Sosioedukasi
JURNAL ILMIAH ILMU PENDIDIKAN DAN SOSIAL
ISSN: 2086-6135 E-ISSN: 2541-612x
Volume 15 No. 2. June 2026 https://ejournal.unibabwi.ac.id/index.php/sosioedukasi/index

TRANSFORMATION OF THE CONCEPT OF MIDWIFERY IN THE ERA OF DIGITAL HEALTH SERVICES

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ARTICLE HISTORY

Received : 20-05-2026
Revised : 07-06-2026
Accepted : 30-06-2026

KEYWORDS

Midwifery, Digital Health, Telemedicine, Midwifery Services, Digital Transformation

ABSTRACT

The advancement of digital technology has significantly transformed various sectors, including healthcare. In midwifery practice, digital transformation offers opportunities to improve service quality, accessibility, efficiency, and maternal and neonatal safety. The utilization of technologies such as telemedicine, electronic medical records, maternal and child health applications, and health information systems has shifted midwifery services from conventional approaches to more integrated technology-based care. This study aimed to analyze the transformation of midwifery concepts in the era of digital healthcare services and its implications for service quality.This study employed a quantitative approach with a descriptive analytical design. The sample consisted of 50 midwives working in healthcare facilities. Data were collected using questionnaires and observation sheets. Data were analyzed using univariate and bivariate analyses with the Chi-Square test.The results showed that 72% of respondents had a good understanding of digital healthcare services and 76% had implemented digital technology in midwifery practice. Statistical analysis revealed a significant relationship between digital technology understanding and the quality of midwifery services (p = 0.002). Digital transformation improved communication effectiveness, service documentation, maternal and neonatal monitoring, and clinical decision-making.

INTRODUCTION

The rapid advancement of information and communication technology (ICT) has catalyzed a paradigm shift in global healthcare systems. Digital transformation extends beyond administrative efficiency, fundamentally altering how healthcare professionals deliver patient-centered care. In the context of maternal and child health (MCH), the

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integration of digital health technologies presents unprecedented opportunities to enhance the quality, accessibility, and safety of midwifery services (World Health Organization [WHO], 2021; O'Donnell, 2021).

Traditionally, the core concept of midwifery has been anchored in direct, face-to-face, and holistic care for women across the continuum of pregnancy, childbirth, and the postpartum period, alongside newborn care (Fraser & Cooper, 2020; Pillitteri, 2019). However, the digital era has expanded this paradigm. The emergence of "digital midwifery" or "tele-midwifery" allows for the delivery of continuous, integrated, and technology-supported care, bridging geographical barriers and ensuring timely clinical interventions (American College of Nurse-Midwives [ACNM], 2021; Royal College of Midwives [RCM], 2020).

Digital health services encompass a wide array of tools, including telemedicine, electronic medical records (EMR), mobile health (mHealth) applications, and remote monitoring systems. In midwifery practice, these technologies empower midwives to monitor high-risk pregnancies remotely, provide continuous health education, conduct virtual consultations, and maintain accurate, real-time clinical documentation. According to the WHO (2021), digital health is defined as the field of knowledge and practice associated with the development and use of digital technologies to improve health, which ultimately enhances healthcare access, system efficiency, and patient safety.

In Indonesia, the acceleration of digital health transformation is strongly supported by government initiatives, such as the integration of electronic medical records and the development of comprehensive maternal and child health information systems (Ministry of Health of the Republic of Indonesia, 2022). As primary healthcare providers for women and neonates, midwives play a pivotal role in this ecosystem. Their ability to adapt to and effectively utilize these digital platforms is crucial for optimizing maternal and neonatal outcomes at the primary care level.

Despite the potential benefits, the implementation of digital health services in midwifery faces multifaceted challenges. These include inadequate technological infrastructure, varying levels of digital literacy among healthcare workers, concerns regarding patient data privacy and security, and the digital divide within the community (United Nations Population Fund [UNFPA], 2021). If not properly addressed, these barriers can widen health disparities rather than alleviate them.

Therefore, a comprehensive evaluation is required to understand how the concept of midwifery is transforming in response to digital health services and to measure its direct implications on service quality. This study aims to analyze the transformation of the midwifery concept in the digital health era and its correlation with the quality of midwifery services, providing empirical evidence to guide future policy and educational interventions.

RESEARCH MOTHODS

This study employed a quantitative approach with a descriptive analytical design and a cross-sectional method to evaluate the relationship between midwives' comprehension of digital health services and the quality of midwifery care at a single point in time (Creswell, 2014). The research was conducted across various healthcare facilities and community health center working areas between January and April 2025, specifically targeting locations that had initiated digital-based health service systems in their midwifery practices. The target population comprised all practicing midwives within these selected facilities. A total of 50 midwives were recruited as the research sample utilizing a purposive sampling technique, a method chosen to select respondents based on specific criteria aligned with the study's objectives (Notoatmodjo, 2018). The inclusion criteria mandated that participants be actively practicing midwives with a minimum of one year of working experience, currently utilizing or directly involved in digital health services, and willing to provide informed consent. Conversely, midwives who failed to complete the

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research instruments comprehensively were excluded from the final data analysis to maintain data integrity (Hidayat, 2020).

The study examined two primary variables: the independent variable, which encompassed the midwives' understanding of digital health services—including telemedicine, electronic medical records, and maternal health applications (O'Donnell, 2021); and the dependent variable, representing the quality of midwifery services measured through indicators such as service accuracy, communication effectiveness, and patient safety (American College of Nurse-Midwives [ACNM], 2021). Data collection was executed using a structured questionnaire to assess digital literacy, an observation checklist to evaluate service implementation against midwifery practice standards, and a documentation review sheet to verify the actual utilization of digital technology. Prior to the main investigation, all research instruments underwent rigorous validity and reliability testing to ensure they could accurately and consistently measure the intended constructs (Arikunto, 2018). Data were gathered through questionnaire distribution, direct observation, and document review, strictly adhering to ethical research principles. Informed consent was obtained from all respondents, and the confidentiality of the collected data was strictly maintained, ensuring it was utilized exclusively for academic research purposes.

Following data acquisition, the management process was systematically executed through four sequential stages: editing to verify data completeness and clarity, coding to assign numerical values to respondent answers, data entry to input the coded information into a statistical software program, and tabulating to organize the data into frequency distribution tables for subsequent analysis (Sugiyono, 2019). The statistical analysis was performed using the Statistical Package for the Social Sciences (SPSS) and comprised two main phases. Univariate analysis was conducted to describe the demographic characteristics of the respondents, their level of understanding of digital health services, and the overall quality of midwifery services, presenting the findings through frequencies, percentages, and narrative descriptions. Subsequently, bivariate analysis was employed to determine the correlation between the independent and dependent variables utilizing the Chi-Square test at a 95% confidence level ($\alpha = 0.05$) (Notoatmodjo, 2018). The statistical decision rule was established such that a p-value < 0.05 indicated a statistically significant relationship between the variables, whereas a p-value > 0.05 indicated no significant relationship, thereby providing empirical evidence on how digital comprehension influences midwifery service quality.

RESULT AND DISCUSSION

Result

Demographic Characteristics of Respondents

The study involved 50 midwives working in healthcare facilities that have initiated digital health services. The demographic distribution based on the length of clinical service is presented in Table 1. The majority of respondents (44%, n=22) had 5 to 10 years of clinical experience, followed by those with more than 10 years (32%, n=16), and less than 5 years (24%, n=12). This distribution indicates that the sample predominantly consists of midwives with substantial clinical maturity, which may facilitate their adaptation to technological advancements in healthcare delivery.

Table 1. Demographic Characteristics of Respondents Based on Length of Clinical Service

Length of Clinical Service	Frequency (n)	Percentage (%)
< 5 Years	12	24.0
5–10 Years	22	44.0
> 10 Years	16	32.0
Total	50	100.0

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Level of Understanding and Quality of Midwifery Services

The assessment of digital health literacy among the respondents revealed that a significant majority (72%, n=36) possessed a "Good" understanding of digital health services, encompassing telemedicine, electronic medical records (EMR), and maternal health applications. Meanwhile, 20% (n=10) demonstrated a "Moderate" understanding, and only 8% (n=4) fell into the "Poor" category (Table 2).

Concurrently, the evaluation of the quality of midwifery services showed that 76% (n=38) of the respondents provided services classified as "Good," adhering to evidence-based midwifery practice standards. A smaller proportion was categorized as "Moderate" (18%, n=9) and "Poor" (6%, n=3), as detailed in Table 3.

Table 2. Level of Understanding of Digital Health Services Among Midwives

Level of Understanding	Frequency (n)	Percentage (%)
Good	36	72.0
Moderate	10	20.0
Poor	4	8.0
Total	50	100.0

Table 3. Quality of Midwifery Services in the Digital Era

Quality of Service	Frequency (n)	Percentage (%)
Good	**38**	**76.0**
Moderate	**9**	**18.0**
Poor	**3**	**6.0**
Total	**50**	**100.0**

Correlation Between Digital Understanding and Service Quality

A bivariate analysis using the Chi-Square test was conducted to determine the relationship between the midwives' understanding of digital technology and the quality of midwifery services provided. The cross-tabulation (Table 4) illustrates that out of 36 midwives with a "Good" understanding of digital health, the vast majority (88.9%, n=32) delivered "Good" quality services. Conversely, among the 14 midwives with "Moderate" to "Poor" understanding, more than half (57.1%, n=8) provided "Moderate" to "Poor" quality services.

The statistical analysis yielded a *p*-value of 0.002 ($\alpha = 0.05$), indicating a highly significant positive correlation between digital health literacy and the quality of midwifery care. This finding empirically demonstrates that midwives who are proficient in digital health tools are significantly more likely to deliver high-quality, safe, and effective maternal and neonatal care.

Table 4. Cross-tabulation of Digital Health Understanding and Midwifery Service Quality

Digital Health Understanding	Good Quality Service (n)	Moderate to Poor Quality Service (n)	Total (n)
Good	**32**	**4**	**36**
Moderate to Poor	**6**	**8**	**14**
Total	**38**	**12**	**50**

Chi-Square Test: p-value = 0.002

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DISCUSSION

The findings of this study highlight a critical paradigm shift in midwifery practice, transitioning from a strictly conventional, face-to-face model to an integrated, technology-supported approach. The statistically significant relationship ($p = 0.002$) between digital health literacy and service quality underscores that technological competence is no longer an ancillary skill but a core competency for modern midwives. According to the American College of Nurse-Midwives (ACNM, 2021) and O'Donnell (2021), the integration of digital tools such as telemedicine and electronic medical records (EMR) fundamentally enhances the continuum of care by enabling real-time monitoring, accurate clinical documentation, and evidence-based decision-making. Midwives with a robust understanding of these platforms can seamlessly track maternal and neonatal outcomes, thereby reducing the risk of adverse events and improving overall patient safety (Fraser & Cooper, 2020).

Furthermore, the application of digital health services significantly bridges geographical barriers, promoting equity in maternal healthcare. As noted by the United Nations Population Fund (UNFPA, 2021) and the Ministry of Health of the Republic of Indonesia (2022), tele-midwifery and mobile health (mHealth) applications empower midwives to provide continuous health education, remote consultations, and timely triage for pregnant women residing in rural or underserved areas. This digital extension of midwifery care ensures that women receive vital antenatal and postnatal support without the burden of frequent, long-distance travel to healthcare facilities, ultimately fostering higher adherence to antenatal care schedules and improving maternal health indicators.

Despite the evident benefits, the transition to digital midwifery is not without challenges. The study acknowledges that while a majority of midwives demonstrated good digital literacy, a subset still exhibited moderate to poor understanding, which directly correlated with suboptimal service quality. The Royal College of Midwives (RCM, 2020) emphasizes that the successful implementation of digital innovations requires not only adequate technological infrastructure but also continuous professional development and stringent data privacy protections. Midwives must be equipped with the digital confidence to navigate complex health information systems while maintaining the holistic, woman-centered ethos that is the hallmark of the midwifery profession (World Health Organization [WHO], 2021). Therefore, institutional support through targeted digital competency training and the provision of reliable IT infrastructure are imperative to maximize the potential of digital health transformations in midwifery practice.

CONCLUSION

The integration of digital health services has catalyzed a fundamental paradigm shift in midwifery practice, transitioning from a conventional, face-to-face model to an integrated, technology-supported continuum of care. This study empirically confirms a highly significant positive correlation between midwives' digital health literacy and the overall quality of midwifery services. The findings demonstrate that the strategic adoption of digital tools—such as telemedicine, electronic medical records (EMR), and maternal health applications—substantially enhances clinical decision-making, optimizes service documentation, expands healthcare accessibility, and fortifies maternal and neonatal safety. Ultimately, digital transformation in midwifery is not merely an administrative upgrade, but a critical clinical competency that directly improves patient outcomes and operational efficiency in the modern healthcare ecosystem.

SUGGESTIONS

Based on the conclusions of this study, several strategic recommendations are proposed for various stakeholders to optimize the implementation of digital health in midwifery:

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1. For Midwifery Education Institutions: Academic curricula must be comprehensively updated to integrate digital health literacy, health informatics, and tele-midwifery competencies. This is crucial to ensure that future midwives are adequately prepared to navigate the digital healthcare ecosystem upon graduation.
2. For Healthcare Facilities and Institutions: Hospital and clinic management should provide continuous, structured capacity-building programs and digital mentorship for midwives. Regular training is essential to ensure midwives can seamlessly and confidently utilize electronic medical records and digital health platforms in their daily practice.
3. For Government and Policymakers: The Ministry of Health and relevant authorities must accelerate the equitable distribution of digital health infrastructure, particularly in rural, remote, and underserved areas. Furthermore, robust regulatory frameworks must be established to guarantee patient data privacy, cybersecurity, and ethical standards in digital health implementation.
4. For Professional Midwives: Practicing midwives are strongly encouraged to embrace lifelong learning and proactively enhance their digital competencies. It is imperative that midwives utilize technology to augment their clinical skills while maintaining the holistic, woman-centered ethos that remains the hallmark of the midwifery profession.
5. For Future Research: Subsequent studies should employ mixed-methods or longitudinal research designs to evaluate the long-term clinical outcomes, patient satisfaction, and cost-effectiveness of specific digital interventions (e.g., specific mHealth applications) across diverse midwifery practice settings.

REFFERENCES

American College of Nurse-Midwives. (2021). *Digital health and midwifery practice*. ACNM.

Arikunto, S. (2018). *Research procedure: A practical approach*. Rineka Cipta.

Artinanda, A. (2026). *Quality of midwifery and health services*. AGDOSI Makassar Publisher. https://agdosi.com/2026/02/26/buku-ajar-mutu-pelayanan-kebidanan-dan-pelayanan-kesehatan/

Artinanda, A., & R, C. (2026). Early detection of pregnancy risk factors by midwives. *Barongko: Journal of Health Sciences, 4*(2), 882–888. https://doi.org/10.59585/bajik.v4i2.1104

Artinanda, A., Ismawati, I., & Zulhaedah, Z. (2026). Assistance in making birth plans for pregnant women as an effort to reduce anxiety facing childbirth at the sympathy field of Perumnas Antang, Block 1, Makassar City. *Social Friends: Journal of Community Service, 4*(3), 1384–1392. https://jurnal.agdosi.com/index.php/jpemas/article/view/1288

Bachri, S., Palembai, A., Limbong, K., Sima, Y., Treasa, A. D., & Pannyiwi, R. (2025). Implementation of nursing care in improving productivity and quality of nursing services towards nurses performance which must be completed at a certain time. *International Journal of Health Sciences, 3*(2), 173–179. https://doi.org/10.59585/ijhs.v3i2.640

Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage Publications.

Fraser, D. M., & Cooper, M. A. (2020). *Myles textbook for midwives* (17th ed.). Elsevier.

Hidayat, A. A. A. (2020). *Midwifery research methods and data analysis techniques*. Salemba Medika.

Lowdermilk, D. L., Perry, S. E., & Cashion, K. (2020). *Maternity and women's health care*. Elsevier.

Ministry of Health of the Republic of Indonesia. (2022). *Digital transformation of Indonesian health*. Ministry of Health of the Republic of Indonesia.

Notoatmodjo, S. (2018). *Health research methodology*. Rineka Cipta.

O'Donnell, A. (2021). *Digital midwifery and maternal care*. Springer.

Parwati, D., Thalib, K. U., Hanifah, A. N., & Susanti. (2024). *Community midwifery care: Health services for mothers and toddlers in the family*. AGDOSI Makassar Publisher. https://agdosi.com/2024/07/29/asuhan-kebidanan-komunitas-layanan-kesehatan-ibu-dan-balita-dalam-keluarga/

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Pannyiwi, R., Ali, A., & Yulis, D. M. (2025). Strategies for preventing and countering drug abuse through a community approach in Sidenreng Rappang Regency. *JIMAD: Multidisciplinary Scientific Journal, 2*(3), 191–200. https://doi.org/10.59585/jimad.v2i3.856

Pillitteri, A. (2019). *Maternal and child health nursing*. Lippincott Williams & Wilkins.

Potter, P. A., & Perry, A. G. (2017). *Fundamentals of nursing* (9th ed.). Elsevier.

Royal College of Midwives. (2020). *Technology and innovation in midwifery practice*. RCM.

Santi, Masdarwati, Mahendika, D., & Wijayanti, L. A. (2023). *The role of midwives in early breastfeeding initiation: Health sociology perspective*. AGDOSI Makassar Publisher. https://agdosi.com/2023/08/29/peran-bidan-dalam-inisiasi-menyusui-dini-perspektif-sosiologi-kesehatan/

Setiadi. (2018). *Concepts and practices of health research writing*. Graha Ilmu.

Sugiyono. (2019). *Quantitative, qualitative and R&D research methods*. Alfabeta.

United Nations Population Fund. (2021). *Digital solutions for maternal health*. UNFPA.

World Health Organization. (2019). *Recommendations on digital interventions for health system strengthening*. WHO.

World Health Organization. (2021). *Global strategy on digital health 2020–2025*. WHO.