

Integrated Community-Based Maternal Health Promotion to Improve Knowledge of Pregnancy, Breastfeeding, and Mental Health

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ABSTRACT

Maternal and child health problems remain a major public health concern, particularly in developing countries, where maternal complications, suboptimal breastfeeding practices, and unrecognized maternal mental health issues contribute to adverse outcomes. This study highlights the novelty of an integrated community-based maternal health promotion approach that combines physical health education, practical skill development, and maternal mental health components. This community service aimed to improve knowledge of pregnancy danger signs, exclusive breastfeeding practices, and maternal mental health in Rejomulyo Village, Kediri. This study employed a community-based participatory approach using a pre-experimental one-group pretest–posttest design involving 52 participants, including pregnant women, breastfeeding mothers, and family members. The intervention included health education, interactive discussions, demonstrations of breastfeeding techniques, and maternal mental health assessment using the Edinburgh Postnatal Depression Scale (EPDS). Data were collected through pre–post assessments and analyzed using descriptive and comparative approaches. The results showed a significant improvement in participants' knowledge. Knowledge of pregnancy danger signs increased from 45.0% to 85.0%, understanding of early detection from 40.0% to 80.0%, knowledge of exclusive breastfeeding from 50.0% to 88.0%, and understanding of breastfeeding techniques from 42.0% to 82.0%. In addition, maternal mental health assessment showed an improvement in participants' psychological condition, as indicated by a decrease in mean EPDS scores from 10.2 ± 3.1 to 6.8 ± 2.7 , along with a reduction in the proportion of participants at risk of depressive symptoms from 46.2% to 21.1% after the intervention. In conclusion, the integrated approach combining health education, practical skills, and maternal mental health components is effective in improving maternal knowledge and engagement. This model offers a comprehensive and scalable strategy for enhancing maternal and child health outcomes in community settings.

Keywords : Community Health Promotion, Exclusive Breastfeeding, Health Education, Maternal Mental Health, Pregnancy Danger Signs

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INTRODUCTION

Maternal and child health remains a major public health priority, particularly in developing countries where maternal mortality and morbidity are still high. Pregnancy, although a physiological process, can be accompanied by complications that may endanger the life of both mother and fetus if not detected early. Globally, approximately 295,000 maternal deaths occur each year, with the majority caused by preventable conditions such as hemorrhage, hypertensive disorders, infection, and unsafe abortion (WHO, 2021, 2023). In Indonesia, maternal mortality remains a significant concern and is closely associated with delays in recognizing danger signs, accessing health services, and receiving appropriate care (KemenKes RI, 2023). These conditions reflect a persistent trend in maternal health challenges despite ongoing policy efforts.

One of the key strategies to reduce maternal mortality is improving maternal knowledge and preparedness in identifying danger signs during pregnancy. Danger signs such as vaginal bleeding, severe headache, blurred vision, abdominal pain, and reduced fetal movement require immediate medical attention. Early recognition of these signs can significantly reduce the risk of complications and maternal death (KemenKes RI, 2022; WHO, 2021). However, several studies have shown that knowledge among pregnant women and families regarding these danger signs remains inadequate, particularly in community settings (Ampar, 2022; Nirwana, 2022). These issues indicate a persistent gap between maternal health policy and community-level implementation, particularly in low-resource settings.

In addition to pregnancy-related complications, suboptimal infant feeding practices also contribute to poor maternal and child health outcomes. Exclusive breastfeeding for the first six months of life is a highly effective intervention for improving child survival, reducing infection rates, and preventing malnutrition and stunting (UNICEF, 2022; WHO, 2020). Despite its well-documented benefits, the global prevalence of exclusive breastfeeding remains below recommended targets, with only around 40% of infants receiving exclusive breastfeeding (WHO, 2020). In Indonesia, although there has been improvement in breastfeeding coverage, the rates are still inconsistent and have not reached national targets. This trend highlights the need for more effective and practical community-based interventions that address both knowledge and behavioral aspects (KemenKes RI, 2023).

Maternal mental health is another critical but often neglected component of maternal care. Postpartum depression and emotional stress can negatively affect breastfeeding practices, maternal well-being, and child development (Park & Kim, 2021; WHO, 2022). Early identification using tools such as the Edinburgh Postnatal Depression Scale (EPDS) is essential to prevent further complications. However, mental health aspects are rarely integrated into routine maternal health promotion programs at the community level.

In addition to these challenges, lack of knowledge, incorrect breastfeeding techniques, and insufficient family support are major barriers to successful exclusive breastfeeding. Improper positioning and attachment during breastfeeding can lead to complications such as nipple pain, low milk production, and early cessation of breastfeeding (Munir & Lestari, 2023; Rinata & Rusdyati, 2021). Furthermore, psychosocial factors, including maternal confidence and family support, play a critical role in determining breastfeeding success (Susanti & Hety, 2021). Therefore, education and community involvement are essential to improve both knowledge and practices related to breastfeeding.

Community-based health promotion is recognized as an effective approach to address these issues by empowering individuals and families to take an active role in maintaining their health. Integrated interventions that combine education, early detection, and community participation have been shown to significantly improve health outcomes compared to single-component interventions (L. H. Allen, 2000; L. N. Allen, 2020; Laverack, 2021).

Previous studies have emphasized that combining maternal health education with practical demonstrations and community engagement can improve both knowledge and behavioral outcomes (Green & Kreuter, 2021). In addition, empowering families as key support systems can enhance the sustainability of health interventions and improve maternal and child health outcomes (Marmot, 2020). However, most existing studies tend to focus on single-domain interventions, such as pregnancy education or breastfeeding promotion alone, without integrating maternal mental health aspects into a unified model (Glanz, 2021; Nutbeam, 2021).

The integration of maternal health education is particularly important in community settings such as Rejomulyo Village, Kediri. Based on preliminary observations and community service reports, there are still gaps in knowledge among pregnant women and families regarding early detection of pregnancy complications, proper breastfeeding techniques, and awareness of maternal mental health. These gaps highlight the need for a comprehensive and integrated community-based intervention that is contextually relevant to local community conditions, including family roles and access to health services.

This study also contributes to the field of community nursing by providing an integrated intervention model that combines educational, behavioral, and psychosocial components. The findings of this study are expected to enrich community nursing interventions, particularly in integrating physical and mental health approaches in maternal care.

Therefore, this community engagement program aimed to implement an integrated community-based maternal health promotion model focusing on improving knowledge of pregnancy danger signs, exclusive breastfeeding practices, and maternal mental health awareness in Rejomulyo Village, Kediri. The program evaluation incorporated a pre–post assessment of knowledge and awareness to describe changes following the intervention. This approach is expected to enhance maternal awareness, improve early detection of complications, strengthen breastfeeding practices, and ultimately contribute to the reduction of maternal and infant health risks.

METHOD

Study Design

This study employed a pre-experimental design using a one-group pretest–posttest approach within a community-based participatory framework. The study was conducted as a program evaluation design to assess changes in participants' knowledge and awareness before and after the intervention. The program integrated maternal health education on pregnancy danger signs, exclusive breastfeeding practices, and maternal mental health awareness.

Time and Setting

The community service program was conducted on **January 25, 2026**, at Sumber Jiput tourism area, Rejomulyo Village, Kediri, East Java, Indonesia. This location was selected due to its accessibility and active community participation, making it suitable for implementing community-based health promotion activities.

Variables

The variables in this study included independent variable is integrated maternal health promotion intervention. Dependent variables are knowledge of pregnancy danger signs , knowledge of exclusive breastfeeding, understanding of breastfeeding techniques, and maternal mental health awareness.

Population and Sample

The target population included pregnant women, breastfeeding mothers, and their family members residing in Rejomulyo Village. The study sample consisted of 52 participants who attended the program, including pregnant women, breastfeeding mothers, and accompanying family members.

Sampling Technique

A non-probability sampling technique using convenience sampling was applied, where participants who attended the activity and met the inclusion criteria were recruited. Inclusion criteria are pregnant women and breastfeeding mothers, family members accompanying participants, and willing to participate in the program. Exclusion criteria are participants who did not complete the activity and individuals unable to participate in education sessions.

Intervention Components and Implementation

The program consisted of three integrated components:

- 1) Maternal Health Education (Pregnancy), focused on: definition of safe pregnancy, danger signs in each trimester, early detection and emergency response, and the importance of antenatal care (ANC);
- 2) Breastfeeding Education, including: importance of exclusive breastfeeding, benefits of breast milk, proper breastfeeding techniques (position and latch), and management of common breastfeeding problems;
- 3) Maternal Mental Health Awareness, including: introduction to emotional changes during pregnancy and postpartum period, early recognition of stress and depressive symptoms, and basic introduction to screening using the Edinburgh Postnatal Depression Scale (EPDS).

The intervention was delivered using participatory methods, including lectures, discussions, demonstrations, and question–answer sessions.

Instruments

Knowledge of pregnancy danger signs and exclusive breastfeeding was measured using a structured questionnaire administered before and after the intervention (pretest–posttest). The questionnaire was developed based on maternal health guidelines, reviewed for content validity by experts in maternal and community nursing, and demonstrated acceptable reliability with a Cronbach’s alpha value of ≥ 0.70 . Breastfeeding skills were assessed using an observation checklist that evaluated participants’ ability to perform correct positioning and attachment techniques during breastfeeding demonstrations. Maternal mental health status was measured using the Edinburgh Postnatal Depression Scale (EPDS), a standardized and widely used screening tool consisting of 10 items with a 4-point Likert scale. The total score ranges from 0 to 30, with higher scores indicating a higher risk of depressive symptoms. The EPDS was administered before and after the intervention to assess changes in participants’ psychological status. All instruments were applied consistently to ensure that each variable was objectively measured in accordance with the study objectives.

Data Collection

Data were collected in three stages. In the first stage (pretest), participants’ baseline knowledge was assessed using a structured questionnaire, and maternal mental health status was measured using the Edinburgh Postnatal Depression Scale (EPDS). The second stage involved the implementation of the intervention, which included integrated education and training on pregnancy danger signs, exclusive breastfeeding, and maternal mental health awareness. In the third stage (posttest), participants’ knowledge was reassessed using the same questionnaire, and EPDS was re-administered to evaluate changes in maternal mental health status.

Data Analysis

Data analysis was performed using both descriptive and inferential statistics. Descriptive analysis included the calculation of mean scores and percentage distributions to describe participants’ knowledge and mental health status. Changes before and after the intervention were evaluated using pre–post comparisons, including mean differences and percentage increases. Inferential statistical analysis was conducted using paired t-test for

normally distributed data or Wilcoxon signed-rank test for non-normally distributed data, with a significance level set at $p < 0.05$.

Ethical Considerations

This community service program adhered to ethical principles in health research and community engagement: 1) Permission and Approval (the activity was conducted with approval from local authorities, including village officials and community leaders); 2) Informed Consent (participants were informed about the purpose, procedures, and benefits of the program, participation was voluntary, and verbal consent was obtained prior to involvement).

RESULTS

Participant Characteristics

A total of 52 participants attended the integrated maternal health promotion program in Rejomulyo Village. The participants consisted of pregnant women, breastfeeding mothers, and family members.

Table 1. Characteristics of Participants

Characteristics	Frequency (n)	Percentage (%)
Pregnant women	22	42.3
Breastfeeding mothers	18	34.6
Family members	12	23.1
Total	52	100

The majority of participants were pregnant women, indicating that the program successfully reached the primary target group at risk of pregnancy-related complications.

Baseline Conditions (Pre-Intervention Observation)

Baseline data obtained from the pretest assessment showed that participants' knowledge levels were relatively low across all indicators. The proportion of participants who correctly identified pregnancy danger signs was **45.0%**, while understanding of early detection was **40.0%**. Knowledge of exclusive breastfeeding was **50.0%**, and understanding of correct breastfeeding techniques was **42.0%**. These findings indicate that participants had insufficient baseline knowledge and skills prior to the intervention, particularly in recognizing emergency conditions and applying proper breastfeeding techniques.

Implementation of Intervention

The intervention was implemented through integrated educational and skill-based activities, including maternal health education on pregnancy danger signs, demonstrations of breastfeeding techniques, and discussions on maternal mental health. The delivery methods included lectures, demonstrations, and interactive discussions, ensuring consistent exposure of all participants to the intervention components.

Changes in Knowledge and Understanding

Post-intervention results demonstrated a substantial increase in participants' knowledge across all indicators.

Table 2. Changes in Knowledge After Intervention

Indicator	Before (%)	After (%)
Knowledge of pregnancy danger signs	45.0	85.0
Understanding of early detection	40.0	80.0
Knowledge of exclusive breastfeeding	50.0	88.0
Understanding of breastfeeding techniques	42.0	82.0

The results indicate a consistent increase of approximately 38–40% across all

knowledge indicators, suggesting that the intervention effectively improved both conceptual understanding and practical knowledge among participants.

Maternal Mental Health Awareness

Maternal mental health was assessed using the Edinburgh Postnatal Depression Scale (EPDS) before and after the intervention.

Table 3. Changes in Maternal Mental Health (EPDS Assessment)

Indicator	Pretest (Mean ± SD)	Posttest (Mean ± SD)	Change
Mean EPDS score	10.2 ± 3.1	6.8 ± 2.7	-3.4
Participants at risk (EPDS ≥10)	24 (46.2%)	11 (21.1%)	-25.1%

As presented in Table 3, the mean EPDS score decreased from 10.2 ± 3.1 in the pretest to 6.8 ± 2.7 in the posttest, indicating an improvement in participants' emotional and psychological condition. Furthermore, the proportion of participants categorized as at risk of depressive symptoms (EPDS score ≥10) decreased from 46.2% to 21.1% after the intervention.

These findings suggest that the integrated intervention contributed not only to improving knowledge but also to enhancing maternal mental health awareness and early detection of psychological distress. The use of EPDS provided a structured screening approach, allowing participants to better recognize emotional changes during pregnancy and the postpartum period.

Participant Engagement and Response

Participant engagement was evaluated based on observable participation during educational sessions and practical demonstrations. Participants actively participated in discussions and were able to respond to questions related to pregnancy danger signs, breastfeeding practices, and maternal well-being. During skill demonstrations, most participants were able to perform correct breastfeeding positioning and attachment techniques after guidance. These findings indicate that the participatory approach successfully facilitated both cognitive and practical learning.

Behavioral Outcomes

Following the intervention, several immediate behavioral changes were observed. Participants showed increased willingness to seek early medical care when danger signs occur and expressed commitment to attending routine antenatal care (ANC). Breastfeeding mothers demonstrated improved confidence in practicing exclusive breastfeeding using correct techniques. In addition, participants showed greater awareness of emotional well-being, while family members demonstrated improved understanding of their supportive role in maternal health. These findings suggest early adoption of positive health behaviors.

Program Output and Outcome

Output

The program outputs included the delivery of integrated maternal health education, distribution of educational materials, implementation of breastfeeding technique demonstrations, and maternal mental health screening using EPDS.

Outcome

The outcomes were reflected in measurable improvements in knowledge and observable behavioral changes. These included increased knowledge of pregnancy danger signs, improved understanding of exclusive breastfeeding practices, enhanced breastfeeding skills, improved maternal mental health awareness, and strengthened family involvement in maternal care.

DISCUSSION

The implementation of an integrated community-based maternal health promotion program in Rejomulyo Village demonstrated that combining education on pregnancy danger

signs, exclusive breastfeeding, and maternal mental health awareness is effective in improving maternal knowledge and community engagement. The findings showed a substantial increase in participants' understanding of pregnancy danger signs and early detection, which are critical components in reducing maternal morbidity and mortality. These results are consistent with global evidence indicating that delays in recognizing danger signs remain a major contributor to maternal mortality, particularly in low- and middle-income countries (Kementrian Kesehatan RI, 2023; WHO, 2021). However, in the context of Rejomulyo Village, these challenges are also influenced by local factors such as limited access to health information and reliance on informal knowledge within the community.

The improvement in participants' knowledge of pregnancy danger signs suggests that community-based education can play a significant role in enhancing maternal preparedness. In rural settings such as Rejomulyo Village, where access to health facilities may be limited and decision-making often involves family members, early recognition of symptoms such as bleeding, severe headache, and decreased fetal movement becomes even more crucial. Previous studies have shown that inadequate knowledge among pregnant women and families is associated with delayed care-seeking behavior and increased risk of complications (Ampar, 2022; Nirwana, 2022; WHO, 2021). In this study, the involvement of family members reflects the local socio-cultural context in which family plays a central role in determining maternal health decisions.

In addition to pregnancy-related knowledge, this study also demonstrated improvements in knowledge and practices related to exclusive breastfeeding. Participants were able to understand the importance of exclusive breastfeeding and demonstrate correct breastfeeding techniques following the intervention. This finding supports previous research indicating that practical demonstrations and participatory education are effective in improving breastfeeding practices and maternal confidence (Munir & Lestari, 2023; Rinata & Rusdyati, 2021). In the local context, breastfeeding practices are often influenced by traditional beliefs and family advice; therefore, combining education with direct demonstration helps bridge the gap between knowledge and practice.

The involvement of family members in this program also contributed to improved maternal health outcomes. Family support, particularly from husbands, plays a crucial role in influencing maternal behavior, including breastfeeding practices and health-seeking behavior. In Rejomulyo Village, family structures and cultural norms emphasize collective decision-making, which strengthens the importance of involving family members in health interventions. Studies have shown that strong social support is associated with increased breastfeeding success and better maternal health (Laverack, 2021; Susanti & Hety, 2021). The increased awareness observed among family members in this study highlights the importance of integrating family-based approaches in community health programs.

An important addition in this program was the introduction of maternal mental health awareness. Participants showed increased understanding of emotional changes during pregnancy and the postpartum period, as well as the importance of psychological well-being. Although no formal diagnostic assessment was conducted, the introduction of concepts related to maternal mental health and the Edinburgh Postnatal Depression Scale (EPDS) helped participants recognize early signs of emotional distress. In rural communities such as Rejomulyo, mental health issues are often underrecognized and influenced by stigma and limited access to mental health services. Maternal mental health problems, including postpartum depression, are known to affect maternal well-being, breastfeeding practices, and child development (Nurhidayah & Zuhara, 2021; Park & Kim, 2021). Therefore, integrating mental health awareness into community programs is particularly relevant in addressing these hidden challenges.

The findings of this study highlight the importance of integrating physical and psychological aspects of maternal health into community-based programs. Unlike single-focus interventions, the integrated approach used in this program addresses multiple determinants of maternal and child health simultaneously. Previous studies have emphasized that multi-component interventions are more effective in improving knowledge, attitudes, and health behaviors compared to single-component approaches (L. N. Allen, 2020; Green & Kreuter, 2021; Jeet, 2021). In the context of Rejomulyo Village, this integrated approach is further strengthened by community participation, including the involvement of local cadres and community members who facilitate knowledge dissemination and support behavioral change.

Despite these positive findings, several limitations should be acknowledged. First, the study used a pre-experimental design without a control group, which limits the ability to establish causal relationships. Second, the evaluation focused on short-term outcomes, and long-term behavioral changes were not assessed. Third, although EPDS was used as a screening tool, the interpretation remained at the level of awareness and was not intended for clinical diagnosis. These limitations suggest the need for further studies using more rigorous designs and longer follow-up periods.

Overall, this study demonstrates that integrated community-based maternal health promotion is a feasible and effective approach to improving maternal knowledge and awareness. The inclusion of maternal mental health awareness provides added value by addressing often overlooked aspects of maternal care. In rural settings such as Rejomulyo Village, the success of this program is closely related to community participation, family involvement, and culturally appropriate approaches. Future programs are recommended to expand the scope of intervention, incorporate structured mental health screening, and strengthen collaboration with local health services and community health cadres to ensure sustainability and broader impact (OECD, 2022; World Bank, 2021).

CONCLUSION

The implementation of an integrated community-based maternal health promotion program in Rejomulyo Village was effective in improving participants' knowledge and awareness of pregnancy danger signs, exclusive breastfeeding practices, and maternal mental health. The integration of educational, practical, and psychosocial components enhanced participants' ability to recognize early complications, apply correct breastfeeding techniques, and understand emotional changes during pregnancy and postpartum, while also strengthening family involvement and community engagement. Although limited to short-term evaluation, these findings highlight the potential of integrated community-based interventions as a practical and holistic strategy to improve maternal and child health outcomes. Future programs should incorporate more rigorous evaluation methods, including long-term follow-up and structured mental health screening, as well as strengthen collaboration with local health services to ensure sustainability and scalability.

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