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Effectiveness of Interdisciplinary Approach in Midwifery Higher Education Curriculum : Scoping Review

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Abstract: This study aims to analyze the effectiveness of the interdisciplinary approach in midwifery higher education curricula. The research method utilized a scoping review of the Scopus, PubMed, and ScienceDirect databases. This method included the identification of research questions, searching for appropriate literature, selecting relevant studies, and mapping and analyzing data to identify knowledge gaps. The data analysis technique employed was thematic analysis. The results identified ten key articles that highlighted several key themes: midwifery education and training models, implementation of global standards, innovation in learning, and interprofessional collaboration. Findings showed that the Continuity of Midwifery (CoM) approach and mentor training positively impacted students' learning experiences, but clinical evaluation and supporting facilities still require significant improvement. The CoM education model underscored students' preferences for autonomous and collaborative practice. Enhancements to clinical evaluation and support facilities were recognized as important steps to improve the quality of education. Additionally, the implementation of global standards and innovation in interprofessional education is crucial for improving interprofessional collaboration and care outcomes. It is recommended to strengthen interprofessional approaches and community learning, as well as to engage students as researchers, to prepare them for the complex challenges in midwifery practice. These steps are expected to enhance the competency of midwifery graduates globally.

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Introduction

Interdisciplinary education combines expertise from several fields to solve challenging issues and promote comprehensive understanding (Noy et al., 2017). This approach challenges educational institutions to create flexible systems that support cross-faculty learning and prepare future students (Noy et al., 2017; Turner et al., 2024). Benefits of interdisciplinary education for students include improved decision-making, empathy, and teamwork (Nandan & London, 2013; Stockdale, 2024). Clinical experience is considered important, so lecturers need to guide students with insights into diverse midwifery practices (Kuliukas et al., 2021). Research by Toosi et al. (2021) in Iran emphasized the importance of continuous evaluation of the midwifery curriculum to ensure quality education, with a focus on improving educational infrastructure and better clinical evaluation (Toosi et al., 2021). The implementation of international standards in the midwifery curriculum demands attention to the program, curriculum system, and lecturer preparation (Barger et al., 2019; Vuso & James, 2017). The International Conference Midwifery (ICM) recommends core competencies for effective teaching of theory and practice, and the curriculum should keep up with the latest scientific and technological developments (Shikuku, 2024; West et al., 2016).

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The interprofessional approach enhances collaboration between midwifery students, obstetricians, and other specialists in antenatal, perinatal, and postnatal care (Avery et al., 2020). In the context of midwifery education, it is important to address the differences in learning objectives between medical students and midwifery preceptors to foster effective interdisciplinary relationships (Quinlivan et al., 2003). Failure to bridge this gap can undermine team collaboration and communication, while ethics education in midwifery is important to strengthen collaboration, mutual respect, and communication when facing ethical conflicts (Megregian, 2016; Randita et al., 2019). The interdisciplinary approach aims to prepare students for effective and high-quality midwifery practice (Fullerton et al., 2013). New contributions in midwifery education with a focus on interdisciplinary approaches have not been widely explored, especially in developing countries such as Indonesia and Iran (Randita, Widyandana, and Claramita 2019; Toosi et al. 2021). Although many reviews emphasize the importance of interdisciplinary education in healthcare, few address the implementation and optimization of this approach in the midwifery curriculum.

A literature review on Interprofessional Education (IPE) found that language is a barrier to collaboration and the interprofessional curriculum is not yet optimal (Lewitt et al. 2015). Although systematic reviews and meta-analyses of IPE report positive impacts on knowledge, skills, attitudes, and working relationships, they do not explore the impact of IPE on clinical competence, the long-term impact on professional practice after graduation, or student and faculty perceptions of curriculum and teaching strategiesm (Guraya and Barr 2018). Other review articles emphasized that successful IPE depends on shared goals, regular communication, and active leadership but did not address ethical issues in interdisciplinary collaboration and training strategies for healthcare doctoral students (Van Teijlingen et al. 2019).

This study offers innovations in midwifery education through the application of mentoring in clinical training that can improve student integration in the therapeutic team and the quality of patient care (Stefaniak and Dmoch-Gajzlerska 2020, 2021). Evaluation of best practices from different countries is needed to ensure curricula are in line with national and international standards and relevant to local contexts to provide comprehensive guidance for midwifery higher education institutions to achieve good quality curricula (Barger et al. 2019; Vuso and James 2017). This study also focuses on behavioral ethics education in midwifery programs to facilitate effective communication and mutual respect within the healthcare team. Thus, the purpose of this study is to analyze the effectiveness of the interdisciplinary approach in the midwifery higher education curriculum to serve as a basis for developing a more comprehensive and sustainable midwifery education policy.

Research Method

This research used the scoping review method because it had a broad scope of literature and there was evidence to find and map concepts, clarify an understanding in this domain, identify and analyze knowledge gaps in the literature, and develop ideas or theoretical approaches that are suitable for future research. This methodology is not limited to a single study (Arksey & O'Malley, 2005). The five stages are as follows:

Identify the research question

As shown in Table 1, a structured population, concept, and context (PCC) analysis was used to construct the study questions. Using PCC as a means of achieving a broad research goal is to offer an exhaustive analysis of the literature pertaining to educators and students. Research question: What is the effectiveness of an interdisciplinary approach in improving students' problem-solving and collaborative competencies in midwifery higher education?

Table 1. Developing research question using the PCC method

Population	Medical students and midwifery students, midwifery lecturers, midwife graduate students
Concept	Interdisciplinary approach in the curriculum to enhance problem-solving and collaboration competencies
Context	Midwifery higher education institutions of medical faculties in various countries

Identify relevant research

A comprehensive keyword search strategy (Table 2) was used to identify relevant studies in Pubmed, Scopus, Google Scholar, and ScinceDirect databases, conducted between May and June 2024, with a time limit from 2018 to 2024, to understand aspects of interdisciplinary literature in health professions higher education curricula.

Table 2. *Literature term search*

((("interdisciplinary studies"[MeSH Terms]) OR Collaborative AND (curriculum"[MeSH Terms])) AND ("health"OR Doctors OR midwifery [MeSH Terms])) AND ("education"[MeSH Terms])

Article selection

Inclusion criteria :

a) Focused primarily on interdisciplinarity in the curriculum of students in health professions higher education.
b) Articles in English
c) Articles are easily accessible
d) Research articles relevant to health education from countries with good service delivery systems.
e) Use quantitative, qualitative, and mixed methods of research.

Some research articles were considered relevant from the abstracts. All relevant material was accessible. After duplicates were removed, titles and abstracts were screened. At this point, a sizable number of data sources (n = 932) were eliminated because they did not satisfy the inclusion requirements.

Data Mapping

Describes the search results regarding the educational experiences of students and academics involved with the collaborative model of health professions higher education. The data extraction (Table 3) included authors, year of publication, country, purpose, methodology, including study population, findings, and conclusions.

Compile, summarize, and report results

A total of 908 citations were collected through database searches and organized in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flowchart (Figure 1). After checking titles and abstracts, 83 articles were selected for full-text examination using the Joanna Briggs Institute (JBI) critical appraisal tool, and 10 articles were included in the review. Articles excluded at this stage included 24 non-population articles, 2 articles outside the inclusion setting, 10 review and opinion articles, and 8 conference articles. The authors then analyzed, summarized, and reported the results. Scoping of this review followed PRISMA standards and completed PRISMA checklists were included where relevant (Figure 1).

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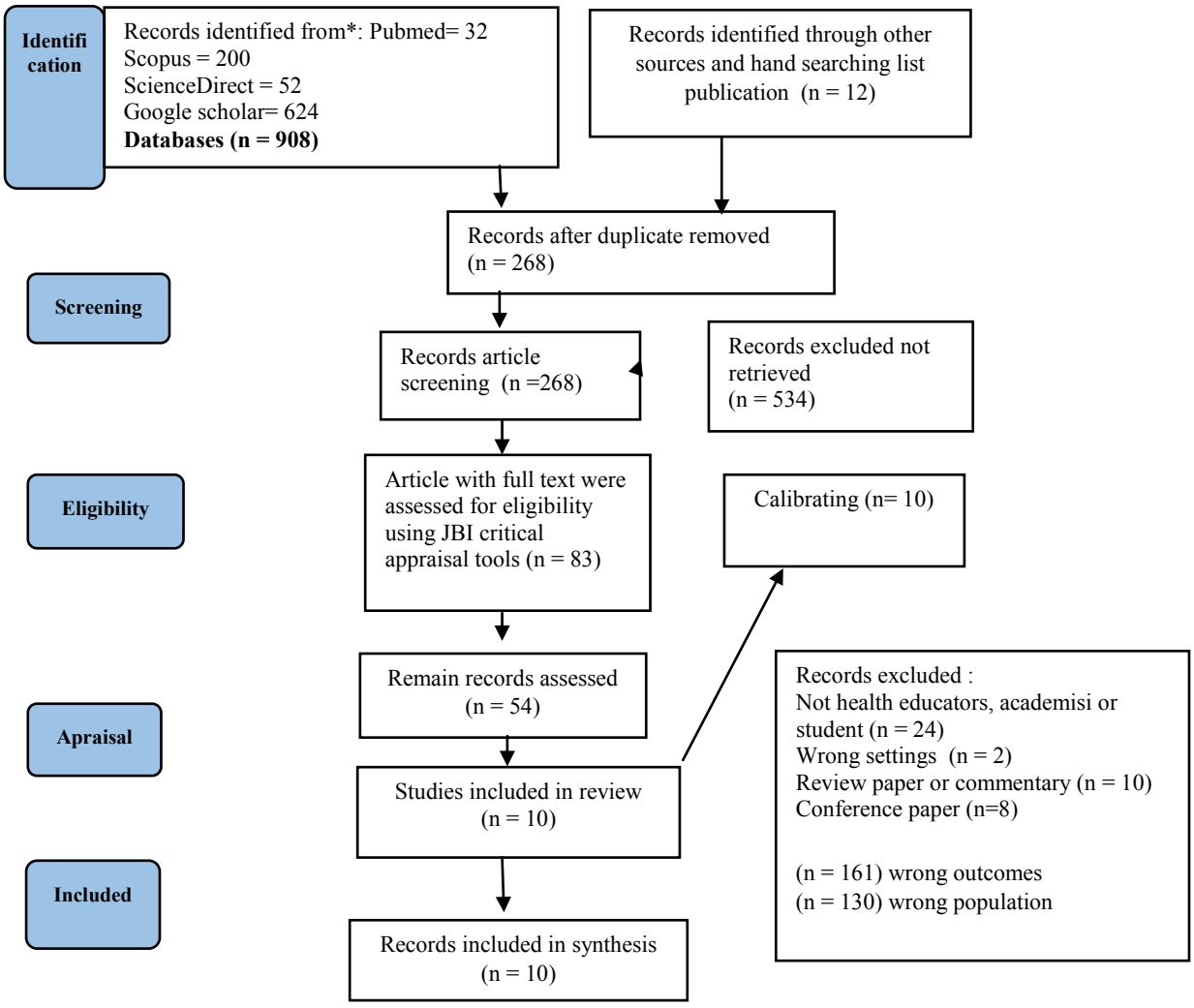

Figure 1. Prisma Flowchat

Table 3. Data Synthesis

Author, year, country	purpose	Methods Used	Results	Finding
- Authors : Lesley Kuliukas et al - Year: 2019 - Country: Australia	-Explore the practice model of midwifery student choice and first job decisions. - Identify influences on student choice for future employment.	-A qualitative descriptive design explored midwifery students' preferences and influences. - Interviews and student groups in their last semester provided the data. -Semi-structured questions guided discussions about future employment options.	- Model choice influenced by clinical experience, CoM preferred, public hospitals first over private hospitals. -Work/life balance considered; some may not choose the CoM model.	- Students prefer the continuity of the midwifery model for first employment. -Influences on model choice include university, clinical placement, and work-life balance.

				-Clinical and educator experiences influenced students' career choices.
- Authors: Małgorzata Stefaniak et al -Year:2020 - Country: Polandia	- To describe the mentor-led clinical training experiences of midwifery students. - To determine perceptions of mentoring as a novel approach to training.	- A descriptive qualitative study using interviews from focus groups. -Five questions guided the focus group discussions.	- Mentoring is considered innovative and effective for clinical training. - Students positively evaluated mentor-led training for skill improvement. - Therapeutic teams improve patient care.	-Mentoring is considered innovative and effective for clinical training. -Mentor-led training improves clinical skills and builds new competencies.
-Authors: Monireh Toosi et al -Year : 2021. - Country :Iran	-Evaluate midwifery graduates' opinions on the quality of education in Iran. -Identify areas that need improvement in the midwifery education curriculum.	-Descriptive cross-sectional study with census sampling of midwifery graduates. -validated researcher-made questionnaire derived from the Association of American Medical Colleges.	-62% were satisfied with the quality of the four-year midwifery education. -Clinical experience was satisfactory, with some exceptions. -Curriculum integration and student support services were generally evaluated positively.	-Graduates are satisfied with the quality of midwifery education and curriculum integration. -Challenges faced in the clinical setting due to staff behavior and facilities
- Authors: Mary Barger et al - Year : 2019 - Country: America	-Explore the use of ICM Education Standards in global midwifery education. -Identify challenges and influences on educational programs.	- Study using focus groups and interviews that is qualitative. - Thematic examination of data using the Framework method. -Theme recognition, indexing, charting, mapping, and interpretation.	-Explore the use of the ICM Global Standards for Midwifery Education globally. -Lack of qualified educators and resources -Recommendations to disseminate, implement, and sustain quality midwifery programs.	- Midwives have differing levels of awareness about the ICM Education Standards around the world. - Challenges include a lack of prepared teachers and limited skills opportunities.
- Authors: Melissa Avery et al - Year: 2020	- Develop interprofessional education	- Interprofessional education modules developed for	Results highlight the potential for improved care	Interprofessional education enhances

- Country : America	modules for nurses and midwives. - Improve health resources and health outcomes both	midwifery and obstetrics residents - Modules based on IPEC Core Competencies for health professions education	through interprofessional education initiatives. and emphasize the need for further research on patient outcomes.	collaboration between midwifery students and improves perinatal care outcomes through collaborative practice.
- Authors: Kerstin Erlandsson et al - Year: 2019. - Country: Swedia	- What expectations did midwifery educators have for the blended program, and what did they learn?. - Assess the impact of the web-based master's program on educators.	- Mixed methods: quantitative and qualitative data collection. - Structured baseline and endpoint questionnaires with focus group discussions. - For data analysis, descriptive statistics and content analysis are used.	Midwifery educators improved technology access and teaching skills after the program. Educators realized empowering student learning and clinical skills and critical thinking and reflective teaching approaches.	- Midwifery educators improve teaching skills and embrace technology in Bangladesh. - Through this program, educators develop their critical thinking and decision-making abilities.
- Authors: Malin Bogren et al - Year: 2019 - Country: Swedia	- Examine the advantages of simulation for educators who teach midwifery. - Improve competence and communication skills in midwifery education.	- Semi-structured one-on-one interviews with educators in midwifery. - Inductive content analysis for data interpretation.	- The simulation course improved midwifery educators' competencies and teaching strategies. - The improved pedagogical techniques had a positive impact on students' deep learning.	- The simulation course improves midwifery educators' professional competence and communicatio n skills. - Educators apply new pedagogical tools and communicatio n strategies effectively.
- Authors: Abt Randita et al - Year: 2019 - Country:Indonesia	- The simulation course improves midwifery educators' professional competence and communication skills.	- Single-group pretest and posttest design in a pre-experimental investigation. - Direct observation of supervisors using the Interprofessional Collaborator	- IPE community-based learning enhances the collaboration skills of students studying medicine and midwifery. - The Wilcoxon test	- Significant improvements in IPE competencies were observed pre- and post-course. - Strongest

	- Educators apply new pedagogical tools and communication strategies effectively.	Assessment Rubric (ICAR) and training teachers on the ICAR instrument.	showed significant improvement in IPE competencies post-course.	effect on team functioning competencies, moderate effect on patient-centered approach.
- Authors: Yvonne Kuipers et al - Year : 2023 - Country: Belanda	Incorporating independent midwifery students into qualitative research as co-investigators.	- Students conducted face-to-face interviews with women. - Open coding and constant comparison analysis methods for data analysis.	Students actively participate. Research results are presented to the audience, and students fulfill the BSC midwifery curriculum outcomes for graduation.	- Students participate as co-researchers. Students conduct face-to--- face interviews with women about traumatic childbirth.
- Authors: Duncan N Shikuku et al - Year: 2022. - Country: Kenya	- Examine the post-competency-based curriculum workshop in Kenya midwife educators' capacity. -Evaluate knowledge, skills, and confidence gains after training	Quasi-experimental design with before-after training assessment. For statistical analysis, use the McNemar test and the Wilcoxon sign rank test. The results were presented using descriptive statistics.	Notable advancement in the confidence, knowledge, and abilities of midwifery educators; management of shoulder dystocia and newborn resuscitation; confidence to use various teaching methodologies post-training.	- The knowledge, abilities, and confidence of educators were greatly enhanced by trainings. - A revised curriculum resulted in more practical hours and instructional material. - The confidence survey tool showed good internal consistency and reliability.

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Results and Discussion

Demographic Characteristics of Articles

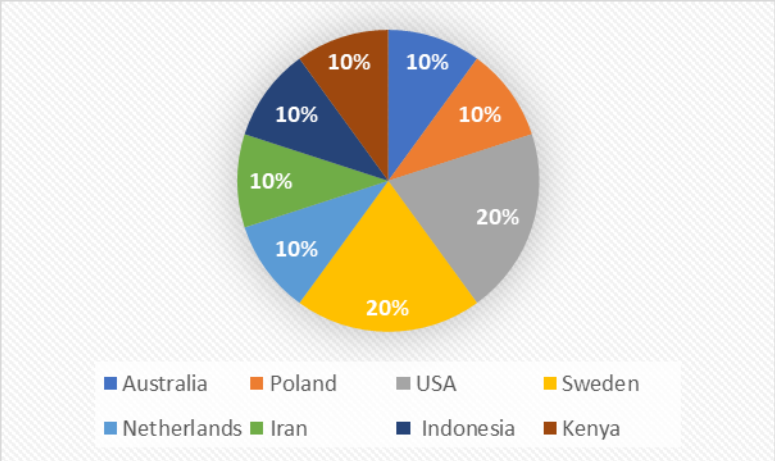

Figure 2. Distribution of Research Country Data

Ten articles from developed and developing countries were reviewed. Developed countries: Australia (10%, article number 1), Poland (10%, article number 2), USA (20%, articles number 4 and number 5), Sweden (20%, articles number 6 and number 7), Netherlands (10%, article number 9). Developing countries: Iran (10%, article number 3), Indonesia (10%, article number 8), and Kenya (10%, article number 10). Sample characteristics included medical and midwifery students (articles number 5 and number 8), graduate midwives (articles number 1 and number 3), midwifery lecturers (articles number 4, 6, 7, 10), and midwifery students (articles number 2 and 9). Methods used: qualitative (article number 1, 2, 4, 5, 7, 9), quantitative (article number 3, 8, 10), and mixed method (article number 6).

Thematic Analysis

The implementation of an interdisciplinary curriculum in midwifery education can lead to the development of graduates with interdisciplinary skills sought by employers (Bajada & Trayler, 2013).

Table 4. Results of Article Synthesis

No	Theme	Subject Matter
1	Midwifery education and training model	a) Elective practice model and graduate outcomes b) Training by mentors c) Quality and improvement of midwifery education d) Competency-based curriculum training
2	Implementation and global challenges in midwifery education	a) ICM education standards in midwifery education b) Web-based master program for midwifery lecturers c) Simulation-based learning
3	Innovation and collaboration in midwifery education	a) Interprofessional education module b) IPE community-based learning c) Midwifery students as researchers

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Discussion

Midwifery education and training model

a) Elective practice model and graduate outcomes
Midwifery students tend to choose the Continuity of Midwifery (CoM) model because of the autonomous and collaborative practice experiences they had during college. Studies show that clinical experience, lecturer education, clinical practice environment, and continuity of care relationships with women influence graduates' careers (Kuliukas et al., 2021). The four-year midwifery education program was deemed satisfactory by 62% of graduates, who also said that the curriculum and student support services were generally well-received (Toosi et al., 2021).

b) Training by mentors
Malgorzata Stefaniak and Ewa Dmoch-Gajzlerska's (2020) study in Poland reported that midwifery students positively rated clinical training with mentoring. Mentoring is considered an innovative and effective method of improving clinical skills. By involving various disciplines and health practitioners, mentoring helps students develop professionalism in midwifery (Stefaniak & Dmoch-Gajzlerska, 2020).

c) Quality and improvement of midwifery education
62% of Iranian midwifery graduates who completed the four-year program expressed satisfaction with the level of education received, and 61% said that theoretical coursework and practical experiences were well integrated. Only 40% of graduates expressed satisfaction with the caliber of clinical evaluation, while they were likewise only somewhat satisfied with their internship experience. Among the difficulties they encountered were insufficient clinical personnel and inadequate infrastructure. Bringing in more seasoned professors, enhancing collaboration between clinical departments and midwifery instructors, and coordinating theoretical instruction with practice are some suggested enhancements (Toosi et al., 2021).

d) Competency-based curriculum training
Inadequate curriculum and shortage of skilled midwifery educators are important factors affecting the quality of graduates (Shikuku et al, 2024). EmONC (Emergency Obstetrics and Newborn Care) training was reported to increase knowledge scores from 60.3% to 88%, skills from 44.7% to 88.7%, and educator confidence scores from 36.7% to 70%. With this training, educators were able to deliver a more effective curriculum, which improved student competency, while the updated curriculum increased practicum hours and teaching content (Shikuku et al, 2024).

Implementation and global challenges in midwifery education

a) ICM education standards in midwifery education
Different nations execute the International Confederation of Midwives' (ICM) global guidelines for midwifery education differently. Although there is awareness of these standards, some standards do not fully match the real situation of midwifery education (Barger et al., 2019). The main challenge is the shortage of qualified educators and resources, thus the need for global dissemination, implementation, and sustainability of quality midwifery education program standards.

b) Web-based master program for midwifery lecturers
Following the education, midwifery lecturers in Sweden use technology and teaching skills more effectively. A study by Erlandsson et al. (2019) showed that a web-based master's program increased lecturers' openness to technology, strengthened pedagogical skills, and empowered students. The program also increased lecturers'

confidence in delivering midwifery practice through innovative methods (Erlandsson et al., 2019)

c) Simulation-based learning
Simulation courses improve midwifery educators' professional competence and communication skills, as well as teaching through simulation methods. Contextualized and continuous midwifery education is needed to maintain educator competence and improve the quality of the profession (Bogren et al., 2019)

Innovation and collaboration in midwifery education

a) Interprofessional education module
Melissa Avery et al.'s (2020) research in America developed an interprofessional education module to improve perinatal care outcomes and collaborative practice (Avery et al., 2020). Interprofessional education may enhance teamwork and healthcare results, according to research.

b) IPE community-based learning
The implementation of interprofessional and community-based learning (IPE-COM) helps midwifery students improve their collaborative skills, communication, team management, and patient-centered approach. Studies indicate that IPE-COM helps medical and midwifery students develop their collaboration abilities (Randita et al., 2019).

c) Midwifery students as researchers
Involving midwifery students as co-researchers increases autonomy in the research and learning process (Kuipers & Verschuren, 2023). This active participation helps students hone their critical and analytical thinking skills and integrate knowledge from various disciplines to understand complex problems in midwifery practice (Prabandari, 2019).

Conceptually, the Continuity of midwifery (CoM) and mentoring models effectively demonstrate midwifery students' autonomous practice experience. Practically, these findings call for curriculum improvement by integrating theory and practice, facility development and technology-based training programs.

Conclusion

This study concludes that continuity of midwifery (CoM) and mentor training has a positive impact on students' learning experience, but clinical evaluation and supporting facilities need significant improvement. The CoM education model showed students' preference for autonomous and collaborative practice. Enhancements to clinical assessment and support services were recognized as critical measures to raise the standard of instruction. Implementation of global standards and innovations in interprofessional education is important to improve interprofessional collaboration and care outcomes. It is recommended to strengthen interprofessional approaches and community learning, as well as engage students as researchers to prepare them for challenges in midwifery practice. These steps are expected to improve the competence of midwifery graduates globally.

Recommendation

Recommendations for policymakers are to integrate an interdisciplinary approach in the midwifery curriculum model and conduct continuous evaluation and adaptation to improve graduate competence. Future research needs to develop a technology-based education model for midwifery curriculum in developing countries.

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