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A Phenomenological Study of Midwives' and Nurses' Perceptions in the Implementation of Clinical Pathways on Maternal and Infant Mortality Risks

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Abstract

Maternal and infant mortality remain key indicators for assessing of healthcare systems, especially in developing countries. One way to reduce these risks is by implementing clinical pathways as evidence-based standard care guidelines. However, their implementation in practice is often not effective. This study aims to explore the perceptions and experiences of midwives and nurses regarding the implementation of clinical pathways in reducing the risk of maternal and newborn deaths. The research uses a qualitative approach with a phenomenological study method. This study involved eight purposively selected participants, including midwives, nurses, specialist doctors, ward heads, and quality managers at healthcare facilities that have implemented clinical pathways. Data was collected through semi-structured in-depth interviews and analyzed using Colaizzi's method. The study identified three main themes: variable adherence to procedures, weak inter-professional coordination dan lack of monitoring systems from management affecting patient outcomes. It was found that there are gaps between the ideal practices expected in clinical pathways and the realities on the ground, which could increase the risk of failing to manage maternal and newborn cases. The study emphasizes the importance of training, strong monitoring systems, and strengthening a collaborative work culture as strategies to improve the effectiveness of clinical pathways. These findings contribute to the development of policies and improvements in maternal-neonatal healthcare services in Indonesia.

Keywords: Midwife, Nurse, mortality, clinical pathway

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INTRODUCTION

Maternal mortality rates (MMR) and infant mortality rates (IMR) remain serious problems in Indonesia's health system. Based on data from the 2023 Indonesian Health Survey (SKI), the maternal mortality rate was recorded at 189 in 100,000 live births, while the infant mortality rate reached 16 in 1,000 live births (Office, 2023). This condition shows that even though various intervention programs have been carried out, more effective and systematic efforts are still needed to reduce these mortality rates. According to data from the Bali Provincial Health Office in 2023, the Maternal Mortality Rate in 2023 was recorded at 63.9 in 100,000 live births, the lowest figure in 5 years. The maternal mortality rate starting in 2019 increased to 69.7 per 100,000 live births, in 2020 it increased again to 83.79 in 100,000 live births and in 2021 was the highest figure at 189.7 per 100,000 live births, in 2022 there was a decrease in cases compared to 2021 to 110.4 per 100,000 live births. The highest maternal deaths were in group 7 (Non-Obstetric Complications) at 40%, group 3 (Obstetric Hemorrhage) at 28%, and group 2 (Hypertension in pregnancy, childbirth and postpartum) at 12% (Office, 2023).

The increase in infant mortality that occurred between 2022 and 2023 was significant and poses serious challenges (Predani et al., 2024). Various strategies have been attempted to reduce

MMR and IMR in Bali, including strengthening the postpartum family planning (KBPP) program, where KBPP coverage decreased from 53.3% (2023) to only 45.4% in 2024, below the national target. Several efforts to implement the Integrated Management of Sick Children (IMSC) approach are aimed at improving the quality of neonatal and child care as an effort to reduce infant mortality (Office, 2023)]. One approach developed to improve the quality of maternal and neonatal health services is the clinical pathway. The use of clinical pathways aims to improve the efficiency, effectiveness, and consistency of services, especially in critical conditions such as high-risk pregnancies, complicated deliveries, and neonatal care. In the context of maternal and neonatal care, clinical pathways serve as a reference in the management of high-risk pregnancies, childbirth, and postpartum and neonatal care, thereby helping to reduce the risk of complications that cause maternal and infant. The history of clinical care pathways in obstetric care reflects a continued effort to improve the quality and safety of healthcare for mothers and infants (Teltumbde et al., 2024)

Several theories explain that clinical pathways reduce complications and improve several patient outcomes, thus supporting quality and safety improvements (Büscher & Kugler, 2024), including improving service quality and

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patient safety, helping standardize care (reducing variation between providers) with step-by-step guidelines (Noehammer et al., 2023), reducing length of stay after implementing clinical pathways (Trimarchi et al., 2021), controlling and streamlining healthcare costs (Büscher & Kugler, 2024), and strengthening interprofessional collaboration (Herawati et al., 2022). Several factors influence the implementation of clinical pathways, namely 1) Human resources, the availability of human resources, particularly the number and competence of health workers. Midwives and nurses, as the frontline of maternal-neonatal care, must have adequate clinical skills and a good understanding of CP in order to carry out interventions according to standards. Without the support of competent health workers, CP tends to become merely an administrative document that is not internalized in daily practice (Panella et al., 2020); 2) Organizational support, clear hospital policies, managerial involvement in supervision, and a collaborative work culture will strengthen the implementation of CP. Leadership support in the form of continuous training, supervision, and monitoring also increases the motivation of health workers to consistently implement CP (Akbar et al., 2025). Conversely, weak managerial commitment is often a major obstacle, as CP is not integrated into the service; 3) Infrastructure. The availability of

adequate health facilities, including information technology and monitoring tools, greatly affects the quality of CP implementation. In many health facilities, especially in remote areas, infrastructure limitations prevent CP documentation from running optimally. In fact, a good information system can assist in recording, evaluation, and continuous improvement (Larson et al., 2024). 4) Local Context, Factors such as the workload of health workers, community culture, and national policies will determine the extent to which CP can be adapted. Therefore, it is important to adapt CP to local needs and conditions so that it can be effective and sustainable (Min, 2024).

The results of research on the effectiveness of clinical pathway implementation are highly dependent on the active involvement and positive perceptions of health workers, particularly midwives and nurses, who are at the forefront of direct services to mothers and babies. Several studies show that negative perceptions, lack of training, high workloads, limited time/bandwidth of clinicians to lead implementation efforts, and barriers to interprofessional communication can be obstacles to the optimal implementation of clinical pathways. Several studies show that negative perceptions, lack of training, high workloads, and barriers to interprofessional communication can be obstacles to the optimal implementation of clinical pathways.

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(Outram et al., 2023)

Various factors such as uneven training, workload, and limited health facility resources are often obstacles in the implementation of clinical pathways (Ariyanti & Yuwono, 2020). This is an important thing to understand in exploring in depth the experiences and perceptions of midwives and nurses in the use of clinical pathways, particularly in relation to efforts to prevent maternal and infant mortality. From another perspective, clinical pathways also have a positive effect on the well-being of healthcare workers, which will influence the work steps and performance of each worker who carries out the service process with a fee-for-service system used to provide systematic services and measure the effectiveness and efficiency of healthcare service performance(Aladin et al., 2024).

In a study by(Claudia & Pinzon, 2020), entitled Evaluation of the Implementation of Clinical Pathways for Severe Preeclampsia Without Complications Based on Delivery Methods, the researchers explain that maternal mortality rates remain high worldwide. Preeclampsia is the leading cause of maternal mortality worldwide and the second leading cause in Indonesia. High demands for health services, increasingly advanced health technology, and Indonesia's entry into Universal Health Coverage require hospitals to provide effective and efficient services. Clinical

pathways are known as a means of ensuring quality and cost control. The existence of clinical pathways needs to be continuously evaluated and reviewed. The results of this study show that the implementation of clinical pathways as an effort to complement legislation is an important part of realizing good clinical governance. However, in practice, the use of clinical pathways has not been maximized. The success of clinical pathway implementation is influenced by various factors. These factors can originate from human resources, organization, policy, and external factors, but the results of the study show that implementation has not been maximized and further research on the function of clinical pathways is needed because this will affect hospital service management.

Midwives are healthcare professionals with core competencies in providing comprehensive physiological midwifery services, including care during normal pregnancy, labor, the postpartum period, and newborn care. In implementing clinical pathways, midwives play a crucial role in initial observation, risk assessment, and early detection of complications during pregnancy and labor. Furthermore, midwives are responsible for providing normal delivery care, monitoring the condition of the mother and baby, as well as providing postpartum education and lactation support. The midwife's role emphasizes

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continuity of care and a holistic approach that positions the mother and baby as a single unit of care (World Health Organization., 2022). Unlike maternity nurses or pediatric nurses, they play a greater role in curative and rehabilitative nursing care, including monitoring vital signs, pain management, advanced clinical observation, and nursing interventions in cases of complications such as preeclampsia, neonatal sepsis, or low birth weight. Nurses work in a structured manner based on nursing process standards that include assessment, nursing diagnosis, planning, implementation, and evaluation, which are often carried out in a shift system (Potter et al., 2020).

These differences in the implementation of clinical pathways often create variations in perceptions of service standards, documentation, and division of tasks. For example, midwives may focus more on documenting the delivery process and lactation education, while nurses emphasize postpartum monitoring and pain management. If there is no synergy and clear communication, these differences in approach can affect the effectiveness of the pathway's implementation. Despite having different areas of work and approaches, nurses and midwives still play a central role in the success of the clinical pathway. Based on this, it is important to develop a flexible yet specific pathway, with the active involvement

of both professions in the planning, training, and evaluation stages of implementation in order to achieve effective cross-professional synchronization. Therefore, the evaluation process in research that focuses on describing phenomena becomes the basis for writing research that explores different dynamics and functions into a sub-topic that can be developed as a medium worthy of research. This has prompted researchers to develop a study entitled Phenomenological Study of Midwives' and Nurses' Perceptions in the Implementation of Clinical Pathways on the Risk of Maternal and Infant Mortality.

METHOD

A. Approach and Type of Research

This research design uses a qualitative approach with a phenomenological approach. This study describes verbally and linguistically in natural conditions and without intervention. This study provides an overview of a particular group. The reason for using this method is that the researcher seeks to obtain information and explore more deeply the experiences and perceptions of midwives and nurses regarding the implementation of clinical pathways in maternal and child health services. The phenomenological approach aims to understand the meaning of the direct experiences of the informants in the context of their daily clinical practice.

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B. Location and Timeline of the Study

This study was conducted at community health center X, a health care facility that has implemented clinical pathways for maternal and neonatal care. The study was conducted in August.

C. Research Informants

This study used primary data obtained from midwives/nurses, obstetrician-gynecologists, pediatricians/neonatologists, hospital quality managers, and ward/department heads (maternal and child health clinic). Secondary data was also used in this study, which came from clinical pathway documents, maternal and neonatal service activity reports, SOPs, and maternal and infant mortality data. Informants were selected using purposive sampling with the following inclusion criteria.

Table 1 Informant Criteria

NO	CATEGORY OF INFORMANTS	NUMBER OF INFORMANTS	SELECTION CRITERIA	ROLE IN STUDIES
1	Midwife	4	1. At least 1 year of active work experience in maternal and child health services 2. Completed training or socialization related to clinical pathways 3. Willing to be an informant and provide honest data	Describing experiences and perceptions in the implementation of clinical pathways
2	Nurse	3	1. Work in the neonatal/infant ward 2. Be involved in the implementation of clinical pathways	Providing information about implementation practices and technical challenges
3	Obstetrician-gynecologist	1	1. Practice at research facilities 2. Involvement in the care of pregnant women in labor using clinical pathways	Providing clinical perspectives and evaluations on the use of clinical pathways
4	Pediatrician	1	1. Involved in neonatal care 2. Has handled cases involving infants using a clinical pathway approach	Explaining the clinical implications for infants
5	Head of Maternity Ward	1	1. Responsible for supervising and coordinating services 2. Knowledgeable about the implementation of standard procedures and clinical pathways	Providing information about operational management and SOP implementation
6	Hospital Quality Manager	1	1. Responsible for implementing service quality	Providing supporting data and institutional policies

D. Data Collection Techniques

The researchers, as the main instruments in

this study, used data collection methods, namely in-depth interviews conducted in a semi-structured manner with clinical pathway interview guidelines on maternal and infant mortality risks and document studies covering clinical pathway documents, maternal and neonatal service activity reports, SOPs, and maternal and infant mortality data.

E. Research Instruments

The main instrument in this study was the researcher himself as a key instrument (human instrument) who played a role in designing, exploring, analyzing, and drawing conclusions. The researcher also used:

1. Semi-structured interview guidelines
2. Voice recorder (with informant permission)
3. Field notebook

F. Data Analysis Techniques

Data validity is tested using the following criteria:

1. Credibility Test, namely this study uses data validity tests conducted in two ways, namely Triangulation and Member Check.
2. Transferability Test, namely in this qualitative study, the researcher describes in detail, clearly, systematically, and accountably the

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validity so that the research results can be used in other social situations or applied in other places.

3. Reliability Test: The researcher begins by determining the problem/focus, entering the field, determining the data sources, and making conclusions that can be proven by the researcher. During the research, the researcher keeps a daily log and field notes as audit trail material for the supervisor so that the research activities are reliable.
4. Confirmability Test: Avoids researcher bias by presenting data based on narratives and evidence from informants, such as recording discussions and displaying interview responses.

G. Research Ethics

This study adheres to ethical principles, namely:

1. The research entitled “Midwives’ and Nurses’ Perceptions in the Implementation of Clinical Pathways on the Risk of Maternal and Infant Mortality” has received ethical approval from the Health Research Ethics Commission of the Faculty of Medicine, Udayana

University/Sanglah General Hospital, Denpasar, with letter number No. 294/EA/KEPK-BUB-2025 dated August 31, 2025.

2. Informed Consent: Informants are provided with complete information about the purpose and process of the study and sign a consent form.
3. Confidentiality: The identity of informants is kept confidential by using codes or initials.
4. No Coercion: Participation is voluntary, and informants have the right to withdraw from participation at any time..
5. Prepare a research proposal and obtain ethical approval from the health research ethics committee.
6. Coordinate and obtain permits from relevant agencies (hospitals).
7. Prepare interviewuidelines, informed consent forms, and interview tools

Stage 2: Selection of Informants

1. Using purposive sampling techniques with inclusion criteria (midwives, nurses, and other relevant stakeholders).

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- 2. Screening informants based on their experience and involvement in clinical pathways for at least 1 year

Stage 3: Data Collection

- 1. Conduct semi-structured in-depth interviews.
- 2. Each interview will be recorded (with permission) and transcribed.
- 3. Additional observations and documentation may be conducted to support the primary data.

Stage 4: Data Processing and Analysis

- 1. Transcribing interview results
- 2. Menganalisis data menggunakan analisis fenomenologi Colaizzi (7 langkah):
 - a. Read the entire description of the informant's experience.
 - b. Highlight significant statements.
 - c. Formulate the meaning of these statements.
 - d. Group the meanings into themes and sub-themes.
 - e. Compile a comprehensive description.
 - f. Compile the essence of the experience.
 - g. Conduct member

checking. (validating the analysis r

results with the informant)

Stage 5:

h. Interpretation and

Drawing Conclusions

- 1. Interpreting data based on emerging themes.
- 2. Linking findings to relevant theory, policy, and literature.
- 3. Preparing a final report and presenting recommendations. this study is to:
- 8. Describe the perceptions and experiences of midwives and nurses in applying clinical pathways in maternal and infant care.
- 9. Identify the obstacles and challenges faced by health workers in implementing clinical pathways.
- 10. Explore the impact of implementing clinical pathways on maternal and infant mortality risks from the perspective of health practitioners.
- 11. Finding gaps or discrepancies between the ideal implementation of clinical pathways and actual implementation in the field.

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RESULTS

Informants involved in this study consisted of midwives, nurses, specialists, ward heads, and quality managers from health care facilities that have implemented clinical pathway principles in maternal and infant care. Informants had at least one year of experience and were actively involved in obstetric/neonatal care.

Table 1 Characteristics of informants

Informants	Informant code	The effectiveness of Clinical Pathway Procedure. (Years)	Clinical Pathway Procedure.
Midwife	Bn1	5,5	Complete
	Bn2	10	Complete
Nurse	Pn1	7	The themes and sub-themes obtained from this study
	Pn2	7	will be described in detail as follows:
Obstetrician and Gynecologist	Drb1	11	Adherence to clinical pathways is a key
Pediatrician	Drn1	5	indicator in ensuring quality of care and patient
Head of Maternal and Child Health Unit	Kri1	11	safety, as the integration of evidence-based
Hospital Quality Manager	Rs1	11	procedures and their implementation directly

The following is a description of the themes based on the research objectives:

1. Variable compliance with procedures
2. Weak interprofessional coordination
3. Lack of a management monitoring system that affects patient outcomes.

Based on the research results, it can be seen that there is a correlation between each theme found. This study found inconsistencies between the ideal framework for the use of clinical pathways, which may also occur in other developing countries. Fragmented

implementation shows the need for structured interprofessional training, improved teamwork, and support from agencies. This can reduce maternal and newborn mortality. The importance of strategies for implementing clinical guidelines by providing health services at the front line. Introducing protocols must be done, but it is also necessary to invest in culture, leadership, and evaluation mechanisms in their implementation to ensure compliance and

DISCUSSION

The themes and sub-themes obtained from this study will be described in detail as follows:

A ¹ Varied compliance with procedures

Adherence to clinical pathways is a key indicator in ensuring quality of care and patient safety, as the integration of evidence-based

procedures and their implementation directly impacts clinical outcomes. Variations in adherence rates are still found, particularly between the initial and follow-up stages of care. Studies in Indonesian hospitals report high adherence ($\geq 85\%$) for primary care procedures such as obstetric assessment and intervention, but lower (60–80%) for patient education, complication monitoring, and documentation (Setiawan et al., 2021). Factors such as limited human resources, high workloads, suboptimal

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socialization, and weak supervision also affect implementation consistency. Training of health workers and strengthening of monitoring and feedback systems are essential to ensure continued adherence to clinical pathways in obstetric and neonatal practice. Weak coordination between professions (Haninditya et al., 2019)

B. Weak coordination between professions

Interprofessional coordination and discussion are key elements in the effective implementation of clinical pathways, particularly in the management of complex cases that require a multidisciplinary approach (Geese & Schmitt, 2023). Empirical evidence shows that strong interprofessional collaboration contributes to improved clinical decision-making efficiency, protocol adherence, and patient satisfaction (Jiang et al., 2024). However, various evaluations of clinical pathway implementation in healthcare facilities indicate that coordination among healthcare professionals—including doctors, nurses, midwives, pharmacists, nutritionists, and rehabilitation professionals—remains suboptimal, characterized by minimal documentation of team discussion results, delays in clinical

consensus, and a lack of synchronization of care plans between professionals (Herawati et al., 2022). This condition is often caused by the lack of an integrated information system, weak regular communication forums, and low awareness of the importance of interprofessional collaboration within the clinical pathway framework (Akbar et al., 2025). Therefore, strengthening a culture of teamwork through interprofessional collaborative training, support for clinical communication technology, and the establishment of formal coordination mechanisms such as multidisciplinary team meetings are important strategies for improving the quality of clinical pathway implementation and patient safety in hospitals. Lack of monitoring systems from management that affect patient outcomes

Management monitoring is a crucial aspect in the effective implementation of clinical pathways, as it directly impacts quality, consistency, and patient outcomes. Data from recent studies show that when managerial monitoring systems are weak or poorly structured, there will be several negative consequences for patient clinical outcomes. For example, the study “Exploring patient's

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clinical outcomes, hospital costs, and satisfaction after the implementation of integrated clinical pathway-based nursing practice model" found that even though clinical pathways had been implemented, the lack of continuous monitoring from management caused variability in patient length of stay and patient satisfaction remained highly fluctuating (Rachmawaty et al., 2025). In addition, the study "Assessment and Monitoring of the Quality of Clinical Pathways in Patients with Depressive Disorders: the QUADIM Project" explained that clinical indicators such as continuity of service, patient safety, and persistence of antidepressant therapy were not monitored systematically, resulting in the delivery of health services that did not fully comply with clinical standards (Compagnoni et al., 2023)

Factors contributing to the weakness of this monitoring system include: unclear managerial responsibilities, a lack of real-time data that can be used for evaluation, a lack of integrated information systems, and a low frequency of audits and feedback to clinical teams. As a result, procedures in the clinical pathway are often not followed as planned, variations in clinical practice increase, and patient outcomes such as length of stay,

complications, and patient satisfaction become less than optimal.

Overall, the data show that a robust managerial monitoring system, including routine audits, the use of performance indicators, systematic feedback, and infrastructure support, is positively correlated with increased adherence to clinical pathways, reduced practice variability, and improved patient outcomes.

C. Lack of monitoring systems from management that affect patient outcomes

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Overall, the data show that a robust managerial monitoring system, including routine audits, the use of performance indicators, systematic feedback, and infrastructure support, is positively correlated with increased adherence to clinical pathways, reduced practice variability, and improved patient outcomes.

CONCLUSION

The results of the study on the achievement of competency targets yielded three final themes, namely 1) compliance with procedures, 2) weak interprofessional coordination, and 3) lack of a monitoring system from management that affects patient outcomes.

The success of clinical pathway implementation is influenced by various factors, including individual understanding, team collaboration, and institutional systems. This study identified significant gaps that must be addressed to improve maternal and newborn health outcomes. Interventions such as routine training, integrated communication systems, and real-time monitoring are essential to bridge implementation gaps and achieve pathway goals.

Conflict of Interest

The author declares that there is no conflict of interest in this study, either financial or non-financial, that could influence the results or reporting of the study. This study was conducted objectively.

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Finally, the author states that there is no conflict of interest in this study.

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