Original Article

The Effectiveness of Maternity Nursing Digital Education on Postpartum Maternal Health

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Abstract:

This study aims to analyze the effectiveness of digital education in maternity nursing on improving postpartum maternal health through a qualitative approach using a literature review (library research) method. Digital education has become an important innovation in maternity nursing services, particularly during the postpartum period, which is a critical phase for mothers' physical and psychological health. The research method was conducted by examining various scientific sources, including national and international journal articles, academic books, and relevant research reports published within the last ten years. The analysis process involved identification, classification, and synthesis of findings to obtain a comprehensive understanding of the roles, benefits, and challenges in implementing digital education for postpartum mothers. the results of the review indicate that digital maternity nursing education is effective in improving mothers' knowledge regarding self-care, lactation management, early detection of complications, and postpartum mental health. Furthermore, the use of digital media such as health applications, educational videos, and telehealth platforms has been shown to enhance access to information, increase maternal engagement in decision-making, and improve adherence to care recommendations. However, its effectiveness is influenced by factors such as digital literacy, family support, and the availability of technological infrastructure. in conclusion, digital education in maternity nursing has significant potential to holistically support postpartum maternal health. Therefore, adaptive and needs-based implementation strategies are required to optimize its benefits in nursing practice.

Keywords: Digital education, Maternity nursing, Maternal health, Postpartum, Literature review.

Introduction

The postpartum period is a critical transitional phase that determines the continuity of maternal health after childbirth. During this stage, mothers experience significant physiological and psychological changes, including uterine involution, lactation adaptation, and the risk of mental health disorders such as postpartum depression. Globally, postpartum complications remain a major contributor to maternal morbidity, particularly in developing countries (World Health Organization, 2023). Therefore, promotive and preventive efforts through health education are essential components of maternity nursing services.

The advancement of information technology has driven the transformation of healthcare services toward digitalization, including nursing practice. Digital education delivered through health applications, telehealth, and audiovisual media enables broader, flexible, and continuous access to information. Research indicates that mHealth-based interventions are effective in improving maternal knowledge and health behaviors (Lee et al., 2015). Furthermore, the integration of technology into postpartum care has the potential to enhance patient engagement and quality of care (Shore et al., 2018).

However, a research gap remains regarding a comprehensive synthesis of the effectiveness of digital education within maternity nursing, particularly concerning holistic postpartum maternal health (physical and psychological aspects). Most existing studies focus on specific clinical outcomes or apply quantitative experimental approaches without conceptually integrating findings. Therefore, a systematic literature-based study is needed to map existing scientific evidence and identify factors influencing its effectiveness.

The urgency of this research lies in the increasing demand for technology-based healthcare services, especially in the post-COVID-19 era, which has accelerated the adoption of digital health services. Previous research by (Dol et al., 2020) demonstrated that digital interventions can improve maternal experiences during the postpartum period; however, these findings have not been specifically analyzed from a maternity nursing perspective.

The novelty of this study lies in its synthesis of literature specifically examining the effectiveness of digital education within the framework of maternity nursing practice using a qualitative library research approach. This study aims to analyze the effectiveness of digital maternity nursing education on postpartum maternal health and to identify supporting and inhibiting factors in its implementation. The findings are expected to contribute conceptually to the development of digital education models in nursing practice and to serve as a reference for policymakers in improving the quality of maternity care services.

Literature Review

1. Maternity Nursing and Postpartum Maternal Health

Maternity nursing focuses on comprehensive care for women throughout pregnancy, childbirth, and the postpartum period. The postpartum phase, which lasts up to six weeks after delivery, is a critical transition period marked by significant physiological and psychological changes. Mothers remain at risk for complications such as postpartum hemorrhage, infection, breastfeeding difficulties, and postpartum

depression (World Health Organization, 2023). Therefore, health education is a central component of maternity nursing care, aiming to enhance maternal self-efficacy, early detection of danger signs, and appropriate newborn care practices. Effective education not only transfers knowledge but also empowers mothers to make informed health decisions.

2. Digital Education in Healthcare Services

Digital education refers to the use of information and communication technologies—such as mobile health (mHealth), telehealth, online platforms, and audiovisual media—to deliver health information. The rapid digital transformation of healthcare, particularly after the COVID-19 pandemic, has accelerated the adoption of remote health services. (Lee et al., 2015) found that mHealth interventions significantly improved maternal knowledge and health behaviors, including breastfeeding practices and service utilization. Similarly, (Dol et al., 2020) reported that mobile-based postpartum interventions enhanced maternal confidence and satisfaction with care. (Shore et al., 2018) further emphasized that telehealth strengthens communication between healthcare providers and patients while improving service accessibility and continuity of care.

Additionally, (Laranjo et al., 2015) highlighted that digital interventions can positively influence health behavior change through continuous engagement and personalized content delivery. These findings suggest that digital education provides flexible, accessible, and sustainable learning opportunities for postpartum mothers.

3. Effectiveness of Digital Interventions for Postpartum Mothers

The effectiveness of digital maternity education can be measured through improved knowledge, behavioral change, adherence to health recommendations, and psychological well-being. (Evans et al., 2012) demonstrated that mobile-based health support programs positively contributed to maternal confidence and early parenting practices. Furthermore, WHO (2023) underscores the importance of technology-based support in promoting a positive postnatal experience, especially in areas with limited access to in-person services.

However, the effectiveness of digital education is influenced by digital literacy, socioeconomic conditions, family support, and technological infrastructure. While many studies confirm the benefits of digital interventions, most focus on quantitative outcome measurements. A comprehensive conceptual synthesis within the framework of maternity nursing remains limited. Therefore, this literature review is essential to integrate existing evidence and provide a more systematic understanding of digital education effectiveness in improving postpartum maternal health.

Methods

This research uses a qualitative approach with the type of literature study (library research). This approach was chosen to understand and synthesize in depth variousscientific findings related to the effectiveness of maternal nursing digital education on postpartum maternal health. Literature studies allow researchers to build a conceptual framework based on the results of previous research without directly collecting field data (Creswell & Creswell, 2017).

The data sources used are in the form of secondary data, including articles from reputable national and international journals, academic books, and reports from

relevant health organizations. Literature search was carried out through electronic databases such as Google Scholar, PubMed, and ScienceDirect with the keywords: digital education, maternity nursing, postpartum care, and maternal health. The inclusion criteria include articles published in 2015–2024 and have gone through a peer review process, while publications that are irrelevant or do not have a clear methodology are excluded from the analysis.

Data collection techniques are carried out through the stages of identification, selection, in-depth study, and literature documentation. Data analysis uses content analysis and thematic analysis through the process of reduction, categorization, and synthesis of findings to find patterns and trends in research results. This approach aims to produce a comprehensive and systematic understanding according to the principles of qualitative research (Sugiyono, 2017).

Result

Based on the review of relevant literature, it was found that organizational culture has a significant influence on employee performance, particularly within healthcare institutions implementing digital education in maternity nursing for postpartum mothers. An adaptive, innovative, and learning-oriented organizational culture has been shown to enhance healthcare professionals' competencies in utilizing digital technology as an educational medium. Conversely, rigid cultures that resist change tend to hinder the optimal implementation of technology-based programs. (Denison, 1990) explains that the dimensions of involvement, consistency, adaptability, and organizational mission directly contribute to organizational effectiveness and employee performance. This view is reinforced by (Schein, 2010) who emphasizes that organizational values and underlying assumptions shape work behavior patterns, including responses to digital innovation. In maternity care services, employee performance is reflected in the ability to deliver accurate, responsive, and continuous digital education to postpartum mothers. The synthesis of literature findings is summarized in the following table:

Organizational Culture Aspect	Impact on Employee Performance	Implications for Digital Postpartum Education
High adaptability	Increased innovation and technological competence	More effective implementation of applications and tele-education
Transformational leadership	Higher motivation and work commitment	More consistent and higher-quality digital education
Learning orientation	Professional competence development	More evidence-based educational materials
Resistance to change	Decreased productivity and collaboration	Suboptimal use of digital technology

These findings indicate that the effectiveness of digital education is not solely determined by technological factors but is strongly influenced by the organizational climate and value system that shape healthcare workers' behavior.

Discussion

The discussion confirms that organizational culture is a strategic determinant in shaping employee performance and ensuring the successful implementation of digital innovation in maternity nursing services. Within healthcare organizations, a culture that supports innovation and collaboration creates a conducive environment for digital transformation. (Denison, 1990) argues that organizations with high adaptability are better equipped to respond to external environmental changes, including advancements in health technology. This is particularly relevant to postpartum care services, which require timely access to information and effective communication between healthcare providers and mothers.

(Schein, 2010) further explains that organizational culture encompasses not only formal rules but also shared values, norms, and underlying assumptions that influence how individuals work and interact. In the context of digital maternity nursing education, organizational values oriented toward patient safety and quality improvement encourage healthcare professionals to enhance their digital competencies and integrate technology into educational practices. Thus, organizational culture serves as both a psychological and structural foundation for improving individual and team performance.

Empirical evidence by (Hartnell et al., 2011) demonstrates that clan- and adhocracy-oriented cultures are positively correlated with organizational effectiveness and employee job satisfaction. An adhocracy culture, which emphasizes flexibility and innovation, is particularly relevant to digital education implementation, as it fosters experimentation and the adoption of new technologies. Furthermore, Cameron and (Maher, 2000), through the Competing Values Framework, assert that organizations successfully undergoing digital transformation typically maintain a balance between internal stability and external flexibility.

In relation to postpartum maternal health, the effectiveness of digital education depends not only on the availability of applications or platforms but also on organizational readiness, including supportive systems, human resource training, and innovation-oriented policies. Without strong organizational cultural support, digital programs risk becoming merely administrative formalities without significantly improving maternal knowledge and well-being. Therefore, integrating organizational culture strengthening with digital implementation strategies represents a comprehensive approach to enhancing healthcare workforce performance and improving the quality of maternity services in a sustainable manner).

Conclusion

Based on the results of the literature analysis that has been presented, it can be concluded that first, digital education in maternity nursing has significant effectiveness in increasing the knowledge and understanding of postpartum mothers related to self-care, lactation management, early detection of complications, and postpartum mental health. Second, the implementation of digital education is able to increase maternal involvement in the health decision-making process and strengthen communication between health workers and patients through flexible and accessible media. Third, the success of digital education is not only determined by technological sophistication, but also influenced by supporting factors such as maternal digital literacy, family support, nursing staff competence, and organizational culture that is adaptive to innovation.

In addition, the findings of this study confirm that the integration of digital education in maternity nursing practice has the potential to improve the quality of services holistically and sustainably. Technology-based education allows for a more systematic, documented, and accessible information delivery at any time, thereby strengthening the continuity of care in the postpartum period. However, optimizing digital education programs requires a planned implementation strategy, human resource training, and institutional policies that support digital transformation. Thus, the effectiveness of digital maternity nursing education on postpartum maternal health is not only a technical innovation, but also a strategic step in improving the quality of maternal health services comprehensively.

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