

Balanced Nutrition Education for Pregnant Women and Mothers Under Five in Efforts to Prevent Stunting



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Abstract: Exclusive breastfeeding remains a key strategy to improve infant health and reduce morbidity and mortality; however, its coverage is still suboptimal in several remote regions of Indonesia, including Yahukimo Regency, Papua Mountains. Antenatal classes are designed to improve maternal knowledge, skills, and confidence in preparing for childbirth and infant care, including breastfeeding practices. This study aimed to examine the association between active participation in antenatal classes and exclusive breastfeeding practices at Aplim Community Health Center, Yahukimo Regency. This research employed a quantitative analytical design with a cross-sectional approach. The population consisted of mothers with infants aged 6–12 months within the working area of Aplim Community Health Center. A total sampling technique was used, resulting in 30 respondents who met the inclusion criteria. Data were collected using a structured questionnaire assessing maternal characteristics, level of participation in antenatal classes, and exclusive breastfeeding practices during the first six months of life. Active participation was defined as attending at least three sessions and engaging actively during discussions. Data were analyzed using the Chi-square test with a significance level of 0.05. The results showed that among 19 mothers categorized as active participants, 18 (94.7%) practiced exclusive breastfeeding. In contrast, among 11 mothers categorized as inactive, only 2 (10.0%) provided exclusive breastfeeding. Statistical analysis indicated a significant association between active participation in antenatal classes and exclusive breastfeeding ($p < 0.001$). In conclusion, active participation in antenatal classes is significantly associated with higher likelihood of exclusive breastfeeding. Strengthening maternal engagement in antenatal education programs may contribute to improved breastfeeding outcomes in remote and underserved areas.

Keywords: Antenatal classes; exclusive breastfeeding; maternal participation; cross-sectional study.

1. Introduction

Stunting remains a major public health problem globally and in Indonesia. It is defined as impaired linear growth in children resulting from chronic undernutrition, particularly during the first 1,000 days of life—from conception to a child's second birthday. Stunting not only affects physical growth but also has long-term consequences on cognitive development, educational achievement, and future productivity (WHO, global report data). Therefore, prevention efforts must begin during pregnancy and continue throughout early childhood.

Maternal nutrition during pregnancy plays a critical role in determining fetal growth and birth outcomes. Inadequate dietary intake, anemia, and chronic energy deficiency increase the risk of low birth weight and poor infant growth, which are strong predictors of stunting. Ensuring balanced nutrition for pregnant women is therefore a fundamental strategy in breaking the intergenerational cycle of malnutrition. In addition, appropriate feeding practices during infancy and early childhood—including exclusive breastfeeding and adequate complementary feeding—are essential components of optimal child growth and development (Binns, Lee, & Low, 2016).

Despite national efforts to improve maternal and child nutrition in Indonesia, significant disparities remain, particularly in geographically and socio-culturally complex regions such as Papua. Limited access to health services, insufficient health information, and socio-economic challenges contribute to suboptimal maternal nutrition and child feeding practices. Laksono, Wulandari, Ibad, and colleagues (2021) reported that although maternal health education programs have been implemented,



improvements in child nutrition indicators have not yet reached national targets, highlighting the need for more systematic and community-based nutrition education strategies.

Educational interventions targeting pregnant women and mothers of children under five have been widely recognized as effective approaches to improving nutritional knowledge and practices. Antenatal classes and community-based health education programs have been shown to increase maternal knowledge, self-efficacy, and preparedness in providing optimal nutrition during pregnancy and early childhood (Utami, Ratnawati, & Villasari, 2022; Nasla et al., 2023). Furthermore, adequate antenatal care (ANC) visits that include nutrition counseling are associated with improved maternal dietary behavior and child feeding practices (Meta-analysis: Relationship between Antenatal Care Visits and Exclusive Breastfeeding, 2022).

Given the importance of balanced nutrition during pregnancy and early childhood, strengthening nutrition education programs for pregnant women and mothers under five is essential, particularly in resource-limited settings such as Yahukimo Regency in the Papua Mountains. Community-based balanced nutrition education can serve as a strategic approach to enhance maternal knowledge, promote healthy dietary practices, and ultimately contribute to the prevention of stunting.

Therefore, this study aims to examine the implementation and impact of balanced nutrition education for pregnant women and mothers under five as an effort to prevent stunting in the region

2. Materials and Methods

This community service program employed a community-based educational intervention approach aimed at improving knowledge and awareness regarding balanced nutrition among pregnant women and mothers of children under five. The activity was conducted in the working area of Aplim Community Health Center, Yahukimo Regency, Papua Mountains, Indonesia, in 2025.

The target participants consisted of pregnant women and mothers of children under five who resided in the study area and were registered at the local health center. A total of 30 participants were involved in the activity. Given the relatively small number of eligible participants, all individuals meeting the inclusion criteria were included in the program (total participation approach). The inclusion criteria were: (1) pregnant women or mothers of children under five; (2) residing in the health center's working area; and (3) willingness to participate in the educational activity. Participants who were absent during the activity or declined participation were excluded.

The program was implemented through three main stages: preparation, implementation, and evaluation.

Preparation Stage

During this stage, the team coordinated with health center staff and community health workers to determine the schedule and venue of the activity. Educational materials on balanced nutrition during pregnancy and early childhood were developed based on national maternal and child health guidelines. Educational media, including presentation slides and printed leaflets, were prepared to support learning activities.

Implementation Stage

The intervention consisted of interactive education sessions on balanced nutrition for pregnant women and mothers under five. The materials covered:

- a. The importance of adequate maternal nutrition during pregnancy;
- b. Prevention of anemia and chronic energy deficiency;
- c. Exclusive breastfeeding practices;
- d. Appropriate complementary feeding (MP-ASI); and
- e. The role of balanced family nutrition in preventing stunting.

The sessions were delivered through lectures, group discussions, question-and-answer activities, and practical demonstrations using visual aids. Participants were encouraged to actively engage in discussions and share their experiences.

Evaluation Stage

Program evaluation was conducted using a pre-test and post-test design to assess changes in participants' knowledge regarding balanced nutrition and stunting prevention. A structured questionnaire consisting of multiple-choice questions was administered before and after the educational session. Knowledge scores were categorized as good, moderate, or low based on the percentage of correct answers.

Descriptive statistics were used to summarize participant characteristics and knowledge score distributions in frequencies and percentages. The improvement in knowledge before and after the intervention was analyzed using paired statistical comparison.

The activity adhered to ethical principles of community engagement. Participants were informed about the objectives and procedures of the program prior to participation, and verbal informed consent was obtained. Confidentiality of participant information was maintained throughout the activity.

3. Results

Respondent Characteristics

A total of 30 mothers participated in this study. Based on maternal age, the majority of respondents were between 20 and 35 years old ($n = 23$; 76.7%), while 7 respondents (23.3%) were aged below 20 years or above 35 years. Regarding educational level, most mothers had a low level of education ($n = 23$; 76.7%), whereas 7 respondents (23.3%) had higher education. In terms of infant age, 14 infants (46.7%) were aged 6–8 months and 16 infants (53.3%) were aged 9–12 months.

Participation in Antenatal Classes

Of the 30 respondents, 19 mothers (63.3%) were categorized as active participants in antenatal classes, while 11 mothers (36.7%) were categorized as inactive participants.

Exclusive Breastfeeding Practices

Overall, 20 mothers (66.7%) reported practicing exclusive breastfeeding during the first six months of their infant's life, whereas 10 mothers (33.3%) did not practice exclusive breastfeeding.

Association Between Active Participation in Antenatal Classes and Exclusive Breastfeeding

The cross-tabulation analysis demonstrated a marked difference in exclusive breastfeeding practices between active and inactive participants. Among the 19 mothers categorized as active participants, 18 (94.7%) practiced exclusive breastfeeding, while only 1 (5.3%) did not. In contrast, among the 11 inactive participants, only 2 mothers (10.0%) practiced exclusive breastfeeding, and the majority ($n = 9$; 90.0%) did not. Statistical analysis using the Chi-square test indicated a significant association between active participation in antenatal classes and exclusive breastfeeding practices ($p < 0.001$). These findings suggest that mothers who actively participated in antenatal classes were more likely to practice exclusive breastfeeding compared to those who were inactive.

4. Discussion

This study demonstrated a significant association between active participation in antenatal classes and exclusive breastfeeding practices among mothers in the working area of Aplim Community Health Center, Yahukimo Regency. Mothers who actively engaged in antenatal classes were substantially more likely to practice exclusive breastfeeding compared to those categorized as inactive. Nearly all active participants reported exclusive breastfeeding, whereas the majority of inactive participants did not. These findings suggest that active engagement in structured maternal education plays a crucial role in promoting optimal breastfeeding behavior.

The results are consistent with global evidence highlighting the importance of breastfeeding in improving child survival, growth, and long-term health outcomes (International Breastfeeding Journal, 2015; Binns, Lee, & Low, 2016). The World Health Organization (2023) also emphasizes that increasing exclusive breastfeeding coverage remains a global priority due to its protective effects against infant morbidity and mortality. However, breastfeeding rates in many regions remain below recommended targets, particularly in geographically disadvantaged areas (Laksono et al., 2021).

Antenatal education serves as an essential platform for delivering structured information about the benefits of breastfeeding, correct positioning and attachment techniques, early initiation of breastfeeding, and strategies to manage common breastfeeding challenges. Previous studies have demonstrated that participation in maternal classes significantly improves breastfeeding self-efficacy and exclusive breastfeeding behavior (Utami, Ratnawati, & Villasari, 2022; Nasla et al., 2023). These findings support the present study, which shows that mothers who actively participate—not merely attend—antenatal sessions are more likely to adopt recommended breastfeeding practices.

The strong association observed may also be explained by improved maternal knowledge and self-efficacy. According to behavioral health theories such as Social Cognitive Theory, increased knowledge and confidence are key determinants of health behavior adoption. Interactive antenatal sessions allow mothers to ask questions, clarify misconceptions, and receive direct guidance from health professionals. This active learning process strengthens commitment to recommended practices, including exclusive breastfeeding. Similar findings have been reported in community-based health education programs emphasizing maternal empowerment and structured counseling (Muldaniyah, 2024; Jasmawati & Hasrida, 2025).

In remote settings such as Yahukimo Regency, where geographical barriers and limited access to healthcare services are common, antenatal classes may function as a critical intervention platform. Community-based education programs have been shown to enhance maternal knowledge and preventive health behaviors in underserved areas (Ghita, Suhartini, & Mustafa, 2024; Suhartini et al., 2024). Therefore, strengthening maternal engagement in antenatal classes could serve as a strategic approach to improving breastfeeding practices and, ultimately, contributing to stunting prevention.

Despite these important findings, several limitations should be acknowledged. First, the cross-sectional design limits the ability to establish causal relationships; only an association between variables can be inferred. Second, the relatively small sample size ($n = 30$) may affect statistical power and limit generalizability to broader populations. Third, exclusive breastfeeding status was determined based on maternal self-report, which may be subject to recall bias or social desirability bias. Additionally, potential confounding factors such as maternal education, employment status, and family support were not controlled through multivariate analysis.

Nevertheless, this study provides valuable evidence supporting the role of active antenatal class participation in promoting exclusive breastfeeding in remote and resource-limited regions. Strengthening structured antenatal education



programs, ensuring active maternal engagement, and integrating breastfeeding counseling into routine antenatal care may help improve exclusive breastfeeding coverage. Future studies employing larger sample sizes and longitudinal or experimental designs are recommended to further examine causal pathways and evaluate the long-term effectiveness of antenatal education interventions.

5. Conclusions

This study demonstrates a significant association between active participation in antenatal classes and exclusive breastfeeding practices among mothers in the working area of Aplim Community Health Center, Yahukimo Regency. Mothers who actively engaged in antenatal classes were substantially more likely to practice exclusive breastfeeding compared to those who were inactive. These findings highlight the importance of not only attendance but also active engagement in structured maternal education programs.

Antenatal classes serve as an effective platform for improving maternal knowledge, self-efficacy, and preparedness in breastfeeding practices. In geographically remote and resource-limited areas, strengthening maternal participation in antenatal education programs may contribute to improving exclusive breastfeeding coverage and, ultimately, support efforts to prevent stunting during the first 1,000 days of life.

Although the study has limitations related to design and sample size, the findings provide valuable evidence for policymakers and health practitioners to enhance the quality and reach of antenatal education programs. Future research using longitudinal or intervention-based designs is recommended to further explore causal relationships and assess long-term impacts on child nutritional outcomes.

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Conflict of Interest

No conflicts of interest

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