Jurnal Imu Kesehatan dan Gizi
Volume. 3, Nomor. 1, Tahun 2025
e-ISSN : 2964-7819; dan p-ISSN : 7962-0325; Hal. 294-304
DOI: https://doi.org/10.55606/jig.v3i1.8756
Available online at: https://prin.or.id/index.php/jig

This Study Examines the Relationship Between Midwives' Knowledge of Obstetric Emergency Management and Their Readiness in Muara Teweh Regional Hospital's Emergency Room

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Abstract: *Obstetric emergencies are a major cause of maternal mortality, most of which can be prevented through prompt and appropriate treatment. Midwives, as health workers assigned to the Emergency Department (ED) of PONEK, play a strategic role in early detection and initial management of obstetric emergencies, thus their knowledge level is an important factor in determining preparedness for treatment. This study aims to analyze the relationship between midwives' knowledge level regarding obstetric emergency management and their preparedness for handling obstetric emergencies in the Emergency Department (ED) of PONEK of Muara Teweh Regional Hospital. This study used an observational analytical design with a cross-sectional approach. The study sample consisted of 28 midwives selected using a total sampling technique. Data were collected using a structured questionnaire to measure their knowledge level and preparedness for handling obstetric emergencies. Data analysis was performed descriptively and inferentially using the Fisher's Exact Test. The results showed that more than half of the midwives had a good level of knowledge and preparedness for handling obstetric emergencies. Inferential analysis showed a highly significant relationship between midwives' knowledge level and their preparedness for obstetric emergencies ($p < 0.001$). It was concluded that midwives' knowledge level was closely related to their preparedness for obstetric emergencies in the PONEK Emergency Department of Muara Teweh Regional Hospital. This finding underscores the importance of strengthening midwives' knowledge through ongoing training, clinical simulations, and routine supervision to improve clinical preparedness and ensure the safety of mothers and babies in emergency obstetric care.*

Keywords: *Emergency Room; Midwife knowledge; Obstetric emergencies; PONEK; Preparedness for treatment.*

1. INTRODUCTION

Obstetric emergencies remain a major cause of high maternal mortality rates (MMR) in many countries, particularly low- and middle-income countries. Globally, the World Health Organization (WHO) reported that approximately 287,000 women died from complications of pregnancy and childbirth in 2020, with most deaths occurring from conditions that could have been prevented through prompt and appropriate emergency management, such as postpartum hemorrhage, preeclampsia–eclampsia, sepsis, and other labor complications (WHO, 2023). Delays in recognizing emergency conditions and unpreparedness of health workers are key factors contributing to maternal mortality, as explained in the *three delays model framework*. In Indonesia, obstetric emergencies remain a major challenge in efforts to reduce MMR. Data from the Indonesian Ministry of Health shows that the maternal mortality rate in Indonesia remains at 189 per 100,000 live births, far above the Sustainable Development Goals (SDGs) target of 70 per 100,000 live births (Ministry of Health, 2023). The main causes of maternal death in Indonesia are still dominated by hemorrhage, hypertension in pregnancy, and infection, which mostly occur in the intrapartum and early postpartum phases, which are periods that are highly dependent on the readiness of obstetric emergency services (SDKI,

Naskah Masuk: 30 November 2024; Revisi: 16 Desember 2024; Diterima: 28 Januari 2025; Terbit: 31 Januari 2025

2017; Ministry of Health, 2023). This condition confirms that improving the quality of obstetric emergency services is a strategic priority in the maternal health system.

In response to the high maternal mortality rate, the Indonesian government developed the concept of Comprehensive Emergency Obstetric Neonatal Services (PONEK) in hospitals and Basic Emergency Obstetric Neonatal Services (PONED) in primary health care facilities. The PONEK Emergency Room (ER) plays a frontline role in handling obstetric emergencies, which requires the readiness of human resources, a referral system, and the clinical competence of health workers, especially midwives (Ministry of Health of the Republic of Indonesia, 2020). Midwives are the health workers who interact most directly with pregnant and laboring women, thus playing a central role in early detection, making initial clinical decisions, and implementing obstetric emergency measures. Theoretically, readiness to handle obstetric emergencies is influenced by various factors, one of which is the level of knowledge of health workers. *The Knowledge-Attitude-Practice (KAP) theory* explains that knowledge is the main foundation in shaping professional attitudes and behaviors in clinical practice (Launiala, 2019). In the context of obstetrics, a midwife's knowledge of obstetric emergency management standards will influence the speed of problem recognition, the accuracy of decision-making, and the quality of care provided. Furthermore, clinical competency theory emphasizes that cognitive knowledge is an essential component that must be possessed before psychomotor skills and professional attitudes can be optimally applied (Epstein & Hundert, 2018).

Various studies have shown that the level of knowledge of health workers correlates with the preparedness and quality of emergency care. A study in Ethiopia reported that midwives with a good level of knowledge about obstetric emergency care had higher preparedness and faster clinical responses than midwives with low knowledge (Asefa et al., 2020). Research in Nigeria also showed that a lack of knowledge about obstetric emergency protocols contributed to delayed intervention and an increased risk of maternal complications (Okonofua et al., 2019). In Asia, studies in Bangladesh and India found that increasing knowledge through ongoing training significantly improved midwives' preparedness and confidence in managing obstetric emergencies (Hossain et al., 2021; Sharma et al., 2020). In Indonesia, several studies have evaluated midwives' knowledge regarding obstetric emergencies, but the results still show considerable variation. Research by Wulandari et al. (2020) reported that some midwives had sufficient knowledge but did not fully understand the emergency management algorithm according to PONEK standards. Another study showed that even though midwives had attended PONEK training, their readiness for practice in the field was still influenced by factors such as knowledge, clinical experience, and system support (Sari et al., 2022). This suggests

that knowledge alone does not necessarily guarantee readiness, but it remains a fundamental factor that cannot be ignored.

The research gap in this study lies in the limited research specifically analyzing the relationship between midwives' knowledge levels and their preparedness for obstetric emergencies in hospital PONEK emergency departments, particularly in non-metropolitan areas. Most previous studies have focused on training evaluations or general competency assessments, without directly linking cognitive knowledge to midwives' operational preparedness in the context of actual emergency services. Furthermore, empirical evidence from Central Kalimantan, including Muara Teweh Regional Hospital, is still very limited. The local context of Muara Teweh Regional Hospital as a referral hospital in a region with geographical challenges and limited access to healthcare services adds to the urgency of this research. Midwives' preparedness in the PONEK emergency department is crucial in ensuring maternal and infant safety, given that delays in further referral can be fatal. In such circumstances, adequate midwives' knowledge is expected to improve clinical preparedness and expedite responses to obstetric emergencies.

The urgency of this topic is further reinforced by the need to strengthen the quality of evidence-based midwifery care and patient safety. Improving midwives' knowledge not only impacts individual preparedness but also the overall care system through more appropriate and standardized clinical decision-making. Therefore, a comprehensive understanding of the relationship between midwives' knowledge and preparedness for obstetric emergency care is an important basis for planning training, clinical supervision, and policies to improve the quality of PONEK services. Based on this background, this study aims to analyze the relationship between midwives' knowledge level regarding obstetric emergency management and their preparedness for case management in the PONEK Emergency Department of Muara Teweh Regional Hospital. The results of this study are expected to provide a scientific contribution to strengthening evidence-based midwifery practices and serve as a basis for developing strategies to increase midwives' capacity in obstetric emergency care in Indonesia.

2. RESEARCH METHOD

Research design

This study used an observational analytical design with a cross-sectional approach. This design was chosen to analyze the relationship between midwives' knowledge level regarding obstetric emergency management and their preparedness to handle obstetric emergencies in the PONEK Emergency Department. This approach allows measurements of the independent and

dependent variables to be conducted simultaneously without any intervention from the researcher, making it suitable for describing the relationship between variables in the context of clinical practice in healthcare services.

Location and Time of Research

The study was conducted at the Emergency Department (IGD) PONEK of Muara Teweh Regional Hospital, a referral hospital providing comprehensive emergency obstetric and neonatal services. The location was selected based on the strategic role of the ER PONEK in handling obstetric emergencies and the availability of midwives directly involved in these services. The study was conducted from March to May 2025, covering the stages of instrument preparation, data collection, and data processing and analysis.

Research Population and Sample

The population in this study were all midwives working in the Emergency Room (ED) of PONEK, Muara Teweh Regional Hospital during the study period. Sampling was conducted using a total sampling technique, namely all midwives who met the inclusion and exclusion criteria were included as respondents, resulting in a sample size of 46 midwives. Inclusion criteria included midwives who were actively working in the Emergency Room (ED) of PONEK, Muara Teweh Regional Hospital, had a minimum work period of six months in the Emergency Room (ED) of PONEK, and were willing to be research respondents. The exclusion criteria included midwives who were on leave or not on duty during the data collection period and midwives who did not complete the questionnaire completely.

Research Variables

The variables in this study consist of independent variables and dependent variables. The independent variable is the midwives' level of knowledge regarding obstetric emergency management, which includes knowledge regarding the identification of emergency conditions, the principles of initial management, and stabilization measures according to PONEK standards. The dependent variable is obstetric emergency management readiness, which is defined as the midwives' readiness to respond and handle obstetric emergency cases quickly, appropriately, and according to procedures. In addition, respondent characteristics were recorded as descriptive variables, including age, education level, and length of service.

Research Instruments

The research instruments used included two structured questionnaires. The first questionnaire was a midwifery knowledge questionnaire on obstetric emergency management, structured as multiple-choice questions and covering the definition, signs and symptoms of obstetric emergencies, and principles of initial management. The second questionnaire was a

preparedness questionnaire for obstetric emergency management, structured using a Likert scale to assess respondents' readiness in the aspects of case recognition, decision-making, and action implementation. Both instruments underwent validity and reliability testing before being used in the study.

Research Procedures

The research procedure began with obtaining research permits from the relevant institutions and approval from the management of Muara Teweh Regional Hospital. Respondents who met the inclusion criteria were given an explanation of the research objectives and procedures and then asked to sign a consent form. Next, respondents were asked to independently complete a knowledge and readiness questionnaire at a designated time. The questionnaires were completed in a conducive atmosphere to minimize bias. All collected data was then checked for completeness before analysis.

Data Analysis

Data analysis was conducted descriptively and inferentially. Descriptive analysis was used to describe the characteristics of respondents, the level of midwives' knowledge, and their level of preparedness for handling obstetric emergencies, presented in the form of frequency distributions and percentages. Inferential analysis was used to examine the relationship between the level of midwives' knowledge and their preparedness for handling obstetric emergencies using the Chi-square test, as the data were categorical. If there were cells with an expected value of less than five, the Fisher's Exact Test was used. All statistical tests were performed at a significance level of $p < 0.05$.

3. RESULTS AND DISCUSSION

Results

Characteristics of Midwife Respondents

This section presents the characteristics of midwife respondents working in the PONEK Emergency Room of Muara Teweh Regional Hospital, including age, highest level of education, and length of service as a midwife. The presentation of respondent characteristics aims to provide a general overview of the profile of midwives involved in handling obstetric emergencies before analyzing the relationships between research variables.

Table 1. Characteristics of Midwife Respondents at the Emergency Room of PONEK, Muara Teweh Regional Hospital (n = 28).

Characteristics	Category	n	%
Age	< 35 years	11	68.8
	≥ 35 years	5	31.2
Last education	D3 Midwifery	1	3.6
	Bachelor of Midwifery/Profession	27	96.4
Length of Work as a Midwife	< 5 years	2	14.3
	≥ 5 years	12	85.7

Source: Primary research data, 2025.

Note: Percentages are calculated based on valid data for each variable.

Based on Table 1, the majority of respondents were in the age group <35 years, namely 11 midwives (68.8%), while midwives aged ≥35 years were 5 people (31.2%). In terms of their last educational level, almost all respondents had a Bachelor's degree in Midwifery or a midwife profession, namely 27 people (96.4%), while only 1 respondent (3.6%) had a Diploma 3 in Midwifery. Based on length of service as a midwife, the majority of respondents had a work period of ≥5 years, namely 12 people (85.7%), while midwives with a work period of <5 years were 2 people (14.3%). These characteristics indicate that most midwives in the Emergency Room PONEK Muara Teweh Regional Hospital are midwives with a high level of education and relatively long work experience.

Midwives' Knowledge Level on Obstetric Emergency Management

Assessment of knowledge levels is carried out based on knowledge questionnaire scores which are then categorized to describe the midwife's level of understanding of the principles and management of obstetric emergencies.

Table 2. Distribution of Midwives' Knowledge Levels regarding Obstetric Emergency Management in the PONEK Emergency Room of Muara Teweh Regional Hospital (n = 28).

Level of Knowledge	n	%
Good	15	53.6
Not enough	13	46.4
Total	28	100.0

Source: Primary research data, 2025.

Based on Table 2, the majority of respondents, 15 midwives (53.6%), had a good level of knowledge. Meanwhile, 13 midwives (46.4%) had a poor level of knowledge. This distribution indicates that although more than half of the midwives had a good understanding

of obstetric emergency management, a significant proportion of midwives still had suboptimal knowledge.

Readiness for Handling Obstetric Emergencies by Midwives

The level of readiness is assessed based on the case handling readiness questionnaire score which reflects the midwife's ability to respond, make decisions, and carry out initial obstetric emergency actions according to procedures.

Table 3. Distribution of Readiness for Handling Obstetric Emergencies by Midwives in the PONEK Emergency Room of Muara Teweh Regional Hospital (n = 28).

Readiness Category	n	%
Ready	15	53.6
Not ready	13	46.4
Total	28	100.0

Source: Primary research data, 2025.

Based on Table 3, 15 midwives (53.6%) were in the preparedness category for handling obstetric emergencies, while 13 midwives (46.4%) were in the less preparedness category. These results indicate that although more than half of the midwives were well prepared to handle obstetric emergencies in the PONEK ER, a significant proportion of midwives remained less than optimally prepared.

The Relationship Between Midwives' Knowledge Level and Preparedness for Handling Obstetric Emergencies

This section presents the relationship between midwives' knowledge level regarding obstetric emergency management and their preparedness to handle obstetric emergencies in the PONEK Emergency Room of Muara Teweh Regional Hospital. The analysis was conducted to determine the relationship between midwives' cognitive aspects and their practical preparedness in dealing with obstetric emergency cases.

Table 4. Relationship between Midwives' Knowledge Level and Preparedness for Handling Obstetric Emergencies in the PONEK Emergency Room of Muara Teweh Regional Hospital (n = 28).

Level of Knowledge	Readiness Ready n (%)	Readiness Less Ready n (%)	Total	p-value
Good	15 (100.0)	0 (0.0)	15	< 0.001
Not enough	0 (0.0)	13 (100.0)	13	
Total	15 (53.6)	13 (46.4)	28	

Fisher's Exact Test Source: Primary research data, 2025.

Based on Table 4, all midwives with a good level of knowledge are in the preparedness category for handling obstetric emergencies, namely 15 people (100.0%). Conversely, all midwives with a poor level of knowledge are in the less preparedness category, namely 13 people (100.0%). The results of the Fisher's Exact Test showed a p value <0.001, which indicates a very significant relationship between the level of midwives' knowledge and preparedness for handling obstetric emergencies in the PONEK Emergency Room of Muara Teweh Regional Hospital.

Discussion

This study aims to analyze the relationship between midwives' knowledge level regarding obstetric emergency management and their preparedness to handle obstetric emergencies in the PONEK Emergency Department of Muara Teweh Regional Hospital. The results showed that more than half of the midwives had a good level of knowledge and preparedness in handling obstetric emergencies. The most prominent main finding was a very significant relationship between the level of knowledge and preparedness, where all midwives with good knowledge were in the prepared category, while all midwives with poor knowledge were in the less prepared category. Descriptively, the distribution of midwives' knowledge and preparedness levels showed that there was still a fairly large proportion of midwives with less than optimal knowledge and preparedness. This finding reflects that although the PONEK Emergency Department is an emergency service unit with high competency demands, not all midwives have the same preparedness in dealing with obstetric emergencies. This condition is in line with study reports in Kenya and Uganda which stated that variations in knowledge and preparedness of midwifery personnel are still often found in obstetric emergency units, especially in regional referral hospitals (Mbindyo et al., 2017; Namazzi et al., 2018).

The strong relationship between knowledge and preparedness found in this study reinforces the *Knowledge–Attitude–Practice (KAP) theoretical framework* , which states that knowledge is the primary foundation for shaping professional preparedness and behavior in clinical practice (Launiala, 2019). In the context of obstetric emergencies, adequate knowledge enables midwives to quickly recognize danger signs, understand priority actions, and make appropriate initial clinical decisions before further treatment or referral. Without strong knowledge, practical preparedness tends to be low, even with extensive work experience. This finding is consistent with studies in Ghana and Tanzania that reported that midwives' level of knowledge about obstetric emergency care was significantly associated with their preparedness and speed of response in managing cases of postpartum hemorrhage and severe preeclampsia (Amoah et al., 2019; Mkoka et al., 2020). Another study in Pakistan showed that midwives

with good knowledge had higher levels of confidence and clinical preparedness in dealing with emergency cases than midwives with low knowledge (Khan et al., 2021). The similarity of these results suggests that the relationship between knowledge and preparedness is a consistent pattern across countries and health systems.

From a clinical perspective, the results of this study can be explained through the theory of professional competence, which states that clinical competence consists of the integration of cognitive knowledge, technical skills, and professional attitudes (Epstein & Hundert, 2018). Cognitive knowledge serves as the "initial trigger" in emergency situations, as clinical decisions must be made quickly with limited information. In obstetric emergencies, delayed recognition of the problem or inappropriate initial intervention can have fatal consequences for the safety of the mother and baby. Therefore, midwives with insufficient knowledge tend to demonstrate low preparedness, as reflected in the results of this study. Although the relationship found was highly significant, this study also indicates that increasing knowledge alone is not necessarily sufficient without adequate system support. Several studies have shown that emergency preparedness is also influenced by other factors such as the availability of facilities and infrastructure, team support, workload, and referral systems (Knight et al., 2019; van den Akker et al., 2020). In the context of Muara Teweh Regional Hospital, which has geographical challenges and limited access, these systemic factors can strengthen or hinder the application of midwifery knowledge in clinical practice.

The lack of variation in readiness among midwives with good knowledge in this study suggests that knowledge is a dominant factor in the context of the PONEK ED. However, these results should be interpreted with caution given the cross-sectional study design. This study cannot confirm a causal relationship but only demonstrates a very strong association between knowledge and readiness. Furthermore, readiness was measured using a self-assessment and perception questionnaire, so potential bias must be considered (Polit & Beck, 2021). The clinical implications of this study are highly relevant for midwifery practice and PONEK service management. The finding that midwives' knowledge is closely related to preparedness emphasizes the importance of ongoing capacity-building programs, not only through formal PONEK training but also through *refresher courses*, emergency simulations, and routine clinical supervision. For hospital management, the results of this study can serve as a basis for developing human resource development policies that focus on strengthening the cognitive aspects and clinical decision-making of midwives in the PONEK ED.

Overall, this study contributes to scientific research by strengthening evidence that midwives' knowledge is a key determinant of preparedness for obstetric emergencies. These

findings support efforts to improve the quality of emergency obstetric care focused on maternal and infant safety and are relevant as a basis for planning educational interventions and midwifery care policies at the referral hospital level.

4. CONCLUSION

This study aims to analyze the relationship between midwives' knowledge level regarding obstetric emergency management and their preparedness for case management in the PONEK Emergency Department of Muara Teweh Regional Hospital. The results showed a significant relationship between knowledge level and preparedness for obstetric emergency management, confirming that cognitive knowledge is a key factor in shaping midwives' clinical preparedness. This finding strengthens the theoretical framework that rapid and appropriate decision-making in emergency situations is highly dependent on midwives' understanding of emergency obstetric management standards. Scientifically, this study adds empirical evidence regarding the important role of midwives' knowledge in the context of emergency obstetric services in regional referral hospitals. Clinically, the results of the study imply the need to strengthen knowledge improvement programs through ongoing training, clinical simulations, and routine supervision to improve midwives' preparedness and ensure the safety of mothers and babies in PONEK services.

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