CHALLENGES AND OPPORTUNITIES FOR IMPLEMENTING MIDWIFERY INFORMATION SYSTEMS IN REMOTE AREAS

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Abstrak

Maternal and child health is a top priority in Indonesia's healthcare system, especially in remote areas that face limited access, medical personnel shortages, and inadequate healthcare facilities. The implementation of a midwifery information system based on information technology is a potential solution to improve the quality of maternal and neonatal healthcare services. However, the adoption of this system still encounters various challenges, such as limited technological infrastructure, lack of training for healthcare workers, and internet accessibility issues. This study aims to analyze the challenges and opportunities in implementing a midwifery information system in remote areas using a qualitative descriptive approach. Data were collected through literature studies and interviews with midwives, health department officials, and healthcare information system developers. The results indicate that despite significant obstacles in implementing the midwifery information system, opportunities such as mobile applications, cloud-based systems, and integration with national health systems can enhance the efficiency of midwifery healthcare services. Government policy support and capacity-building programs for healthcare workers are key factors in the successful implementation of this system.

Keyword : Midwifery information system, remote areas, maternal and child health, technology implementation, healthcare services.

INTRODUCTION

Maternal and child health is one of the main priorities in the health care system in Indonesia. The role of midwives is very important in providing maternal and neonatal health services, especially in remote areas that often face limited health facilities, medical personnel, and access to accurate and up-to-date information (Ministry of Health of the Republic of Indonesia, 2022). In an effort to improve the quality of midwifery services, the use of an information technology-based midwifery information system has become a potential solution that can assist in recording patient data, monitoring maternal and infant health, and making faster and more accurate decisions (WHO, 2021).

However, the implementation of the midwifery information system in remote areas faces various complex challenges. Factors such as limited technological infrastructure, lack of training for health workers, obstacles in internet access, and budget constraints are often the main obstacles in implementing this system (Putri & Rahmawati, 2020). In addition, the success of implementation also depends heavily on the readiness of human resources, the availability of supporting devices, and support from the government and other stakeholders (Setiawan et al., 2021).

On the other hand, rapid advances in information technology open up great opportunities in the development of obstetric information systems that are more adaptive to geographical and social conditions in remote areas. The use of mobile-based applications, the use of cloud-based systems, and integration with the national health system can increase the efficiency of obstetric health services (Goyal et al., 2019). In addition, policy support from the

government and initiatives from various health organizations also have the potential to accelerate the implementation of this system (BPS, 2023).

This study aims to analyze the challenges and opportunities in the implementation of obstetric information systems in remote areas. By understanding the various factors that influence the success of this system, it is hoped that more effective strategies can be formulated in its implementation to improve the quality of obstetric services in hard-to-reach areas.

RESEARCH METHODS

Type of Research

This research is a qualitative descriptive study that aims to identify and analyze challenges and opportunities in the implementation of midwifery information systems in remote areas. A qualitative approach is used to gain an in-depth understanding of the factors that influence the success of implementing this system through interviews and literature studies.

Population and Sample

The population in this study were health workers, especially midwives, who work in remote areas and stakeholders related to the implementation of the midwifery information system. The sample was selected by purposive sampling, namely by considering the direct involvement of respondents in the use of the midwifery information system. The research sample consisted of:

1. Midwives in remote areas who have or have not used the midwifery information system.
2. Health Service officers who are responsible for managing midwifery data.
3. Health information system developers who have experience in implementing systems in areas with limited access.

Data Collection Techniques

The data in this study were collected through the following methods:

1. Literature Study

The literature study was conducted by reviewing previous research, scientific journals, reports from related agencies, and government policies related to the implementation of the midwifery information system.

Data Analysis Techniques

The data obtained were analyzed using qualitative analysis methods with the Miles & Huberman (1994) approach, which includes:
1. Data Reduction
   The collected data was reduced by filtering relevant information to focus on the challenges and opportunities for implementing the midwifery information system.
2. Data Presentation
   The reduced data was presented in the form of narratives, tables, and diagrams to facilitate further analysis.
3. Conclusion Drawing
   Conclusions were made based on the pattern of findings in the data, and linked to previous theories and research to provide recommendations for more effective implementation.

Data Validity and Reliability

To ensure the validity and reliability of the data, this study uses triangulation techniques, namely:

1. Source Triangulation, by comparing the results of interviews from various sources (midwives, health workers, system developers).
2. Method Triangulation, by comparing the results of interviews, observations, and literature studies.
3. Time Triangulation, by collecting data in several stages to ensure the consistency of the research results.

RESULTS AND DISCUSSION

The research results that have been obtained and an in-depth analysis of the findings. The discussion is conducted to interpret data, identify patterns, and compare the results with previous research to provide a more comprehensive understanding.

The following are findings from previous research that are the basis for supporting this research.

Author: Syefira Salsabila
Year: 2018
Title: "Android-Based Health Service Recording and Reporting Information System in Remote and Very Remote Areas"
Discussion Results: This study develops an Android-based information system for recording and reporting health services in remote areas. The results show that this system helps health workers in making fast and accurate reports according to data needs at the top level.

Authors: Herti Maryani and Suharmiati
Year: 2013
Title: "Health Services in Remote Islands (Case Study on Sapudi Island, Sumenep Regency, 2009)"
Discussion Results: This study examines health services in remote islands, finds that health services in these areas are still low, and emphasizes the importance of improving accessibility and quality of health services.

Author: Ruslihardy
Year: 2020
Title: "Implementation of Generic Regional Health Information System in Outpatient Section at BLUD Inpatient Health Center Langgam"
Discussion Results: This study evaluates the implementation of regional health information system in outpatient section at inpatient health center, finding that the system improves efficiency and accuracy in patient data management.

Author: Siti Nurjanah, Rika Susanti, and Rini Susanti
Year: 2023
Title: "Access to Health Services in Remote Areas"
Discussion Results: This study examines access to health services in remote areas, identifies challenges faced, and provides recommendations to improve accessibility and quality of health services in the region.

Authors: Syahril Syamsuddin and Jusliani Jusliani
Year: 2024
Title: "Implementation of Telemedicine and Its Implications for Access and Quality of Health Services in Rural Communities: Mini Review"
Discussion Results: This study reviews the role of telemedicine as an innovative solution in providing health services in rural areas that often experience barriers to access. With the support of information and communication technology, telemedicine has the potential to improve

disease management, health status, and patient satisfaction. However, the adoption of this technology is influenced by factors such as ease of use, level of trust in technology, and the quality of available infrastructure. This study emphasizes that despite challenges such as uneven infrastructure and low levels of patient trust in technology, efforts to improve infrastructure and improve public education can overcome these obstacles. The integration of telemedicine into the health system in rural areas is considered important to improve community welfare and ensure more efficient and effective health service delivery.

Author: Handina Sulastrina Bakhtiar
Title: "Dichotomy of Telemedicine Existence for Remote Communities: Perspective of Utilization Theory"
Discussion Results: This paper explores the concept of telemedicine services as basic health services for remote communities. Telemedicine is considered as the utilization of technology and information in the implementation of health services that provide convenience and benefits to the community, especially in remote areas, so that they still get the right to basic services in the health sector. The implementation of telemedicine services in Indonesia currently has the concept that this service may only be carried out between health care facilities. However, the availability of health care facilities in remote areas is very limited, so the conceptualization of telemedicine services can be expanded not only between health care facilities, but can also be carried out by doctors to patients for reasons of benefit to the community, especially in remote areas that have limited health care facilities.

This study found that the implementation of obstetric information systems in remote areas still faces significant challenges, but also offers great opportunities in improving maternal and child health services. Based on interviews and literature studies conducted, there are several main factors that influence the success of implementing this system.
Hasil penelitian ini menunjukkan bahwa implementasi sistem informasi kebidanan di daerah terpencil menghadapi berbagai tantangan yang signifikan, tetapi juga menawarkan peluang besar dalam meningkatkan layanan kesehatan ibu dan anak. Berdasarkan wawancara dan studi literatur yang dilakukan, terdapat beberapa faktor utama yang memengaruhi keberhasilan penerapan sistem ini.

1. Challenges in Implementing Midwifery Information Systems

Based on research findings, some of the main challenges in implementing midwifery information systems in remote areas are:

- Limited Technological Infrastructure: Many remote areas in Indonesia still experience limitations in terms of access to electricity, internet networks, and technological devices that support midwifery information systems. This hinders the accessibility and effectiveness of the use of these systems.
- Lack of Training for Health Workers: One of the main factors inhibiting the adoption of midwifery information systems is the lack of training and understanding of health workers, especially midwives, in operating digital-based systems.
- Financial Constraints and Budget Availability: Implementation of midwifery information systems requires investment in the form of hardware and software procurement, health worker training, and system maintenance. Many remote areas have limited budgets which are the main obstacles in implementing this system.
- Suboptimal Policy Support: Although there are various government initiatives to support the digitalization of health services, there are still challenges in coordination between agencies and policies that are less specific in supporting the implementation of midwifery information systems in remote areas.

2. Opportunities in Implementing Midwifery Information Systems

Despite facing various challenges, this study also found several opportunities that can be utilized to improve the implementation of midwifery information systems in remote areas:

- Advances in Information and Communication Technology: The development of information technology, such as the use of mobile-based applications and cloud-based systems, provides opportunities to increase the accessibility of midwifery health services.
- Government and Health Organization Initiatives: The Indonesian government together with international health organizations such as WHO have encouraged the digitalization of health services, including in the field of midwifery. Policy and funding support from related parties can accelerate the implementation of this system.
- Increasing Awareness of Health Workers on Digitalization: Health workers are increasingly aware of the benefits of digitalization in increasing the efficiency and effectiveness of health services, so that the adoption of midwifery information systems has the potential to grow more widely.
- Potential Integration with the National Health System: With the national health system continuing to develop, the midwifery information system can be integrated with the wider health system, allowing for synchronization of patient data and increased coordination between health agencies.

3. Implications and Recommendations

The results of this study indicate that although the implementation of obstetric information systems faces major challenges, there are various strategies that can be carried out to overcome these obstacles and take advantage of existing opportunities. Some recommendations that can be given are:
- Improving Technological Infrastructure in Remote Areas: The government and the private sector need to work together to improve access to electricity and internet in remote areas to support the implementation of obstetric information systems.

- Training and Mentoring for Health Workers: Regular training and mentoring programs need to be carried out to improve the skills of health workers in using digital-based information systems.
- Increasing Budget and Policy Support: Local and central governments must ensure that there is an adequate budget allocation for the development and maintenance of obstetric information systems.
- Collaboration with the Private Sector and Non-Governmental Organizations: Collaboration with the private sector, universities, and non-governmental organizations can help in the development of more innovative and adaptive systems to conditions in remote areas.

By implementing these strategies, it is hoped that the implementation of the midwifery information system in remote areas can be more effective and have a positive impact on improving the quality of maternal and child health services.

CONCLUSION

This study reveals that the implementation of midwifery information systems in remote areas faces various complex challenges, but also offers significant opportunities to improve the quality of maternal and child health services. Limited technological infrastructure, uneven internet access, minimal training for health workers, and budget constraints are the main obstacles in implementing this system. In addition, the readiness of human resources and policy

support from the government also play a crucial role in determining the success of implementation.

The development of information technology presents various opportunities to overcome existing obstacles. The use of mobile-based applications, cloud-based systems, and integration with the national health system can improve the efficiency and accessibility of midwifery services. Support from various stakeholders, including the government and health organizations, is also an important factor in accelerating the adoption of midwifery information systems.

This study recommends the need for implementation strategies that are more adaptive to geographic and social conditions in remote areas, including improving technological infrastructure, training health workers, and strengthening regulations and policies that support the sustainability of midwifery information systems. With these steps, it is hoped that maternal and neonatal health services can be more optimal, even in areas that are difficult to reach..

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