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Research article

The Effectiveness of Antenatal Class Education on Improving Maternal Preparedness in Facing Postpartum Hemorrhage

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ABSTRACT

Background: Postpartum hemorrhage (PPH) remains a leading cause of maternal mortality globally and in Indonesia. A key contributing factor is the lack of maternal preparedness in recognizing danger signs and responding promptly. Antenatal education, particularly through structured programs such as the Pregnant Women Class, is a strategic intervention to enhance maternal knowledge and readiness. This study aimed to determine the effectiveness of antenatal class education in improving maternal preparedness in facing postpartum hemorrhage.
Methods: A pre-experimental study using a one-group pretest-posttest design was conducted in Bangun Rejo Village from May to June 2025. Thirty third-trimester pregnant women were selected through purposive sampling. Participants attended a 90-minute antenatal class session focused on postpartum hemorrhage, delivered through lectures, discussions, and visual media. Preparedness was measured using a standardized questionnaire before and one week after the intervention. Data were analyzed using the Paired T-Test with a significance level of $p < 0.05$.
Results: The mean preparedness score increased from 62.40 (±8.215) before the intervention to 78.73 (±6.542) after, with a mean difference of 16.33 (±7.49). The statistical analysis showed a significant improvement ($p = 0.000$). Additionally, the number of mothers with high preparedness increased from 0% to 73.3% post-intervention.
Conclusion: Antenatal class education significantly improves maternal preparedness to face postpartum hemorrhage. This intervention enhances not only knowledge but also awareness, decision-making ability, and proactive behavior among pregnant women. It is recommended to integrate such educational strategies more broadly into maternal health services to reduce preventable maternal deaths.

I. Introduction

Postpartum hemorrhage (PPH) is one of the leading causes of maternal mortality both in Indonesia and globally. According to the World Health Organization (WHO, 2023), approximately 25% of maternal deaths worldwide are caused by postpartum bleeding. In Indonesia, the Maternal Mortality Rate (MMR) remains high, partly due to delays in handling postpartum hemorrhage (Ministry of Health RI, 2023). These delays are often the result of low maternal knowledge and preparedness in recognizing danger signs and responding quickly.

Postpartum hemorrhage is defined as blood loss of ≥500 ml after vaginal delivery or ≥1000 ml after cesarean section (Manuaba, 2019). This condition can occur suddenly and requires immediate medical attention. Maternal preparedness, which includes knowledge, attitude, and appropriate response, is crucial to avoid delays in decision-making and referral to healthcare facilities (Prawirohardjo, 2020).

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Therefore, interventions that can enhance maternal preparedness during pregnancy are urgently needed to prevent such complications.

The Antenatal Class is a promotive and preventive program initiated by the Indonesian Ministry of Health aimed at educating pregnant women about pregnancy, childbirth, postpartum care, and newborn care (Ministry of Health RI, 2023). This class includes information on warning signs during pregnancy and childbirth, including postpartum hemorrhage. Competent facilitators and interactive teaching methods are expected to improve maternal awareness and readiness to face childbirth risks (Yuliana & Prasetya, 2022).

However, in practice, many pregnant women still lack adequate understanding of the dangers of postpartum hemorrhage and how to respond appropriately. This may be due to insufficient implementation of antenatal classes, unengaging teaching methods, or low participation from expectant mothers (Sari & Widyaningrum, 2021). Therefore, it is necessary to evaluate the effectiveness of antenatal classes in increasing maternal preparedness, particularly in dealing with postpartum hemorrhage.

Previous studies have shown that structured, participatory education can improve maternal knowledge and attitudes toward obstetric danger signs (Fitriyani & Rahayu, 2022). Delivering information directly by health workers, combined with discussions and simulation methods, enhances understanding and awareness among pregnant women. This highlights the need for further context-based research.

Bangun Rejo Village is one of the areas under a community health center's coverage that still reports cases of obstetric complications, including postpartum hemorrhage. With its diverse geographical and socio-cultural background, educational interventions such as antenatal classes are expected to positively impact maternal preparedness. This approach could serve as a model for similar initiatives in other rural areas (Notoatmodjo, 2020).

Additionally, literature shows that maternal preparedness is influenced not only by knowledge but also by social support, family involvement, and the readiness of local health facilities (Sari & Widyaningrum, 2021). Therefore, education should not only deliver information but also strengthen referral networks and promote collective community awareness.

In the context of the Sustainable Development Goals (SDGs), reducing maternal mortality is a key target—specifically, to bring the MMR down to less than 70 per 100,000 live births by 2030 (WHO, 2023). This target will not be achieved without improving health literacy among pregnant women regarding pregnancy risks, including postpartum hemorrhage. Strengthening community-based antenatal classes is one strategic intervention to support this goal.

Based on the background above, this study aims to determine the effectiveness of antenatal class education in increasing maternal preparedness to face postpartum hemorrhage in Bangun Rejo Village in 2025. The results of this study are expected to serve as a basis for developing more effective and community-based educational strategies and policies (Ministry of Health RI, 2023; Fitriyani & Rahayu, 2022).

II. METHODS

This study was conducted from early May to late June 2025 in Bangun Rejo Village. The type of research was a pre-experimental design with a one-group pretest-posttest approach. A total of 30 third-trimester pregnant women were selected using purposive sampling based on inclusion criteria. Participants received antenatal education focusing on postpartum hemorrhage preparedness, delivered in one session by a trained facilitator. The session lasted about 90 minutes and included presentations, discussions, and visual media. A preparedness questionnaire was used before and one week after the intervention. Data were analyzed using the Paired T-Test to determine the significance of changes in knowledge and readiness, with $p < 0.05$ considered statistically significant.

III. RESULT

Antenatal Class Education to Improve Maternal Preparedness in Facing Postpartum Hemorrhage in Bangun Rejo Village, 2025, which examined the use of a preparedness questionnaire has tested the difference in effect using the Paired T-Test with the following statistical results:

Data analysis Univariat

Effectiveness of Antenatal Class Education on Improving Mothers' Preparedness in Facing Postpartum Hemorrhage in Bangun Rejo Village in 2025

Tabel. 1 Frequency Distribution of Mothers' Preparedness Scores Before and After Antenatal Class Education

Preparedness Score	**n (35)**	**%**
Pre Test		
Low	18	60,0%
Moderate	12	40.0%
Post Test		
Moderate	8	26,7%
High	22	73,3%

Source: Results Processed Data, 2024

Based on the data in Table 4.2, before the intervention, most respondents had a low level of preparedness (18 mothers or 60.0%). After attending the antenatal class education, there was a significant improvement, with the majority reaching a high level of preparedness (22 mothers or 73.3%).

Data Bivariate Analysis

The bivariate analysis in this study was conducted to determine the effect of antenatal class education on improving mothers' preparedness in facing postpartum hemorrhage.

Normality Test

The normality test was performed using the skewness ratio. The skewness value for the pre-test was 0.983 and for the post-test was 0.462, both within the acceptable range of -2 to +2. This indicates that the data were normally distributed and appropriate for analysis using the *Paired T-Test*.

Table 2 Effect of Antenatal Class Education on Mothers' Preparedness for Postpartum Hemorrhage in Bangun Rejo Village, Tanjung Morawa District in 2025

	N	**Mean ± SD**	**Perbedaan Rerata ± SD**	**95% CI (Lower–Upper)**	**p value**
Pre Test	30	62.40 ± 8.215		13.45 – 19.22	
Post Test	30	78.73 ± 6.542	16.33 ± 7.49		0,000*

Source: Results Processed Data, 2024

The average preparedness score increased from 62.40 before the intervention to 78.73 after the intervention. The statistical test showed a significant difference (p = 0.000), indicating that antenatal class education had a significant effect on increasing mothers' preparedness to face postpartum hemorrhage.

IV. DISCUSSION

The results of this study indicate that antenatal education through the Pregnant Women Class significantly increased maternal preparedness in facing postpartum hemorrhage. This improvement underscores the critical role that educational interventions play in enhancing maternal knowledge and mental readiness to confront potential complications following childbirth. The emphasis on preparedness is particularly vital in the context of postpartum hemorrhage, which remains a leading cause of maternal morbidity and mortality globally.

According to Putri et al. (2022), structured antenatal education can markedly improve maternal preparedness in dealing with obstetric complications by bolstering awareness and knowledge of danger signs. For instance, when mothers are educated about the symptoms of postpartum hemorrhage—such as excessive bleeding, dizziness, or a rapid heartbeat—they are more equipped to recognise these signs

early and seek timely medical intervention. This foundational knowledge is crucial, as it enables mothers to make quick and appropriate decisions during emergencies, potentially saving lives. The ability to identify danger signs is not merely academic; it can have profound implications for maternal and infant health outcomes.

Furthermore, this study employed an interactive educational approach that combined lectures, discussions, and visual media. This methodology aligns with the findings of Wulandari & Sari (2023), who asserted that participatory approaches in health education are significantly more effective than one-way communication in shaping maternal preparedness for obstetric risks. For instance, incorporating visual aids such as diagrams of the female anatomy or videos demonstrating emergency procedures can enhance understanding and retention of critical information. The interactive nature of the sessions encourages active participation, allowing mothers to ask questions, share experiences, and engage in role-playing scenarios that simulate real-life situations. This hands-on approach not only makes the learning process more engaging but also fosters a sense of community among participants, which is invaluable during the often isolating experience of pregnancy.

The increased preparedness among mothers can also be linked to a need-based educational approach, where the material is tailored to the specific needs of each pregnancy trimester. This method of education ensures that the information provided is relevant and applicable to the mothers' current stage of pregnancy, thereby enhancing its effectiveness. This aligns with the recommendations from the Indonesian Ministry of Health (2023), which emphasised that contextual and needs-oriented education significantly improves the efficacy of health messages. For example, during the first trimester, the focus might be on understanding the changes in the body and early signs of complications, while later trimesters could concentrate on birth planning and recognising signs of labour or postpartum complications.

These findings also support the study by Lestari & Astuti (2022), who examined the effect of health education on maternal readiness for childbirth. Their results indicated that education during pregnancy enhances maternal preparedness for emergency situations such as postpartum hemorrhage. This preparedness encompasses various aspects, including recognising danger signs, preparing transportation to health facilities, and planning childbirth with family support. Here, education provided to pregnant women transcends mere information delivery; it serves to cultivate critical awareness and proactive attitudes necessary for ensuring maternal safety. For instance, a mother who understands the importance of having a birth plan that includes emergency contacts and transportation options is more likely to act swiftly in a crisis.

The improvement in maternal preparedness following participation in the Pregnant Women Class can also be explained by the Health Belief Model (HBM). According to this model, individuals are more likely to engage in preventive behaviour if they perceive a serious health threat, believe that the behaviour will be beneficial, and feel confident in their ability to take action (Rachmawati et al., 2023). In this study, the education improved mothers' perception of the risks of postpartum hemorrhage and strengthened their confidence in taking preventive actions, such as recognising danger signs and seeking immediate help. This shift in perception is critical; when mothers understand the gravity of postpartum complications, they are more likely to prioritise their health and the health of their babies.

This education also involved a promotive and preventive approach in line with the Continuum of Care (CoC) standard in maternal health services. The CoC framework emphasises the importance of integrated services from pregnancy, childbirth, to the postpartum period. When health information is delivered systematically during pregnancy, mothers have the time and space to understand and plan for potential complications (UNFPA Indonesia, 2023). This systematic approach ensures that mothers are not overwhelmed with information all at once but can gradually build their knowledge and preparedness over time.

The group-based nature of the Pregnant Women Class also had a positive psychosocial effect. Social support from fellow pregnant women fostered confidence and emotional engagement in the learning process. Nasution & Widiastuti (2022) highlighted that group learning in maternal education not only increases knowledge but also strengthens empathy, mutual support, and reduces anxiety related to childbirth. The shared experiences and collective learning foster a sense of camaraderie among participants, which can be particularly comforting during a period marked by uncertainty and anxiety.

This social aspect of learning is crucial; it allows mothers to feel less isolated and more empowered as they navigate the challenges of pregnancy and impending motherhood.

In midwifery practice, maternal preparedness is closely associated with the first delay (delay in decision-making) in the Three Delays model. Effective education helps shorten the time it takes to make decisions when postpartum hemorrhage occurs—one of the leading causes of maternal mortality in Indonesia. According to WHO (2023), nearly 27% of maternal deaths in developing countries are due to untreated postpartum hemorrhage, often caused by a lack of preparedness among mothers and families. By equipping mothers with the knowledge and confidence to act swiftly in emergencies, the Pregnant Women Class addresses this critical delay and has the potential to significantly reduce maternal mortality rates.

This study also demonstrates that education delivered by competent health workers, using clear language and adapted to local cultural contexts, is significantly more effective in changing maternal behaviour. This approach is known as culturally sensitive health communication, which is essential to ensure that health messages are fully received and accepted by the target population (Fauziah & Ahmad, 2023). For instance, using local dialects and culturally relevant examples can make the information more relatable and easier to understand. This culturally sensitive approach not only enhances the effectiveness of the education but also fosters trust between health workers and the community, which is vital for successful health interventions.

The findings from this study highlight the multifaceted benefits of antenatal education through the Pregnant Women Class in enhancing maternal preparedness for postpartum hemorrhage. By employing structured, interactive, and culturally sensitive educational approaches, this initiative significantly improves maternal knowledge, confidence, and proactive behaviours in the face of potential complications. The integration of social support within group settings further enriches the learning experience, fostering a sense of community and shared responsibility among mothers. Ultimately, such educational interventions are crucial in addressing the gaps in maternal health care and can play a pivotal role in reducing maternal mortality rates, thereby contributing to healthier families and communities. The evidence presented underscores the need for continued investment in maternal education as a strategic intervention to safeguard maternal and infant health.

V. CONCLUSION

Based on the results of the study titled "Effectiveness of Antenatal Class Education on Improving Maternal Preparedness in Facing Postpartum Hemorrhage in Bangun Rejo Village in 2025", it can be concluded that antenatal class education had a significant effect on improving maternal preparedness to face postpartum hemorrhage. This intervention effectively enhanced mothers' knowledge, awareness, and readiness to recognize danger signs, make timely decisions, and seek proper medical assistance in emergency situations. Therefore, antenatal education is a crucial preventive effort to reduce maternal mortality related to postpartum complications, particularly hemorrhage.

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