



The Effectiveness of Health Education on Knowledge of Danger Signs of Childbirth in Pregnant Women in the Third Trimester

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Abstract. *Pregnancy, childbirth, and the postpartum period are vulnerable phases for mothers, so readiness in recognizing danger signs of labor is crucial for the safety of the mother and fetus. This study aims to determine the effectiveness of health education in improving pregnant women's knowledge regarding danger signs of labor in the third trimester. The study used a quantitative pre-experimental design with a one-group pretest-posttest approach. The sample consisted of 30 pregnant women in the third trimester who were selected purposively. The health education intervention was provided through group counseling with visual media and guided discussions. Knowledge measurements were conducted before (pretest) and one week after the intervention (posttest) using a valid and reliable structured questionnaire. The results showed a significant increase in maternal knowledge, with the average score increasing from 48.3 to 72.7. The proportion of mothers with good knowledge increased from 6.7 % to 56.7%. In addition, there was a significant positive relationship between the level of posttest knowledge and maternal compliance with childbirth recommendations ($p = 0.028$). This study confirms that structured, interactive, and family-involved health education effectively improves pregnant women's understanding and behavior in facing the risks of childbirth, thus potentially reducing childbirth complications and supporting the safety of the mother and fetus.*

Keywords: *Adolescent Girls; Health Education; Pregnant Women; Reproductive Health; Third Trimester.*

1. INTRODUCTION

Pregnancy, childbirth, and the postpartum period are phases that require special attention due to various physical and psychological changes. During this phase, mothers experience a fairly vulnerable condition, thus requiring adequate information and support. One aspect that influences maternal safety is the ability to recognize danger signs during labor (Prakitri et al., 2025). Danger signs are conditions that indicate potential complications that can threaten the safety of the mother and fetus if not treated quickly. Strengthening knowledge about danger signs is a crucial step to enable mothers to make appropriate decisions when facing emergency situations (Riana et al., 2025).

Indonesia still faces challenges in reducing maternal mortality. Various reports indicate that the majority of maternal deaths are related to delays in recognizing risky conditions and slow decisions to seek medical attention (Prasetyo & Wahyu, 2025). This condition is often triggered by mothers' lack of knowledge about danger signs in labor. Mothers who lack understanding of danger signs tend to delay seeking medical care or dismiss certain symptoms as normal. This lack of understanding also makes mothers less prepared for childbirth, increasing the risk of complications (Piyaningsih et al., 2025).

The third trimester is the period with the highest risk of complications compared to previous trimesters. This phase involves rapid fetal development, the body's preparation for labor, and the emergence of various new symptoms that can be confusing if the mother lacks adequate knowledge. (Isnaini et al., 2020). Conditions such as bleeding, decreased fetal movement, premature rupture of membranes, severe headaches, and excessive swelling can be signs of complications that require immediate treatment. Pregnant women who understand the danger signs are more likely to seek help, while those who are less aware tend to delay treatment because they feel the symptoms are tolerable (Linar et al., 2025).

Pregnant women's knowledge is influenced by many factors, including education level, access to information, family support, previous pregnancy experiences, and the role of health professionals. However, access to information alone does not always guarantee a mother's full understanding of danger signs. Unstructured, unclear, or limited information often results in mothers only knowing some of the danger signs without fully understanding their meaning. This situation highlights the need for a planned approach that provides information in a more systematic and easily understood manner (Rinata & Andayani, 2018).

Health education is one of the most frequently used interventions to improve the knowledge of pregnant women. Through health education, health workers can deliver information in a targeted, measurable manner, and tailored to the mother's needs (Saputra et al., 2021). This can be delivered through counseling, group counseling, demonstrations, guided discussions, or the use of visual media (Gusmadevi & Hendrita, 2024). Implementing health education improves mothers' understanding of dangerous symptoms, how to recognize them, and the steps to take when danger signs appear. Mothers who receive regular health education typically have a stronger understanding of labor conditions (Wati et al., 2023).

Research has shown that health education is effective in improving mothers' knowledge about reproductive health, prenatal care, and childbirth preparation. However, results often depend on the methods used, the frequency of outreach, the quality of health workers, and the mother's receptivity to the material provided (DS Mawaddah et al., 2023). The effectiveness of health education is also influenced by the social environment in which the mother lives. For example, in some communities, traditional views persist that consider certain symptoms a normal part of pregnancy. When mothers are surrounded by an environment that adheres to traditional views, health education must be delivered in a more robust manner and able to correct misperceptions without causing resistance (Novrianda et al., 2015).

Besides traditional aspects, previous pregnancy experiences also influence maternal knowledge. Multiparous mothers sometimes feel experienced enough and therefore pay less

attention to the material provided by health workers. However, each pregnancy has different characteristics and still carries the potential for risks (Hesyana et al., 2022). While primigravida mothers often feel anxious due to their lack of experience, this anxiety does not always translate into adequate knowledge. Many mothers rely on information from family or friends without verifying its accuracy. This situation demonstrates the importance of providing health education to all mothers, both primigravida and multiparous (Pakaja et al., 2025).

The quality of antenatal care (ANC) services also plays a role in the success of health education. Regular ANC sessions provide opportunities for health workers to provide ongoing education. In some cases, health education is not yet a comprehensive part of ANC sessions. The focus of examinations is often limited to physical examinations, while comprehensive education about danger signs is not provided. Some mothers even admitted to never receiving a detailed explanation of danger signs during ANC visits, leaving them with limited knowledge. This situation demonstrates that the effectiveness of health education still needs to be improved (Tahir & Anjarwati, 2022).

Health education designed with appropriate methods has great potential to improve maternal preparedness for childbirth. A well-developed educational process enables mothers to be more alert to abnormal symptoms. Strong knowledge also encourages mothers to develop a more thorough birth plan, such as preparing transportation, birth companions, and facilities to visit. The sooner a mother recognizes danger signs, the greater the chance of survival for both mother and fetus (Minda et al., 2025).

The involvement of husbands and families in health education is also crucial. Mothers who recognize danger signs may want to seek help immediately, but this decision is often influenced by their families. In some families, the decision to take a mother to a health facility cannot always be made immediately because they have to wait for the approval of the husband or other family members. This situation can lead to delays in treatment. If the family shares the same knowledge as the mother about danger signs, the decision-making process will be faster and more accurate. Health education that involves families can increase the overall effectiveness of interventions. (Napitupulu & Angin, 2022).

Given the importance of knowledge about danger signs in labor and the significant potential of health education to improve maternal understanding, research into the effectiveness of health education is relevant. An effectiveness evaluation is needed to determine the extent to which health education improves pregnant women's knowledge, particularly during the third trimester, the most vulnerable period. The results of this study can provide insight into changes

in maternal knowledge before and after health education and can help develop better educational strategies in the future.

The research title "The Effectiveness of Health Education on Knowledge of Danger Signs of Childbirth in Pregnant Women in the Third Trimester" was developed to address this need. This research is expected to provide a broader understanding of the contribution of health education in improving pregnant women's preparedness for the risks of childbirth. The findings of this study can be used as input for health workers and health care facilities in designing more structured educational programs tailored to the needs of pregnant women.

2. RESEARCH METHOD

This study used a quantitative design with a pre-experimental approach in the form of a *one-group pretest-posttest*. This approach was chosen to measure the effectiveness of health education on increasing pregnant women's knowledge regarding danger signs of labor. The study population was all third-trimester pregnant women undergoing antenatal care (ANC) examinations at the Kobe Community Health Center. A sample of 30 respondents was selected using purposive sampling based on inclusion criteria, namely third-trimester pregnant women who were willing to participate in health education, able to answer the questionnaire, and did not have serious complications that prevented participation. Respondents were given a pretest to determine their initial level of knowledge before the intervention.

The health education intervention was conducted through group counseling sessions, using visual media and guided discussions, with material focused on recognizing danger signs of labor such as bleeding, decreased fetal movement, premature rupture of membranes, severe headaches, and excessive swelling. Each session lasted 30-45 minutes, followed by a question-and-answer session to ensure maternal understanding. Respondents' knowledge was measured using a structured questionnaire validated by obstetricians and tested for reliability with a Cronbach's alpha value > 0.7 . A pretest was conducted before the education session, while a posttest was conducted one week after the health education to assess changes in knowledge.

The data obtained were analyzed descriptively and inferentially. Descriptive analysis was used to describe the characteristics of respondents based on age, education, parity, and occupation, as well as the distribution of knowledge scores before and after the intervention. Inferential analysis was performed using the Wilcoxon test to compare pretest and posttest knowledge scores, considering the data were not normally distributed. A p-value < 0.05 was considered significant. The results of the analysis are expected to indicate whether health education significantly improves pregnant women's knowledge of danger signs of labor, as

well as provide a basis for improving education strategies at the Kobe Community Health Center.

3. RESULTS AND DISCUSSION

Results

Table 1. Respondent Characteristics (n = 30).

Characteristics	Category	Number (n)	Percentage (%)
Mother's age	<25 years	5	16.7
	25 - 35 years	20	66.7
	>35 years	5	16.6
Education	Elementary/Middle School	8	26.7
	Senior High School	16	53.3
	College	6	20.0
Work	Housewife	17	56.7
	Work	13	43.3
Parity	Primipara	12	40.0
	Multipara	18	60.0

Based on Table 1, the majority of respondents were aged between 25–35 years (66.7 %), while the age groups <25 years and >35 years were 16.7% and 16.6%, respectively. In terms of education, the majority had a high school background (53.3 %), followed by elementary/junior high school (26.7%) and college (20.0%). Most mothers were housewives (56.7 %), and 43.3% were employed. In terms of parity, 60.0 % of respondents were multiparous and 40.0% were primiparous, illustrating the demographic profile of the respondents that formed the basis of the research analysis.

Table 2. Distribution of Knowledge of Danger Signs of Childbirth Before and After Health Education.

Knowledge	Pretest n (%)	Posttest n (%)
Low	18 (60.0)	5 (16.7)
Enough	10 (33.3)	8 (26.6)
Good	2 (6.7)	17 (56.7)

Based on Table 2, before receiving health education, the majority of pregnant women had a low level of knowledge regarding danger signs of labor, namely 18 respondents (60.0%), while those with sufficient and good knowledge were 33.3% and 6.7%, respectively. After the implementation of health education, there was a change in the distribution of knowledge, marked by an increase in the proportion of mothers with good knowledge to 56.7 %, while low knowledge decreased to 16.7% and sufficient knowledge to 26.6%. This change indicates an increase in pregnant women's understanding of danger signs of labor after receiving health education.

Table 3. Average Pretest and Posttest Knowledge Scores.

Measurement Time	Mean	Elementary School	Median	Min	Max
Pretest	48.3	10.2	50	30	65
Posttest	72.7	9.5	75	55	90

Based on Table 3, the average score of pregnant women's knowledge regarding danger signs of labor increased from 48.3 in the pretest to 72.7 in the posttest, with standard deviations of 10.2 and 9.5, respectively. The lowest pretest score was 30 and the highest was 65, while the minimum posttest score was 55 and the maximum was 90. The median score also increased from 50 in the pretest to 75 in the posttest, indicating an increase in mothers' understanding after receiving health education.

Table 4. Relationship between Knowledge and Mothers' Compliance with Childbirth Recommendations.

Posttest Knowledge	Obedient n (%)	Not obey n (%)	Total	p-value*
Low	2 (40.0)	3 (60.0)	5	0.028
Enough	5 (62.5)	3 (37.5)	8	
Good	15 (88.2)	2 (11.8)	17	

Based on Table 4, there is a relationship between the level of knowledge of pregnant women after health education and their compliance with delivery recommendations. In the group with low knowledge, only 40.0 % of mothers were compliant, while 60.0% were non-compliant. In the group with sufficient knowledge, 62.5 % of mothers were compliant and 37.5% were non-compliant. Meanwhile, in the group with good knowledge, most mothers (88.2 %) were compliant with delivery recommendations, and only 11.8% were non-compliant. The analysis results showed a significant relationship between post-test knowledge level and maternal compliance ($p = 0.028$), confirming that increased knowledge through health education correlates with more compliant behavior.

Discussion

The results of the study showed that health education had a positive effect on increasing pregnant women's knowledge of danger signs of labor in the third trimester. The average knowledge score increased from 48.3 in the pretest to 72.7 in the posttest, with the proportion of mothers with good knowledge increasing from 6.7% to 56.7%. This confirms that health education interventions can improve mothers' understanding of symptoms that pose a risk to the safety of the mother and fetus. These findings align with the opinion of (Prafitri et al., 2025) who emphasized the importance of strengthening knowledge of danger signs of labor so that mothers can make appropriate decisions when facing emergency situations.

The distribution of respondent characteristics indicates that the majority were aged 25–35, had a high school education, and were mostly multiparous. This demographic profile is relevant because being of productive age and having an adequate education level can facilitate mothers' acceptance of educational information. However, the relatively low pretest scores suggest that previous pregnancy experience does not always guarantee an adequate understanding of labor danger signs. This supports the findings (Hesyana et al., 2022) that multiparous women sometimes consider previous experience sufficient and therefore pay less attention to educational materials, while primigravidas are often anxious but do not necessarily understand danger signs optimally. Therefore, providing health education to all pregnant women, both primigravidas and multiparous women, remains essential to improve readiness for childbirth.

The health education method used, in the form of group counseling with visual media and guided discussions, has proven effective in increasing maternal knowledge. This strategy allows mothers to actively learn, ask questions, and discuss confusing symptoms, resulting in deeper understanding. (Gusmadevi & Hendrita, 2024) stated that delivering information interactively, directed, and using visual media is more effective than just verbal counseling. A good education process helps mothers recognize danger signs such as bleeding, decreased fetal movement, premature rupture of membranes, severe headaches, and excessive swelling. This increased understanding encourages mothers to take swift and appropriate action when symptoms appear (Linar et al., 2025).

In addition to the delivery method, the social environment also influences the effectiveness of health education. Previous research has shown that traditional societal views can lead mothers to perceive certain symptoms as normal, resulting in knowledge provided by health workers not always being fully accepted (Novrianda et al., 2015). Therefore, educational interventions must be able to correct misperceptions without creating resistance, for example by involving families and husbands in the educational process. (Napitupulu & Angin, 2022) emphasize that family involvement can accelerate decision-making when mothers face danger signs, as family support helps mothers seek medical help promptly.

The analysis also showed a significant relationship between post-test knowledge levels and maternal compliance with birth recommendations ($p = 0.028$). Mothers with good knowledge were more compliant with birth recommendations than those with poor knowledge. This finding confirms that increased knowledge influences not only understanding but also actual behaviors that impact maternal and fetal safety. (N. Mawaddah & Prastya, 2023) emphasize that ongoing health education delivered using appropriate methods can encourage

positive behaviors, increase risk awareness, and prepare mothers for childbirth more maturely, including preparing transportation, birth companions, and the facilities they will go to.

Furthermore, the quality of antenatal care (ANC) services is a crucial factor in the success of health education. (Tahir & Anjarwati, 2022) stated that while routine ANC provides an opportunity for health workers to provide ongoing education, in practice, education about danger signs is often not comprehensively provided. The results of this study indicate that although most mothers undergo ANC, without systematic health education, their knowledge remains limited. This underscores the need for comprehensive integration of danger sign education into every ANC visit so that all pregnant women receive comprehensive and easily understood information.

Overall, this study confirms the crucial role of health education as a key strategy for improving pregnant women's preparedness for childbirth risks. Increased knowledge not only improves the ability to recognize danger signs but also encourages greater adherence to birth recommendations. Therefore, appropriately designed, family-involved, and sustainable health education interventions have significant potential to reduce the risk of childbirth complications and contribute to a reduction in maternal mortality in Indonesia (Piyaningsih et al., 2025).

4. CONCLUSION

Based on the research results, it can be concluded that health education significantly improves pregnant women's knowledge of danger signs during labor in the third trimester. Interventions such as group counseling, the use of visual media, and guided discussions have proven effective in helping mothers recognize signs of complications that could potentially threaten the safety of both mother and fetus. With a better understanding, pregnant women are better prepared for labor and are able to make informed decisions when faced with emergencies.

In addition to increasing knowledge, this study demonstrated a positive relationship between maternal knowledge and adherence to birth recommendations. Mothers with high levels of knowledge tended to be more compliant with health care providers' recommendations, while those with low levels of knowledge tended to delay or disregard recommendations. This demonstrates that health education not only plays a role in increasing understanding but also has a direct impact on actual behaviors that impact maternal and fetal safety.

Furthermore, research highlights the importance of family support, quality antenatal care services, and appropriate educational delivery methods. Family involvement in health education can expedite decision-making and increase the effectiveness of interventions. Health

education delivered routinely, systematically, and tailored to the mother's needs can help prepare her for various childbirth risks. Therefore, integrating health education into every antenatal care visit is a crucial strategy for reducing the risk of childbirth complications and supporting maternal and fetal safety.

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