



Midwifery Education and the Six Pillars of Health Transformation : Challenges, Strategies, and Future Directions

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Abstract: This study aims to analyze the urgency of integrating the six pillars of health transformation—primary care, referral services, health resilience, health financing, human resources for health, and health technology—into midwifery education and to explore the implications and implementation strategies related to policy, curriculum, and institutional governance. The method used is a systematic literature review with data from electronic databases such as Scopus, Google Scholar, PubMed, and ScienceDirect. The instrument employed is a structured literature matrix table, and the data were analyzed using a qualitative descriptive approach to identify thematic patterns and gaps in the existing literature. The findings of this study indicate that integrating the pillars of health transformation into midwifery education is essential for producing graduates who are not only clinically competent but also adaptable to health system dynamics. The results highlight that interprofessional collaboration, digital technologies, experiential learning, and context-based curricula are key components that enhance the quality of midwifery education. The implementation of an Outcome-Based Education (OBE) curriculum is found to be highly relevant for achieving comprehensive graduate competencies, including both clinical and non-clinical skills such as policy literacy and financial literacy. Therefore, reforming midwifery education is a critical strategy to support the sustainable success of health system transformation, particularly in improving maternal and child healthcare services across various settings, including rural and low-resource areas.

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Introduction

The healthcare sector in Indonesia is currently facing complex structural challenges that hinder progress towards national health development targets, particularly in reducing maternal and neonatal mortality rates and ensuring equitable access to quality healthcare services. According to the World Health Organization, Indonesia's health workforce density stands at only 3.84 per 1,000 population, which is below the minimum threshold of 4.45 required to achieve 80% universal health coverage (UHC) (Muharram et al., 2025). This shortfall is compounded by a critical issue of unequal distribution, with health professionals, especially specialist doctors and dental practitioners, disproportionately concentrated in urban areas and provincial capitals. In contrast, rural and remote regions suffer from chronic personnel shortages (Kementerian Kesehatan Republik Indonesia, 2023).

In response to these systemic imbalances, the Indonesian Ministry of Health introduced the Health System Transformation agenda in 2021, structured around six interdependent pillars: (1) transformation of primary services, (2) transformation of referral services, (3) transformation of health resilience systems, (4) transformation of health



financing systems, (5) transformation of the health workforce, and (6) transformation of health technology (Kementerian Kesehatan Republik Indonesia, 2023). This policy emphasizes the need for a comprehensive restructuring of the national health system to make it more adaptive, prevention-oriented, and resilient to future challenges, including global health crises (Bappenas, 2022).

A strategic entry point to support this transformation lies within midwifery education, especially considering the pivotal role of midwives in maternal and child health (MCH). Midwives often serve as the first and sometimes only contact for women in the healthcare system, especially in underserved areas. Therefore, producing midwives who are not only clinically competent but also systemically responsive is vital. Although the importance of midwifery education has been widely acknowledged, this study introduces a novel approach by proposing the integration of the six national health transformation pillars into midwifery education. This integration is expected to significantly elevate the quality and relevance of midwifery graduates by aligning their training with the evolving demands of the health system. Producing midwives through appropriate education becomes key to continuous improvement in maternal and neonatal health and adolescent health (Griffin et al., 2023). Studies show that improving the quality and coverage of midwifery services directly correlates with reducing maternal and neonatal mortality, especially in countries with strong midwifery education systems integrated with primary services (Filby et al., 2016; World Health Organization, 2021). Therefore, integrating the six pillars of health transformation into the midwifery education system becomes an urgent necessity from the policy, curriculum, and institutional governance perspectives. This integration is a critical foundation for producing competent, adaptive, and competitive midwives capable of addressing current and future health challenges (Kementerian Kesehatan Republik Indonesia, 2023).

Implementing health system transformation in midwifery education institutions should be realized by applying an Outcome-Based Education (OBE) curriculum that aligns with the dynamics of national and global healthcare services. The OBE approach focuses on achieving measurable, comprehensive learning outcomes oriented to the needs of graduate users and the demands of professional practice (Harden, 2007). This curriculum is designed to holistically integrate knowledge, skills, and professional attitudes, resulting in technically competent graduates with critical, innovative, and adaptive thinking capacities (Biggs & Tang, 2011; Spady, 1994). Furthermore, successful OBE curriculum implementation requires strengthening the capacity of lecturers and clinical instructors, optimizing community-based practices, and establishing a continuous improvement evaluation system (World Health Organization, 2023). Therefore, midwifery education based on OBE is expected to produce outstanding, resilient, and competitive midwives who are responsive to contemporary health challenges, including demographic changes, the rising prevalence of non-communicable diseases, potential global health crises, and increasing demands for patient safety, service quality, and user satisfaction (Kementerian Kesehatan Republik Indonesia, 2023).

However, a successful transformation of midwifery education demands more than curriculum redesign. It requires systemic alignment across policy frameworks, educational governance, and institutional leadership. Therefore, this research focuses on analyzing how the six health transformation pillars can be strategically embedded into midwifery education through three lenses: policy alignment, curriculum reform, and institutional governance.

The six pillars of national health transformation—comprising the transformation of primary care services, referral services, health resilience systems, health financing systems,



health human resources, and health technology—constitute an integrated strategic framework to strengthen Indonesia’s health system. These pillars demand a systemic response across sectors, including health education institutions. Midwifery education, as a critical component in providing health personnel for primary care, is expected to transition from conventional approaches to more adaptive and collaborative models. This transformation must align with the evolving needs of society, advancements in science and technology, and national policy directions emphasizing intersectoral collaboration. This study aims to examine the urgency of integrating the six pillars of health transformation into midwifery education and explore the implications and implementation strategies regarding policy, curriculum, and institutional governance. Through this approach, the goal is to develop a profile of midwifery graduates who are clinically competent, adaptive to systemic health changes, and competitive within both national and global contexts.

Research Method

This study used a qualitative approach with a systematic literature review, which synthesizes existing literature. This stage involves reviewing the literature, identifying the main ideas of each article, and writing them in a paraphrased style (Rahayu et al., 2019). This process includes gathering various articles from databases such as Scopus, Google Scholar, PubMed, and ScienceDirect on the six pillars of health transformation in midwifery education. The keywords used were “primary health care” OR “interprofessional collaborative,” OR “health resilience system,” OR “financial literacy,” “human resources health” OR “health technology,” AND “midwifery” OR “midwifery education.”

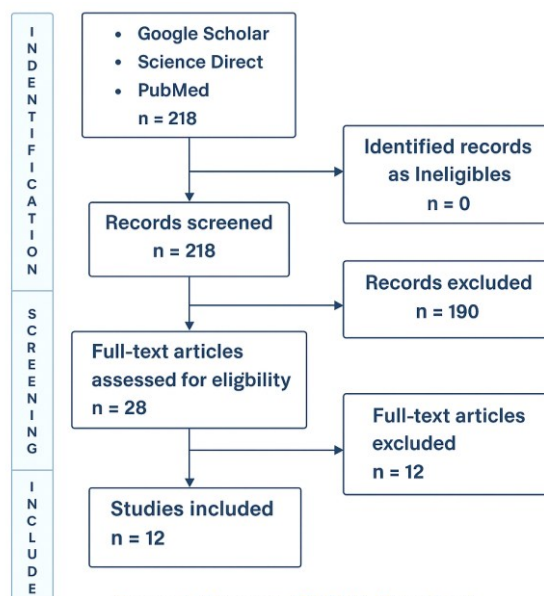


Figure 1. Diagram PRISMA Flowchart

In the identification phase, 218 articles were retrieved from three electronic databases: Google Scholar, Science Direct, and PubMed. No records were excluded at this stage due to immediate ineligibility. Subsequently, all 218 records underwent screening based on titles and abstracts. Of these, 190 articles were excluded for being irrelevant to the research topic or not meeting the initial selection criteria. The remaining 28 articles proceeded to the eligibility assessment stage, where full-text versions were reviewed. At this stage, 16 articles were excluded for reasons such as lacking relevant outcomes, insufficient data, or employing inappropriate study designs. Ultimately, 12 articles met all inclusion criteria and were



incorporated into this systematic review. To analyze the included studies, a thematic analysis approach was employed. This technique allowed for the identification, organization, and interpretation of patterns or themes across the selected literature. Thematic coding was conducted manually to group findings into major categories aligned with the research objectives, ensuring consistency and relevance across the data set.

Results and Discussion

This literature review further analyzed 12 articles that met the inclusion criteria. Each article was systematically evaluated to identify its contribution to the topic under study. The information from each study is summarized in a literature matrix table consisting of six main categories: Author and Year, Article Title, Country of Study, Research Method, Focus of the Study, and Key Findings. The construction of this matrix aims to provide a comprehensive overview of each study's methodological characteristics and substantive content, facilitate cross-study comparisons, and identify key themes and knowledge gaps within the existing literature. This approach enables the analysis beyond mere description and offers a solid foundation for synthesizing findings and developing a more in-depth discussion. Below is Table 1—Literature Review Matrix, which summarizes the key elements of the twelve selected studies.

Author/Year	Title	Country	Method	Focus	Summary
(Olive et al., 2022)	Clinical academic research internships: What works for nurses and the wider NMAHP workforce	Inggris	Descriptive, narrative analysis	Research training for nurses	Internships improve professional development and the quality of patient care.
(Yuliana et al., 2020)	Implementasi JKN dalam pelayanan kebidanan dan neonatal	Indonesia	Qualitative Descriptive	The Implementation of the National Health Insurance (JKN) in Midwifery Services	There are challenges related to information systems and non-capitation funding; policy reform is needed.
(Church et al., 2023)	Student midwives' perspectives of women's sexual and reproductive health literacy in Turkey	Turki	Cross-sectional survey	Midwifery students' perspectives	Cultural norms and misconceptions hinder SRH (Sexual and Reproductive Health) literacy.
(Aune et al., 2023)	Women's experiences of continuity of care from	Norwegia	Qualitative, in-depth interviews	Continuity of Care model by students	CoC builds trust and emotional security for patients.



	student midwives – Norway				
(Graham et al., 2025)	Preparedness of rural midwives in LMICs: A scoping review	Low- and middle-income countries	Scoping review	Midwifery workforce readiness	Training and contextual support are needed for midwives
(Atalaia et al., 2025)	Primary health care in Austria: Interprofessional collaboration challenges	Austria	Qualitative, Focus Group Discussion (FGD)	Collaboration in primary healthcare services	Structural and cultural barriers; need for collaborative training.
(Fleming et al., 2024)	Intervarsity interprofessional team challenge	Irlandia	Program evaluation	Collaborative team learning	Improves teamwork and collaboration skills among students.dan kolaborasi mahasiswa.
(Davies et al., 2024)	Nursing and medical students' views on IPE simulation	Australia	Exploratory pre-post study	IPE in simulated clinical training	Simulation strengthens professional identity and interprofessional understanding.
(Madisa et al., 2023)	Perceptions of interprofessional collaboration in Botswana	Botswana	Qualitative, interviews	Collaboration in midwifery facilities	Poor communication, role ambiguity, and weak leadership are the main barriers
(Distian et al., 2024)	Literasi keuangan dan perilaku mahasiswa	Indonesia	Literature Review	College Students' Financial Behavior	Financial literacy has a positive impact on college students' financial behavior
(Edmundson et al., 2025)	Exploring the use of health technology in community-based midwifery care – an interview study	Inggris	Qualitative, semi-structured interviews	Health technology in community midwifery practice	Portable technology needs improvement; training support is crucial for successful adoption.
(Golz et al., 2022)	Preparing students to deal with the	Swiss	Qualitative, program director focus	Evaluation of health education	The curriculum lacks digital competencies,



	consequences of the workforce shortage among health professionals: a qualitative approach		group	curriculum	political skills, and occupational health; reform is needed.
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Midwifery education faces complex challenges that demand a holistic and collaborative approach, which aligns with the direction of global health system transformation. Research from various countries shows that integrating real-life experience-based learning, interprofessional collaboration, and health technology are essential components in strengthening midwifery graduates' competencies. The UK found that clinical research internship programs enhance nurses' academic skills and reinforce evidence-based practice culture in healthcare services (Olive et al., 2022). Indonesia highlights the importance of understanding policies like the National Health Insurance (JKN) in midwifery practice (Yuliana et al., 2020). The lack of information and inadequate financing is a specific challenge that should be addressed during education.

The context of patient health literacy is also a critical issue in midwifery education. Church et al. (2023) found that sexual and reproductive health literacy remains influenced by culturally embedded misconceptions. Therefore, educational institutions must equip midwifery students with culturally sensitive communication skills to serve as effective health education agents within the community. The Continuity of Care (CoC) approach has been proven to foster strong relationships between midwives and patients and to enhance the sense of security during pregnancy and childbirth, as demonstrated by Aune et al. (2023) in their study in Norway. Moreover, CoC can be used as a practical learning method that helps students develop empathy and a longitudinal understanding of patient experiences, which is highly relevant to modern midwifery education.

On the other hand, collaboration across professions is a key competency in midwifery education. Atalaia et al. (2025) and Madisa et al. (2023) highlight barriers to effective collaboration, such as professional hierarchies and a lack of understanding of each profession's role. To overcome these challenges, interprofessional training should be integrated into the curriculum from the early stages of education. Initiatives such as interprofessional team competitions in Ireland (Fleming et al., 2024) and ward-based simulations in Australia (Davies et al., 2024) have improved role comprehension and teamwork among students.

Technological advancements also present both opportunities and challenges in midwifery education. Edmundson et al. (2025) note that community midwives in the UK often face limitations in access to diagnostic tools and technology training. Therefore, midwifery curricula should be designed to include the introduction of portable diagnostic tools and digital health technologies that can support clinical decision-making in real-world practice. Golz et al. (2022) offer a systemic perspective by evaluating health education curricula in Switzerland, revealing that many programs still lack key competencies, such as occupational health promotion, digital literacy, and engagement with informal caregivers. These findings underscore the need for midwifery education to strengthen components related to mental health, professional ethics, and resilience-building, preparing students to become adaptable and ethically grounded practitioners. In addition, the issue of financial



literacy raised by Distian et al. (2024) highlights that midwifery students should also be equipped with non-clinical competencies, including personal financial management skills and an understanding of healthcare financing systems, to navigate their professional environments better.

Midwifery Education and Its Challenges in the Era of Health Transformation

Midwifery education today faces a range of complex challenges, including the need to align curricula with the rapidly evolving health system (Golz et al., 2022). The growing demand for interprofessional competencies and the integration of technology into midwifery practice are among the central issues within this transformation (Davies et al., 2024; Edmundson et al., 2025). Research shows that a holistic and collaborative approach is crucial for improving the quality of midwifery education and enhancing maternal and neonatal care outcomes (Graham et al., 2025; Madisa et al., 2023).

Interprofessional Collaboration in Midwifery Education

Davies et al. (2024) and Fleming et al. (2024) emphasize the importance of interprofessional training for midwifery students through ward simulations and team-based competitions. These experiences strengthen students' understanding of each profession's role within the health system and enhance their cross-disciplinary collaboration skills (Fleming et al., 2024). Atalaia et al. (2025) further highlight that poor interprofessional collaboration in primary care leads to reduced effectiveness in case management. Additionally, Madisa et al. (2023) reveal that in Botswana, interprofessional collaboration is hindered by miscommunication and unclear role boundaries, ultimately impacting service effectiveness. Therefore, midwifery education must incorporate collaborative training early in the curriculum and continue through advanced levels (Davies et al., 2024; Madisa et al., 2023).

Technology in Midwifery Education and Practice

The use of technology in midwifery education has become increasingly vital, especially in community-based care (Edmundson et al., 2025). Edmundson et al. (2025) report that portable technology enhances diagnosis and case management, yet many midwives face barriers such as limited access and insufficient training. As a result, technological training should be embedded within the midwifery curriculum. Yulianti and Wulandari (2021) highlight the flipped classroom model as an effective 21st-century learning method. This model promotes using instructional videos and in-class discussions while developing the 4C skills: Critical Thinking, Communication, Collaboration, and Creativity (Yulianti & Wulandari, 2021). Such an approach is highly applicable to midwifery education, particularly for clinical case learning and reflective practice.

Challenges in Midwifery Education in Developing Countries

In their scoping review, Graham et al. (2025) found that midwives in developing countries—particularly rural areas—often lack adequate training and systemic support, exacerbating the quality of care (Graham et al., 2025). Furthermore, Madisa et al. (2023) emphasize that ineffective organizational structures and a lack of interprofessional understanding hinder health system collaboration in Botswana. To address these issues, midwifery education in developing countries must be contextually designed—addressing local needs, providing ongoing training, and reinforcing professional support systems (Graham et al., 2025; Madisa et al., 2023).

Curriculum Reform for Future Competencies

Golz et al. (2022) indicate that healthcare education curricula in Switzerland still contain significant gaps, especially in occupational health promotion and digital competencies. Kasman and Lubis (2022) show that teacher performance evaluation in



implementing the “Merdeka Curriculum” is based on three aspects: planning, implementation, and assessment. This evaluation model emphasizes learning flexibility, student-centered approaches, and adaptability to learner characteristics (Kasman & Lubis, 2022). Such a model can be adopted in midwifery education to produce adaptive, reflective, and well-prepared graduates for health system transformation.

The Impact of Technology on Maternal Experience

The Continuity of Care (CoC) model in midwifery has improved maternal satisfaction and safety (Aune et al., 2023). Aune et al. (2023) assert that CoC fosters a personal relationship between the midwife and the patient, reduces complications, and enhances security during pregnancy and childbirth. Integrating technology—such as communication apps between mothers and midwives and real-time health monitoring through digital devices—can further strengthen the implementation of CoC (Edmundson et al., 2025; Yulianti & Wulandari, 2021).

The findings suggest that midwifery education should not be seen merely as clinical training but as a strategic intervention within the broader health system transformation agenda. Integrating interprofessional collaboration, health literacy, and digital competencies into midwifery curricula reframes midwives as multidimensional health agents, not just birth attendants. Traditional curricula emphasize clinical skills. However, this review highlights the conceptual shift toward non-clinical competencies such as empathy (via Continuity of Care), financial literacy, and communication in culturally sensitive contexts. This supports the paradigm that midwives are educators, navigators, and advocates, not only practitioners. Findings reinforce that midwifery sits at the intersection of community-based care, policy, and interdisciplinary teamwork. Conceptually, this strengthens the argument for integrating midwifery education into national health workforce policy design, especially in decentralized and primary care systems.

Institutions should adopt Outcome Based Education (OBE) models that explicitly incorporate themes such as technology integration, interprofessional education, and community engagement. Practical changes could include flipped classrooms, ward simulations, CoC-based placements, and financial literacy workshops. Educators must be trained to deliver not only clinical content but also to facilitate interdisciplinary, tech-enabled, and culturally sensitive learning. Training modules on mentoring, simulation facilitation, and digital pedagogy are essential. Ministries of Health and Education need to create pathways that allow midwifery students to be embedded in real-life systems early such as community health centers, insurance schemes, and maternal health advocacy programs to cultivate applied competence from the outset. Midwifery schools must invest in portable diagnostic tools, digital health platforms, and simulation labs to bridge the technology gap noted in studies like Edmundson et al. (2025). This ensures graduates are not only digitally literate but confident in using technology to support maternal care. In resource-limited settings, as shown in studies from Botswana and rural Indonesia, curricula should be contextualized to address real constraints: staffing shortages, lack of infrastructure, or community misconceptions. Practical solutions include community-based learning, modular education, and mobile health innovations.

These findings imply that the future of midwifery education depends not just on clinical excellence, but on the ability of institutions to cultivate adaptive, collaborative, and community-grounded graduates. Conceptually, it redefines the midwife as a system-level



actor. Practically, it demands curriculum innovation, faculty upskilling, and structural support from health and education systems.

Conclusion

The conclusion obtained from the findings of this research is that integrating the pillars of health transformation into midwifery education is essential for producing graduates who are not only clinically competent but also adaptable to health system dynamics. The results highlight that interprofessional collaboration, digital technologies, experiential learning, and context-based curriculum are key components that enhance the quality of midwifery education. The implementation of an Outcome-Based Education (OBE) curriculum is found to be highly relevant for achieving comprehensive graduate competencies, including both clinical and non-clinical skills such as policy literacy and financial literacy. Therefore, reforming midwifery education is a critical strategy to support the sustainable success of health system transformation, particularly in improving maternal and child healthcare services across various settings, including rural and low-resource areas.

Recommendation

Based on the results of this study, the following recommendations are proposed: (1) Policymakers and curriculum developers should use the findings of this study as a foundation for integrating the six pillars of health transformation into midwifery education, ensuring alignment with national health priorities and system demands; (2) Midwifery education institutions should redesign their curricula based on the Outcome-Based Education (OBE) model, incorporating interprofessional collaboration, digital health technologies, and community-based practice to improve the relevance and adaptability of graduates; (3) Midwifery educators should be provided with continuous professional development focused on the application of OBE principles, the use of educational technology, and effective facilitation of experiential and culturally sensitive learning; (4) Further research should be conducted to evaluate the effectiveness of integrated midwifery curricula, particularly in improving maternal and neonatal health outcomes, and to assess the impact of interprofessional and technology-based learning approaches; (5) Stakeholders in rural and underserved areas should be involved in co-designing contextually relevant training programs to ensure that midwifery education addresses local health challenges and workforce distribution gaps.

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