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JOURNAL OF COMMUNITY SERVICE FOR HEALTH

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Smart Pregnant Women Movement: Education on Danger Signs and High-Risk Pregnancy in Blabak Village, Kediri Regency

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Article Information

History Article:
Received, 06/07/2026
Accepted, 05/11/2026
Published, 09/11/2026

Keywords:
Danger Signs of Pregnancy, High-Risk Pregnancy, Health Education, Pregnant Women, Community-Based Intervention

Abstract

Limited knowledge of pregnancy danger signs and high-risk conditions may contribute to delays in recognizing complications and seeking appropriate healthcare. This community service program aimed to improve pregnant women's knowledge of pregnancy danger signs and high-risk conditions through the "Smart Pregnant Women Movement." The program was conducted on November 10, 2025, in Blabak Village, Kediri Regency, and involved 18 pregnant women in the first to third trimesters. The intervention consisted of interactive health education, discussions, and question-and-answer sessions supported by PowerPoint presentations and educational leaflets. Knowledge was assessed before and after the intervention using a structured questionnaire and analyzed using the Wilcoxon signed-rank test. Before the intervention, 6 participants (33%) had good knowledge and 12 (67%) had moderate knowledge. After the intervention, the proportion of participants with good knowledge increased to 16 (88%), while only 2 (12%) remained in the moderate category. The Wilcoxon signed-rank test indicated a statistically significant difference between pre- and post-intervention knowledge scores ($Z = -3.742$; $p < 0.001$). The Smart Pregnant Women Movement was associated with improved knowledge of pregnancy danger signs and high-risk conditions and may serve as a practical community-based strategy to strengthen maternal health education.

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Email: sitikomariyah.dh@gmail.com
DOI: https://doi.org/10.26699/jcsh.v7i2.ART.p064-070
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INTRODUCTION

Maternal mortality remains a global public health concern, particularly in developing countries. Delays in recognizing danger signs and seeking appropriate health services are major contributing factors to maternal deaths (Kilfoyle et al., 2016; WHO, 2025). Early identification of pregnancy complications is essential to prevent severe maternal and neonatal outcomes.

Pregnancy is generally physiological but can become pathological when complications occur. Danger signs such as vaginal bleeding, severe headache, blurred vision, swelling, decreased fetal movement, and high fever must be recognized early (Barreix et al., 2020; Rume et al., 2024). Limited knowledge regarding these conditions may lead to delayed treatment and increased risk of morbidity and mortality.

Health education is a promotive and preventive strategy that enhances maternal awareness and supports early detection of complications (Kurniati et al., 2022; Mesele et al., 2023). Community-based interventions are particularly effective because they provide accessible and contextual education. Maternal health remains a priority in global health development due to its direct impact on maternal and neonatal outcomes. According to the World Health Organization, many maternal deaths are preventable through early detection of pregnancy complications and timely access to quality healthcare services. However, delays in recognizing danger signs during pregnancy continue to contribute significantly to maternal morbidity and mortality, particularly in developing countries. Strengthening maternal knowledge through education is considered one of the most effective preventive strategies to reduce pregnancy-related complications (Derbew et al., 2024; Woldeamanuel et al., 2019). Adequate knowledge of pregnancy danger signs enables pregnant women to seek early treatment and make appropriate health decisions. Studies have shown that women with better knowledge of obstetric danger signs are more likely to attend antenatal care regularly and utilize health facilities during emergencies. Conversely, limited awareness often leads to delays in seeking care, increasing the risk of severe complications. Health education interventions have been proven to significantly improve knowledge and awareness among pregnant women regarding maternal health risks (Azizah et al., 2025; Fauziah et al., 2023).

Community-based health education plays an essential role in improving maternal health literacy, particularly in rural and semi-urban areas. Educational programs conducted at the community level allow direct interaction, use of simple language, and culturally appropriate approaches, making them more effective in increasing understanding and behavioral change. Previous research has indicated that structured maternal education programs significantly improve knowledge, birth preparedness, and early recognition of obstetric danger signs among pregnant women (Elya Rohimi et al., 2024; Febriani, 2022).

Furthermore, improving maternal knowledge is not only important for preventing complications but also for encouraging positive health-seeking behavior. Women who receive adequate education are more likely to recognize symptoms early, attend routine antenatal visits, and seek timely referral to health facilities. Therefore, strengthening community-based educational interventions is crucial to improving maternal health outcomes and reducing preventable maternal mortality (Adam et al., 2024; Gustini & Akib, 2025).

Preliminary observations in Blabak Village, Kediri Regency, showed that 12 out of 18 pregnant women (67%) had moderate knowledge of pregnancy danger signs and high-risk pregnancy conditions. This finding highlighted the need for structured health education to strengthen pregnant women's ability to recognize pregnancy complications at an early stage. Therefore, the "Smart Pregnant Women Movement" was implemented as a community-based maternal health education program. This community service activity aimed to improve pregnant women's knowledge of pregnancy danger signs and high-risk pregnancy conditions through interactive health education.

METHODS

This community service activity was conducted on November 10, 2025, in Blabak Village, Kediri Regency. The participants consisted of 18 pregnant women in the first, second, and third trimesters who attended the community-based maternal health education program. Participation was voluntary, and all participants were informed about the purpose and procedures of the activity before providing informed consent. Participant

confidentiality and privacy were maintained throughout the activity. The activity was implemented through three main stages: preparation, implementation, and evaluation. During the preparation stage, the community service team identified the educational needs of pregnant women in Blabak Village and prepared educational materials on pregnancy danger signs, high-risk pregnancy conditions, the importance of antenatal care, and appropriate actions when danger signs occur. PowerPoint presentations and educational leaflets were developed as supporting media, and the education session was organized according to the characteristics and needs of the participants. During the implementation stage, participants first completed a pre-intervention knowledge assessment. This was followed by interactive health education delivered through lectures, discussions, and question-and-answer sessions using the prepared PowerPoint presentation and educational leaflets. The materials focused on recognizing pregnancy danger signs, identifying high-risk pregnancy conditions, understanding the importance of antenatal care, and determining appropriate actions when danger signs were identified. During the evaluation stage, participants completed the same knowledge questionnaire after the educational session. Pre- and post-intervention knowledge results were then compared to assess changes in participants' knowledge following the activity. Participants' knowledge was assessed before and after the educational intervention using a structured questionnaire. Descriptive analysis was used to summarize participant characteristics and knowledge categories. Differences between pre- and post-intervention knowledge scores were analyzed using the Wilcoxon signed-rank test, with statistical significance set at $p < 0.05$.

RESULTS

Table 1. Characteristics of the Respondents

Criteria	N	Percentage
Respondent's Educational Background		
Junior High School	5	27
Senior High School	11	62
College	2	11
Respondent's occupation		
Housewife	14	78
Civil Servants	4	22
Blood Sugar Score		
1	5	28
2	10	55
3	3	17

Source: Primary Data

Based on the data presented in Table 1, most respondents had a senior high school educational background, totaling 11 participants (62%). This was followed by junior high school graduates with 5 respondents (27%), and only 2 respondents (11%) had a college-level education. In terms of occupation, the majority of respondents were housewives, accounting for 14 participants (78%), while 4 respondents (22%) worked in the private sector. Regarding parity, most respondents were in their second pregnancy, totaling 10 participants (55%). Meanwhile, 5 respondents (28%) were in their first pregnancy, and 3 respondents (17%) were in their third pregnancy. These findings indicate that the participants were predominantly housewives with secondary-level education and previous pregnancy experience.

Table 2. Distribution of Respondents' Knowledge Before and After Education

Knowledge	Before		After	
	N	%	N	%
Good	6	33	16	88
Moderate	12	67	2	12
Moderate	18	100	18	100

Source: Primary data

As presented in Table 2, before the educational intervention, 6 participants (33%) were categorized as having good knowledge, whereas 12 participants (67%) had moderate knowledge. Following the intervention, the proportion of participants with good knowledge increased to 16 (88%), while the proportion with moderate knowledge decreased to 2 (12%). Thus, the proportion of participants categorized as having good knowledge increased by 55 percentage points after the educational intervention.

Table 3. Differences in Knowledge Before and After Education

Variable	Mean Rank	Z value	p-value
Knowledge (pre–post)	9.50	-3.742	0.000

The Wilcoxon signed-rank test demonstrated a statistically significant difference between pre- and post-intervention knowledge scores ($Z = -3.742$; $p < 0.001$), indicating an improvement in participants' knowledge following the educational intervention.

DISCUSSION

The findings of this community service activity demonstrated a substantial improvement in pregnant women's knowledge regarding pregnancy danger signs and high-risk pregnancy conditions. Before the intervention, only 33% of participants were categorized as having good knowledge, whereas this proportion increased to 88% after the intervention. The Wilcoxon signed-rank test also indicated a statistically significant difference between pre- and post-intervention knowledge scores ($p < 0.001$). These findings suggest that the Smart Pregnant Women Movement was able to address an important knowledge gap among pregnant women in Blabak Village.

From the researchers' perspective, the improvement in knowledge was likely influenced by the combination of educational methods used during the activity rather than by the delivery of information alone. The intervention combined PowerPoint presentations, educational leaflets, interactive discussions, and question-and-answer sessions. This approach allowed participants to receive information visually and verbally while simultaneously discussing unclear concepts with the facilitators. The interactive component was particularly important because pregnancy danger signs may be difficult to understand when presented only as medical terminology. Through discussion, these concepts could be translated into practical situations that pregnant women may encounter in their daily lives. Therefore, the researchers consider active participant engagement to be one of the key factors contributing to the observed improvement in knowledge. This interpretation is supported by previous evidence showing that health education can strengthen knowledge and awareness related to pregnancy risks. (Fauziah et al., 2023) reported that health education improved knowledge and attitudes regarding early detection of high-risk pregnancies. Similarly, (Kurniati et al., 2022) emphasized that adequate knowledge of pregnancy danger signs is essential for enabling pregnant women to recognize abnormal conditions during pregnancy. These findings reinforce the importance of providing structured education rather than assuming that pregnant women will acquire sufficient knowledge through pregnancy experience alone. The researchers also consider the participants' characteristics to be relevant when interpreting these findings. Most participants had completed senior high school (62%), while 27% had completed junior high school and only 11% had higher education. Educational background may influence the ability to obtain, understand, and use health information. (Kilfoyle et al., 2016) highlighted the importance of health literacy in women's reproductive health.

However, the marked increase in good knowledge observed in this activity suggests that appropriately designed educational interventions can help overcome differences in educational background by presenting information in an accessible and understandable manner.

Another important consideration is pregnancy experience. More than half of the participants were in their second pregnancy (55%), indicating that most had experienced pregnancy previously. Nevertheless, before the intervention, 67% of participants still had only moderate knowledge. According to the researchers, this finding indicates that previous pregnancy experience should not automatically be interpreted as adequate knowledge of pregnancy danger signs. Women may have undergone previous pregnancies without encountering complications or receiving comprehensive information about warning signs. Therefore, health education regarding pregnancy risks should be repeated during each pregnancy, including among multigravida women. This interpretation is consistent with studies demonstrating variations in pregnant women's knowledge of obstetric danger signs. (Mesele et al., 2023) found that knowledge of pregnancy danger signs was associated with several maternal and healthcare-related factors, while (Woldeamanuel et al., 2019) also identified gaps in knowledge of obstetric danger signs among pregnant women. Consequently, antenatal and community education should not focus exclusively on primigravida women but should be provided continuously according to individual educational needs.

The practical implication of this community service activity is that the Smart Pregnant Women Movement can be incorporated as a complementary educational strategy within routine maternal health services. The program does not replace antenatal care; rather, it can strengthen the educational component of antenatal services by providing pregnant women with additional opportunities to learn about danger signs, high-risk conditions, and appropriate responses to complications. Midwives can adapt this approach for pregnant women's classes, village-level maternal health activities, Posyandu (integrated health post), or other community-based maternal health programs.

A second implication concerns early recognition and healthcare-seeking behavior. Increasing knowledge is important because recognition of danger signs is the first step toward deciding to seek professional care. Pregnant women who understand that vaginal bleeding, severe headache, visual disturbances, fever, swelling, or decreased fetal movement may indicate complications are expected to be better prepared to contact a midwife or visit a health facility promptly. However, improved knowledge alone does not guarantee behavioral change. (Ohenhen et al., 2023) described a "know-do" gap in birth preparedness and complication readiness, indicating that women may possess knowledge without necessarily translating it into appropriate action. Therefore, future implementation of this program should include practical information regarding where to seek care, when referral is necessary, transportation preparation, emergency contacts, and family decision-making.

The program also has implications for family involvement. Decisions to seek maternal healthcare are not always made by pregnant women independently. Family members may influence decisions regarding transportation, financial preparation, and referral. Therefore, future Smart Pregnant Women Movement activities should involve husbands or other key family members. Extending education to families may help ensure that recognition of danger signs is followed by timely decision-making and access to appropriate healthcare. At the community level, this activity indicates that maternal health promotion can be delivered through relatively simple and feasible educational methods. PowerPoint presentations, leaflets, discussions, and question-and-answer sessions do not require highly complex technology and can therefore be adapted for implementation in other community settings. The researchers consider this simplicity an important strength of the program because it increases the possibility of replication by midwives and community health workers (Fauziah et al., 2023). Educational materials can also be standardized so that pregnant women receive consistent messages regarding pregnancy danger signs and high-risk conditions.

The findings also have implications for collaboration between midwives, village authorities, community health workers, and primary healthcare facilities. Village-based education can serve as an extension of antenatal counseling provided at healthcare facilities. Pregnant women who are identified as having limited knowledge or potential risk factors can receive additional counseling and be encouraged to attend routine antenatal care. Such

collaboration may strengthen continuity between health promotion at the community level and clinical maternal health services.

Nevertheless, the findings should be interpreted within the scope of a community service activity. The program involved only 18 pregnant women from one village, and the evaluation focused primarily on short-term changes in knowledge. Therefore, the findings cannot establish that the intervention directly reduced maternal complications or mortality. The researchers interpret the increase in knowledge as an immediate educational outcome rather than a direct clinical outcome. Future activities should include larger numbers of participants, repeated educational sessions, and follow-up evaluations to determine whether knowledge is retained and translated into appropriate antenatal attendance, early recognition of danger signs, timely referral, and other preventive behaviors.

Overall, the Smart Pregnant Women Movement demonstrates that interactive community-based education has the potential to strengthen pregnant women's knowledge of danger signs and high-risk pregnancy conditions. The main implication is not merely an increase in knowledge scores, but the potential development of a community-level early awareness mechanism in which pregnant women and their families are better prepared to recognize warning signs and communicate promptly with healthcare providers. With continued implementation and integration into routine maternal health programs, this approach may contribute to strengthening promotive and preventive maternal healthcare at the village level.

CONCLUSION

The Smart Pregnant Women Movement demonstrated a significant improvement in pregnant women's knowledge of pregnancy danger signs and high-risk pregnancy conditions. The proportion of participants with good knowledge increased from 33% before the intervention to 88% after the intervention, indicating that interactive community-based health education can effectively strengthen maternal knowledge. The findings highlight the potential of this educational approach as a complementary strategy to routine antenatal care, particularly for reinforcing pregnant women's ability to recognize warning signs and understand when professional healthcare should be sought. The program can be integrated into community-based maternal health activities, such as antenatal classes, Posyandu activities, and village-level health promotion programs, with the involvement of midwives, community health workers, and families. Further implementation should include repeated education and follow-up evaluation to determine whether improvements in knowledge are maintained and translated into appropriate health-seeking behaviors, timely referral, and preparedness for pregnancy complications. Larger-scale community programs are also recommended to evaluate the sustainability and broader applicability of the Smart Pregnant Women Movement.

SUGGESTION

The Smart Pregnant Women Movement should be continued and integrated into routine community-based maternal health programs in collaboration with midwives, community health workers, village authorities, and primary healthcare facilities. Future activities should involve husbands and other family members to strengthen family preparedness and support timely decision-making when pregnancy danger signs occur. Follow-up evaluations are also recommended to assess knowledge retention and determine whether increased knowledge is translated into appropriate antenatal care utilization, early recognition of complications, and timely healthcare-seeking behavior.

ACKNOWLEDGEMENT

The authors would like to express their sincere gratitude to the Head of Blabak Village and the local community for their support in facilitating this community service activity. We also thank all pregnant women who actively participated in the "Smart Pregnant Women Movement" program. Appreciation is extended to the Faculty of Midwifery, Universitas Strada Indonesia, for institutional support.

FUNDING

This community service activity was conducted without external funding. All costs related to preparation, implementation, and publication were supported internally by the authors and the Faculty of Midwifery, Universitas Strada Indonesia.

CONFLICTS OF INTEREST

The authors declare that there are no conflicts of interest related to this community service activity and publication.

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