student cohorts and clinical sites [3][10].

Egyptian studies in maternity and women's health nursing provide convergent evidence that simulation modalities (including high-fidelity and video-based simulation) can improve learners' or nurses' knowledge, skills, performance, and self-efficacy for priority conditions such as postpartum hemorrhage and obstetric emergencies [4][5][6][11][12]. Simulation-supported skills laboratory models have also been associated with higher student satisfaction and self-confidence compared with traditional laboratory training alone, suggesting that simulation can strengthen readiness for clinical practice when direct patient-based practice is limited or uneven [13]. Collectively, these findings indicate both the feasibility and the educational value of simulation in Egyptian nursing settings, while underscoring the need for a coherent approach that links (a) simulation design and delivery, (b) competency-aligned assessment, and (c) measurable learning and practice outcomes using recognized standards and theory-based framing [7][14][15].

Against this background, the present study is positioned to strengthen maternity nursing education capacity in Egypt by applying a standards-informed simulation approach that is explicitly aligned with competency targets in maternity care and obstetric emergency response. By addressing documented constraints in clinical education and leveraging evidence-supported mechanisms of learning (deliberate practice and structured debriefing), the study aims to contribute practical guidance for simulation implementation and evaluation that is context-responsive to Egyptian nursing programs and maternity service needs [3][7][8][9][10].

2. Related work

2.1. Simulation in nursing education: evidence and trends

Simulation-based education has become an increasingly prominent strategy in nursing curricula worldwide to address limitations in clinical practicum opportunities. Recent systematic and integrative reviews consistently show that simulation improves learner outcomes, including clinical competence, confidence, and readiness for practice, when implemented with structured design and debriefing components [16][17]. Such work underscores simulation's potential to complement traditional clinical placements, particularly where patient safety and case variability limit meaningful student engagement [16]. Evidence further indicates that simulation is most effective when integrated longitudinally into curricula and when aligned with clearly defined competencies and outcomes, rather than treated as an isolated instructional event [17][18].

Despite these positive findings, studies within undergraduate nursing programs identify persistent variability in simulation implementation. Variations in scenario fidelity, facilitator expertise, debriefing quality, and assessment practices contribute to inconsistent learning outcomes [18][19]. These observations have led to calls for stronger standardization of simulation pedagogy, explicit alignment with competency frameworks, and systematic evaluation of learning transfer to clinical settings [17][19].

2.2. Simulation in maternity and obstetric education

In maternity nursing education specifically, simulation has been applied to both routine care and high-risk obstetric emergency scenarios. Work in this area demonstrates that maternity simulations can enhance student performance on measures of clinical skill, decision-making, and time to intervention, particularly for conditions such as postpartum hemorrhage and eclampsia that may be under-represented in clinical placements [20][21]. Meta-analyses suggest that repeated, structured simulation experiences produce larger gains than single or ad-hoc simulation exposures [22].

Other research highlights the importance of scenario diversity and the quality of debriefing in maternity simulations. Comparisons between high-fidelity simulation and low-fidelity alternatives show differential effects on learner confidence and skill retention, with high-fidelity environments generally associated with greater student satisfaction and perceived realism [23]. However, high fidelity alone does not guarantee improved outcomes; effective debriefing and targeted feedback remain essential for achieving performance gains [24].

2.3. Educational implementation and faculty perspectives

Research focusing on faculty experiences with simulation implementation reveals a range of facilitators and barriers that resonate across educational contexts. Familiar facilitators include institutional support, faculty training in simulation pedagogy, and access to resources such as simulation laboratories and trained personnel [25]. Conversely, barriers frequently cited by educators include limited time for scenario development, insufficient staff expertise, and challenges in balancing simulation with existing clinical requirements [26]. These implementation challenges are particularly salient in environments where simulation is emerging rather than well-established, requiring dedicated planning and investment.

Studies examining faculty perceptions specifically find that educators value simulation for its capacity to standardize clinical learning experiences and reduce student anxiety about entering clinical settings [25][27]. However, faculty also express concerns about workload, the need for ongoing professional development, and the absence of formal institutional policies guiding simulation use [27]. These themes indicate that while faculty recognize the pedagogical value of simulation, sustainable integration into curricula often depends on organizational culture and systemic support.

2.4. Outcomes and evaluation in simulation research

Measurement of simulation outcomes has expanded beyond immediate learner gains to include transfer to clinical performance and long-term retention. Evidence from longitudinal, multi-institutional studies shows that students who participate in simulation-enriched programs perform better in real clinical settings and retain critical skills longer than peers with traditional training alone [28][29]. Nonetheless, the literature also highlights methodological challenges in linking simulation exposure directly to clinical outcomes, due in part to the complexity of healthcare environments and variation in assessment approaches [28].

Emerging work has therefore emphasized the need for robust evaluation frameworks that encompass not only learner performance metrics but also reflective practice, team communication, and, when possible, patient safety indicators [29][30]. Such frameworks support simulation's dual role as both an educational strategy and a catalyst for broader cultural shifts toward safety-oriented practice.

3. Methodology

3.1. Study design and orientation

This study adopted an exploratory descriptive design to examine faculty perspectives on the transition from traditional maternity nursing practicum to simulation-based learning within Egyptian nursing education programs. This design was selected to capture educators' experiences, perceptions, and pedagogical judgments regarding simulation integration, particularly in contexts where clinical placement opportunities are constrained. The methodological orientation was informed by recent simulation research emphasizing the importance of implementation context, faculty engagement, and educational processes in determining the effectiveness and sustainability of simulation-based learning.

Rather than evaluating learner outcomes or comparing instructional modalities, the study focused on understanding how faculty navigate curricular transition, perceive the educational value of simulation, and manage practical and institutional challenges. This approach aligns

with contemporary literature that identifies faculty experience as a critical yet underexplored dimension of simulation implementation in nursing education.

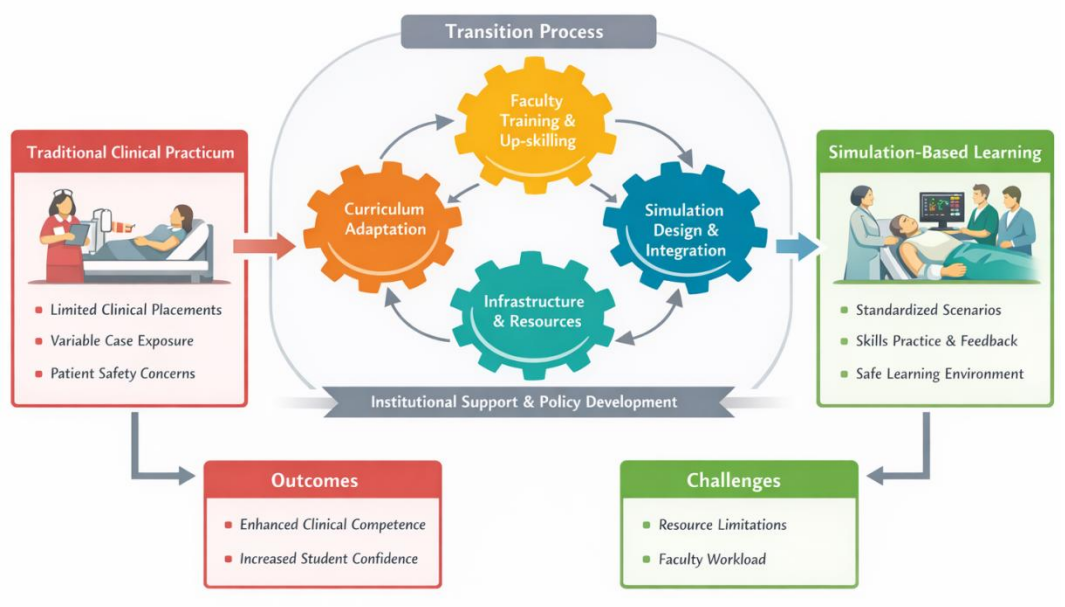

Figure 1. Conceptual model of the transition from traditional maternity nursing practicum to simulation-based learning in the egyptian context

The transition process examined in this study is conceptually illustrated in Figure 1, which informed the study design and guided data collection and analysis.

Figure 1 illustrates the transition process from traditional maternity nursing practicum to simulation-based learning within Egyptian nursing education. The model highlights key drivers of transition, including limitations in clinical placement capacity and patient safety considerations, and identifies core implementation components such as faculty training, curriculum adaptation, simulation design, and infrastructure development. Institutional support and policy alignment are depicted as foundational elements enabling sustainable integration, while anticipated educational outcomes and ongoing challenges are also represented.

3.2. Setting, participants, and data collection

The study was conducted within undergraduate nursing programs in Egypt that offer maternity nursing courses. These programs represent typical educational environments characterized by large student cohorts, limited access to maternity clinical placements, and growing interest in simulation as a complementary or alternative practicum strategy.

Participants were maternity nursing faculty members purposively selected based on their direct involvement in clinical teaching and simulation-based instruction. Inclusion criteria were a minimum of three years of teaching experience in maternity nursing and active participation in planning, delivering, or supervising simulation activities related to maternity practicum. Faculty members who met these criteria and consented to participate were included in the study.

Data were collected through individual, in-depth discussions using a semi-structured guide. The guide was developed based on gaps identified in the related literature, particularly those concerning implementation challenges, faculty workload, institutional support, and perceived educational outcomes of simulation-based learning. Core discussion areas included experiences with transitioning practicum components to simulation, perceived benefits and limitations of simulation for maternity education, institutional readiness, and professional development needs.

Each discussion lasted approximately 45–60 minutes and was conducted in a private setting to facilitate open and reflective dialogue. With participants' permission, discussions were audio-recorded and supplemented by field notes documenting contextual observations relevant to the educational environment.

3.3. Data analysis and consistency

Audio recordings were transcribed verbatim before analysis. Data were analyzed using inductive content analysis to identify recurring patterns and categories related to faculty perspectives on simulation-based practicum. The analysis proceeded through systematic reading of transcripts to achieve immersion, followed by coding of meaning units reflecting experiences, perceptions, and challenges. Codes were compared and grouped into broader categories representing key dimensions of the transition to simulation-based learning.

To enhance methodological rigor, several strategies were employed. Credibility was supported through peer review of coding decisions and category development conducted by an experienced qualitative researcher who was not involved in data collection. Dependability was ensured by maintaining an audit trail documenting analytic steps and decisions. Confirmability was addressed through reflexive memo writing, which allowed the researchers to acknowledge and bracket their assumptions about simulation-based education. Ethical approval was obtained in accordance with institutional guidelines, and all participants provided informed consent. Confidentiality was maintained by removing identifying information from transcripts and reports.

4. Results and discussion

Faculty perspectives revealed a structured yet context-sensitive process of transitioning maternity nursing practicum to simulation-based learning in Egyptian nursing education programs. The findings illustrate how systemic constraints, pedagogical considerations, and institutional capacity interact to shape simulation adoption. In line with the conceptual model presented in Figure 1, the results demonstrate that the transition process is multi-layered, involving drivers of change, implementation mechanisms, faculty roles, and educational outcomes.

An overview of the main themes and their relationship to the transition process is presented in Table 1. The pedagogical value of simulation, implementation challenges, and institutional factors are further elaborated in Tables 2–4.

4.1. Drivers of transition to simulation-based practicum

Faculty consistently identified structural pressures within maternity clinical education as the primary drivers for transitioning toward a simulation-based practicum. These pressures included increased student enrollment, limited access to maternity clinical placements, overcrowding in public hospitals, and heightened concerns regarding patient safety and

privacy. Participants emphasized that these challenges constrained students' opportunities for hands-on practice and limited exposure to critical maternity scenarios.

These findings are consistent with international evidence indicating that simulation is often adopted in response to clinical capacity constraints rather than solely as a pedagogical innovation [16][18]. Within the Egyptian context, the convergence of high service demand and educational expansion renders simulation a pragmatic solution. As summarized in Table 1, these drivers initiate the transition process and shape subsequent implementation decisions.

Table 1. Drivers of transition and their influence on practicum redesign

Driver of transition	Description in the Egyptian context	Educational implication
Limited clinical placements	Overcrowded maternity units and restricted student access	Reduced hands-on opportunities
Patient safety and privacy	Sensitivity of labor and delivery environments	Restriction of student participation
Increased student numbers	Expansion of nursing programs	Inequitable clinical exposure
Variability of clinical cases	Inconsistent exposure to obstetric emergencies	Gaps in competency development

4.2. Perceived educational value of simulation-based learning

Faculty participants emphasized that simulation-based learning enhanced students' confidence, preparedness, and engagement in maternity nursing practice. Simulation was perceived as particularly valuable for practicing high-risk, low-frequency obstetric emergencies, enabling repeated practice in a safe, controlled environment. Faculty noted that simulation reduced variability in learning experiences and allowed alignment with predefined learning outcomes.

These perceptions align with previous studies reporting positive effects of simulation on learner confidence and skill acquisition [20][21][22]. Importantly, faculty views in this study extend existing evidence by highlighting simulation's role in compensating for systemic limitations rather than replacing clinical education entirely. The perceived educational benefits are summarized in Table 2.

Table 2. Faculty-perceived educational benefits of simulation-based practicum

Educational domain	Faculty observations	Alignment with literature
Student confidence	Increased readiness for clinical practice	Supported by simulation outcome studies
Skill acquisition	Improved performance in maternity procedures	Consistent with emergency simulation research
Standardization	Equal learning opportunities across cohorts	Addressed in curriculum-focused studies
Patient safety awareness	Safe rehearsal without patient risk	Emphasized in simulation standards

4.3. Faculty role, workload, and pedagogical responsibility

Despite recognizing the value of simulation, faculty reported increased workload associated with scenario design, facilitation, technical coordination, and structured debriefing. Participants emphasized that effective simulation requires pedagogical expertise and preparation time that exceeds that of traditional clinical supervision. In many cases, these additional responsibilities were not formally acknowledged within workload policies.

This finding aligns with broader concerns in the literature about faculty burden and preparedness during simulation implementation [25][26][27]. In the Egyptian context, limited

access to formal simulation training exacerbated these challenges. Table 3 outlines the key faculty-related challenges and their implications for sustainability.

Table 3. Faculty-related challenges in simulation implementation

Challenge	Description	Impact on sustainability
Increased workload	Time-intensive scenario preparation and debriefing	Risk of faculty burnout
Limited training	Lack of formal simulation pedagogy development	Variable simulation quality
Technical demands	Managing equipment and technology	Dependence on technical support
Role ambiguity	Simulation responsibilities are not formally defined	Reduced institutional recognition

4.4. Institutional readiness and resource availability

Institutional readiness emerged as a critical determinant of successful simulation integration. Faculty described disparities in simulation infrastructure across institutions, ranging from well-equipped skills laboratories to minimal or outdated facilities. Participants emphasized that a sustainable simulation-based practicum requires consistent access to equipment, maintenance support, and administrative commitment.

These findings align with implementation research highlighting the importance of organizational support and policy alignment [18][26]. As depicted in Figure 1, institutional readiness forms the foundation upon which pedagogical and faculty efforts depend. Table 4 summarizes institutional factors influencing the transition process.

Table 4. Institutional factors influencing simulation-based practicum

Institutional factor	Faculty perspective	Educational consequence
Simulation infrastructure	Uneven availability across institutions	Inconsistent learning quality
Administrative support	Limited strategic planning for simulation	Fragmented implementation
Policy alignment	Absence of clear guidelines	Uncertainty in practicum design
Resource allocation	Insufficient funding for maintenance	Reduced long-term sustainability

4.5. Simulation as a complementary practicum model

Faculty consistently viewed simulation as a complementary approach rather than a full replacement for the clinical practicum. Participants emphasized that real clinical exposure remains essential for professional socialization, communication skills, and understanding workflow dynamics. Simulation was therefore conceptualized as a means to strengthen preparedness and competence before or alongside clinical placements.

This hybrid perspective aligns with recent recommendations advocating integrated practicum models that combine simulation with traditional clinical education [17][28]. In the Egyptian context, such models were perceived as realistic and responsive to existing constraints.

Taken together, the findings indicate that transitioning the maternity nursing practicum from face-to-face to simulation-based learning in Egypt is shaped by interactions among structural, pedagogical, and institutional factors. The four tables collectively demonstrate how drivers of change, perceived educational value, faculty capacity, and institutional readiness converge within the transition process. These results reinforce the conceptual model presented in Figure 1 and extend current literature by providing context-specific insights into simulation adoption in maternity nursing education.

The expanded analysis confirms that simulation-based learning represents a viable and contextually appropriate strategy for addressing practicum limitations in Egyptian maternity nursing education. However, its effectiveness depends on coordinated investment in faculty development, institutional infrastructure, and curriculum planning. By integrating faculty perspectives with existing evidence, this study contributes to a deeper understanding of the transition to simulation-based practicum in resource-limited educational settings.

5. Implications for practice, education, and policy

The findings of this study highlight several important implications for maternity nursing education and clinical training in Egypt. From a practice perspective, integrating simulation-based learning into maternity practicum can enhance students' preparedness for clinical settings by enabling safe rehearsal of routine and high-risk obstetric scenarios. Simulation allows students to develop technical skills, clinical judgment, and patient safety awareness before direct patient contact, which may support safer, more effective participation in maternity care environments.

From an educational perspective, the transition to simulation-based practicum requires a purposeful curriculum redesign that clearly defines simulation's role as a complementary component of clinical education. Nursing programs should ensure that simulation activities align with maternity learning outcomes and are supported by structured debriefing to maximize educational value. Faculty development in simulation pedagogy and debriefing techniques is essential to ensure consistency and quality across programs. Additionally, recognition of simulation-related workload within faculty responsibilities may support sustainable implementation.

From a policy perspective, institutional and national stakeholders should consider establishing clear guidelines for integrating simulation into the maternity nursing practicum. Policy support for investment in simulation infrastructure, maintenance, and technical support is critical for long-term sustainability. Developing standards for simulation use within nursing education programs may also promote equity in learning opportunities across institutions and strengthen maternity nursing education capacity in Egypt.

6. Conclusion

This study examined faculty perspectives on transitioning the maternity nursing practicum to simulation-based learning within the Egyptian nursing education context. The findings demonstrate that simulation-based learning has emerged as a practical and valued response to persistent challenges in maternity clinical education, including limited clinical placement capacity, rising student enrollment, and concerns about patient safety and privacy. Faculty perspectives highlight simulation not as a replacement for clinical practice, but as a complementary strategy that strengthens student preparedness and supports more equitable learning experiences.

The study contributes to the growing body of evidence indicating that effective simulation integration depends on more than technological availability. Faculty experiences underscore the central role of pedagogical planning, structured debriefing, and educator preparedness in translating simulation into meaningful learning outcomes. The transition process is shaped by interacting factors at the faculty, institutional, and policy levels, emphasizing the need for coordinated approaches rather than isolated curricular changes.

Within the Egyptian context, the findings suggest that simulation-based practicum can play a critical role in addressing variability in clinical exposure and enhancing competency

development in maternity nursing education. However, sustainable implementation requires institutional commitment to faculty development, recognition of simulation-related workload, and strategic investment in infrastructure and technical support. Without such support, the educational potential of simulation may remain underutilized.

In conclusion, transitioning the maternity nursing practicum to simulation-based learning represents a promising, contextually appropriate strategy for strengthening maternity nursing education in Egypt. By foregrounding faculty perspectives and implementation realities, this study provides practical insights to inform curriculum development, institutional planning, and policy initiatives aimed at improving the quality and consistency of maternity nursing education and, ultimately, contributing to safer maternal health care practices.

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