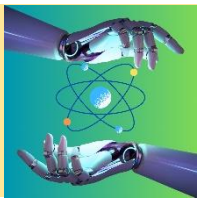
International Journal of Community Service
ISSN: 3083-9696
Journal homepage: https://e-journal.scholar-publishing.org/index.php/ijcs



Nutrition Improvement Education for Pregnant Women to Prevent Stunting in Tijien Husein Village, Ulim District Pidie Jaya Regency

Ambia Nurdin[1], Noris Yanti[1], Ricky Dear Fitria[2], Zoel Helmi[2], Muhammad Yusuf[2]

[1]Department of Public Health, Faculty of Health Sciences, Universitas Abulyatama, Aceh Besar 23372, Indonesia
[2]College of Health Sciences, Sihat Beurata Foundation, Pocut Baren Street, Kuta Alam Kota Banda Aceh

Corresponding Author: ambianurdin_fkm@abulyatama.ac.id

Abstract

Stunting is a serious public health issue, particularly among children, and can be caused by various factors, including poor maternal nutrition during pregnancy. Adequate nutrition during pregnancy is essential to support fetal growth and development. Pregnant women who experience nutritional deficiencies are at a high risk of giving birth to children with stunting, which can have negative impacts on the child's physical and cognitive health in the future. This community service program aims to educate pregnant women in Tijien Husein Village about improving nutrition to prevent stunting. The program explores the nutritional information needs of pregnant women and develops appropriate educational modules to enhance their understanding. By identifying factors that influence maternal nutrition, it is expected that effective strategies can be formulated to prevent stunting and improve maternal and child health. The activity was conducted in Tijien Husein Village, Ulim District, Pidie Jaya Regency, on Monday, September 22, 2025, from 09:00 a.m. until completion. The target population consisted of all pregnant women residing in the village. Samples were selected purposively based on specific criteria, such as gestational age and availability to participate in the educational sessions. Of the five pregnant women in the village, two participated in the counselling and educational activities. The nutrition education program for pregnant women in Tijien Husein Village showed positive outcomes, including increased participants' nutritional knowledge.

Article Info
Received: 16 October 2025
Revised: 08 November 2025
Accepted: 09 November 2025
Available online: 15 November 2025

Keywords
Nutrition
Stunting
Pregnant Women
Education

1. Introduction

Stunting remains a critical nutritional and public health issue in Indonesia, particularly in regions with limited access to health services. Research indicates that Indonesia's stunting prevalence, though declining in recent years, still far exceeds global targets and is associated with a wide array of maternal, household, and environmental determinants [1]–[4]. Poor maternal nutrition during pregnancy is recognised as a key contributor to subsequent child stunting, because inadequate nutritional intake impairs fetal growth and can result in low birthweight or growth restriction at birth [5], [6]. In the context of the Kabupaten Pidie Jaya region, preliminary health data point to a worrying level of stunting

among children, underscoring the urgent need for targeted maternal-health and nutrition interventions in underserved communities.

The burden of stunting not only reflects inadequate nutrient intake but also points to broader gaps in maternal knowledge, health practices, and access to supportive services. In Indonesia, lower maternal education levels, combined with socio-economic disadvantage and rural residence, have been significantly associated with higher odds of child stunting [2], [4]. Despite governmental and non-governmental programmes addressing nutrition and maternal health, many pregnant women continue to lack a comprehensive understanding or actionable practices for optimal nutrition during gestation [3], [7]. In the specific setting of Gampong Tijien Husein, within Kecamatan Ulim, these gaps appear pronounced, providing a clear rationale for the present community service initiative.

Effective nutritional interventions during pregnancy have been demonstrated to reduce the risk of child stunting. For example, one study in Indonesia found that a nutrition and reproductive health education intervention among pregnant women significantly improved knowledge, attitudes, and practices [8]. Another recent investigation showed that maternal nutrition literacy interventions reduced stunting incidence in offspring by 9.3% in the intervention group compared to 2.4% in the control group [6]. These findings emphasise the importance of early nutrition education and support as part of stunting-prevention strategies. However, the challenge often lies in adapting these interventions to local cultural, economic and logistical contexts.

Considering these findings, this community service activity is designed to educate pregnant women in Gampong Tijien Husein about nutritional improvements that could prevent stunting. Specifically, it seeks to explore the information needs of pregnant women regarding nutrition and develop an educational module tailored to their understanding and context. By grounding the intervention in community-specific realities, including local dietary patterns, cultural beliefs, and service access, this initiative aims to bridge the gap between theoretical nutritional knowledge and actual practice. Such a localised approach is critical because generic programmes may not adequately address the unique barriers in rural Indonesian villages.

This project's novelty lies in its culturally informed educational strategy, combining evidence-based nutrition content with an appreciation of the local Sumatran context. By integrating local dietary customs, available food resources, and participatory learning methods, the intervention is expected to engender deeper comprehension and more sustainable behaviour change among pregnant women. Evidence suggests that participatory, context-sensitive education in maternal nutrition is more effective than standard health-services messages alone [8]. Hence, this approach offers potential for more effective stunting prevention in this community.

In the initial implementation of the programme, the two pregnant women who participated demonstrated improved understanding of balanced nutrition and healthy food practices, including increased awareness of consuming foods rich in protein, vitamins and minerals, such as vegetables, fruits and animal-source proteins. While the sample size is small, this positive outcome suggests the intervention may yield meaningful improvement in maternal nutrition knowledge and thus contribute to stunting prevention. Future steps will involve expanding the module, monitoring the application of practices, and scaling the programme to cover more pregnant women in the village and surrounding areas.

2. Methodology

2.1 Program Design

This community service activity employed a quasi-experimental design (pre-test and post-test without a control group) to analyse behavioural changes among pregnant women following nutrition education aimed at preventing stunting. The intervention was conducted through health education sessions focused on improving maternal nutritional knowledge. Data were collected before and after the intervention using structured questionnaires, and participants' behavioural responses were evaluated using a five-point Likert scale to measure changes in knowledge and attitudes toward nutrition [7], [5].

2.2 Location and Time

The community service program was carried out in Tijien Husein Village, Ulim District, Pidie Jaya Regency, on Monday, September 22, 2025, from 09:00 a.m. until completion. This location was selected based on the high prevalence of stunting and limited access to health information services [9].

2.3 Population and Sample

The target population consisted of all pregnant women residing in Tijien Husein Village. The sample was selected purposively, taking into account specific criteria such as gestational age and availability to participate in the educational activities. Of the five pregnant women in the village, only two participants met the inclusion criteria and were available to attend the counselling sessions. Although the sample size was limited, this approach aligns with participatory, community-based intervention practices, which emphasise depth of engagement over the quantity of participants [4].

2.4 Educational Intervention

The intervention consisted of three main components designed to improve maternal nutrition literacy:

a) Health Counselling: Conducting educational sessions on the importance of adequate nutrition during pregnancy, types of nutritious foods, and the impact of nutritional deficiencies on child development and stunting [3].
b) Practical Training: Providing hands-on demonstrations on how to prepare nutritious meals and select locally available healthy food ingredients [6].
c) Educational Module Distribution: Distributing printed educational modules containing essential information on maternal nutrition, designed for easy access and long-term reference by participants [10].

2.5 Evaluation

The program's evaluation was conducted by measuring changes in participants' knowledge and behaviour through pre- and post-test questionnaires, as well as by monitoring maternal nutritional status before and after the intervention. Follow-up questions were asked to assess comprehension of the delivered materials. The evaluation followed guidelines recommended in previous studies on community nutrition education [8].

2.6 Data Analysis

The collected data were analysed using both quantitative and qualitative methods. Quantitative data from the Likert-scale questionnaire were analysed descriptively to identify changes in nutritional knowledge, and qualitative feedback from participants was summarised to provide contextual insights. This mixed-method approach provided a comprehensive understanding of the program's effectiveness and guided the formulation of recommendations for future improvements [11]. With this implementation method, the nutrition education program is expected to contribute to improved maternal nutrition and stunting prevention among pregnant women in Tijien Husein Village.

3. Result & Discussion

The nutrition education program conducted in Tijien Husein Village involved two pregnant women, Mirna Putri and Rahmawati, both of whom showed measurable improvements in nutritional knowledge and awareness following the intervention. Their Body Mass Index (BMI) values were within the normal range (21.3 and 21.4, respectively), suggesting that their initial nutritional status was adequate. However, before the intervention, both participants demonstrated limited understanding of the relationship between maternal nutrition and fetal development. This aligns with the findings of Juniarti et al. [12], who noted that many pregnant women in rural Indonesia have general awareness of nutrition but lack comprehensive knowledge of its direct impact on child growth and stunting prevention.

The improvement in nutritional knowledge observed after the educational sessions underscores the importance of health counselling and practical demonstrations as effective tools for behavioural change. Both participants were able to identify a wider variety of nutritious foods and understand the importance

of a balanced diet during pregnancy. This finding is consistent with the quasi-experimental study by Permatasari et al. [7], which demonstrated that nutrition education interventions significantly improved pregnant women's knowledge, attitudes, and practices regarding maternal nutrition. These improvements are crucial, as increased maternal nutrition literacy has been shown to reduce stunting prevalence among children [5].

Mirna Putri, who had limited baseline knowledge, showed a marked increase in understanding of balanced nutrition and could list at least 5 types of nutrient-rich foods after the intervention. Rahmawati, on the other hand, progressed from basic nutritional awareness to a more nuanced understanding of how malnutrition contributes to stunting and was able to design a daily balanced meal plan. This behavioural shift aligns with the findings of Sirajuddin et al. [4], who reported that participatory maternal nutrition education can significantly improve self-efficacy and dietary decision-making among expectant mothers. Furthermore, both participants showed increased awareness of the importance of consuming foods rich in protein, vitamins, and minerals, such as vegetables, fruits, and animal-source proteins. This behavioural change reflects the positive influence of contextualised, culturally appropriate education, which adapts nutritional messages to local environments [5]. Similar results were observed in a study by Muhamad et al. [6], which found that community-based nutrition interventions led to better food selection and improved nutrient intake among pregnant women in rural Indonesia.

Despite the progress observed, several challenges remain in translating improved knowledge into consistent dietary practices. Factors such as food availability, family eating habits, and economic constraints can hinder sustained behaviour change [8]. Addressing these barriers requires ongoing community engagement and integration of family members into nutrition programs. As Beal et al. [8] emphasise, stunting prevention is not solely a matter of individual education but also involves broader social and environmental support systems that enable consistent access to nutritious foods. Another noteworthy finding is the importance of continuous monitoring throughout pregnancy. Given Mirna Putri's expected delivery date of February 2026 and Rahmawati's in October 2025, both women must maintain adequate nutritional intake to support fetal growth in late gestation. Regular follow-up by community health workers (kader posyandu) could reinforce dietary counselling and ensure sustained adherence to healthy practices. Previous research has shown that post-intervention reinforcement significantly increases the retention and application of nutritional knowledge [9]. From a methodological perspective, although this study had a small sample size, it demonstrated the potential of localised, interactive education models to enhance maternal health literacy. The findings support prior evidence that even small-scale interventions can yield measurable behavioural improvements when contextualised within local cultural norms [13]. Future programs should therefore consider scaling up this model with larger participant groups and incorporating mixed-method evaluations to capture both quantitative outcomes and qualitative behavioural insights. Overall, the education program contributed meaningfully to the broader effort to prevent stunting in Tijien Husein Village. By enhancing pregnant women's understanding of balanced nutrition and its role in child development, the intervention addressed a critical determinant of early childhood health. Sustained implementation of similar programs, coupled with government and community collaboration, can strengthen maternal and child nutrition outcomes across rural Indonesia. Future research is recommended to assess the long-term impact of such interventions on postnatal growth indicators and to develop culturally responsive nutrition policies tailored to community needs.

4. Conclusion

The nutrition education program for pregnant women in Tijien Husein Village demonstrated positive outcomes, namely enhanced nutritional knowledge among participants Mirna Putri and Rahmawati. Both participants, with Body Mass Index (BMI) values within the normal range, successfully expanded their understanding of the importance of balanced nutrient intake during pregnancy. This improvement in knowledge is crucial in efforts to prevent stunting, a serious health issue prevalent in the region. The education provided not only increased participants' awareness of nutritious foods but also equipped them with practical skills to plan healthy, balanced diets. However, challenges remain in translating knowledge into daily practice, particularly concerning the availability of nutritious foods and existing

family eating habits. Therefore, it is essential to continue and strengthen this educational program by involving families and the wider community, and to ensure a supportive environment for pregnant women to maintain healthy nutritional practices. Overall, this program has the potential to make a significant contribution to maternal and child health and to the prevention of stunting in Tijien Husein Village. It is recommended that future community service initiatives expand the program's scope by involving a larger number of participants to obtain more comprehensive, in-depth data on the effectiveness of nutrition education interventions.

Acknowledgement

We want to express our deepest gratitude to all parties who contributed to the completion of this article. First and foremost, we extend our sincere appreciation to the Health Office of Pidie Jaya Regency for their continuous support and guidance throughout the research process. We also wish to thank the authorities and residents of Tijien Husein Village for their cooperation and for granting access during the implementation of the educational program. Our heartfelt thanks go to all the pregnant women who participated in this community service activity, especially to Mrs Mirna Putri and Mrs Rahmawati, for their openness in sharing their experiences and insights. Without their participation, this program would not have been successfully carried out. Lastly, we would like to express our appreciation to the local health centre (puskesmas) staff and volunteers who worked diligently to design and implement the program, as well as to all individuals who provided moral and material support throughout the process. We sincerely hope this collaboration continues to promote and improve public health in the community.

References

[1] T. Beal et al., “A review of child stunting determinants in Indonesia,” Public Health Nutr., vol. 21, no. 11, pp. 2122-2134, 2018.
[2] A. D. Laksono et al., “Stunting among children under two years in Indonesia: Does maternal education matter?”, PLoS ONE, vol. 17, no. 7, e0271509, 2022.
[3] N. Juniarti et al., “Determinant factors influencing stunting prevention behaviours among working mothers in Indonesia,” BMC Public Health, vol. 25, no. 24078, 2025.
[4] L. A. Garina et al., “Maternal, child, and household risk factors for children under two in Indonesia,” Open Public Health J., vol. 17, pp. 1-10, 2024.
[5] S. Sirajuddin et al., “The intervention of maternal nutrition literacy has potential to reduce stunting: evidence from Indonesia,” BMC Nutr., vol. 7, no. 69, 2021.
[6] Z. Muhamad et al., “Preliminary Study: The Effectiveness of Nutrition Education Intervention Targeting Short-Statured Pregnant Women to Prevent Gestational Stunting,” Nutrients, vol. 15, no. 19, 4305, 2023.
[7] T. A. E. Permatasari et al., “The effect of nutrition and reproductive health education of pregnant women in Indonesia using an experimental study,” BMC Pregnancy Childbirth, vol. 21, no. 180, 2021.
[8] P. M. Putri, “Stunting Reduction Strategy in Indonesia: The Role of Maternal Nutritional Knowledge and Government Interventions,” unpublished report, 2024.
[9] Kementerian Kesehatan RI, Laporan Nasional Riskesdas 2023, Jakarta: Badan Penelitian dan Pengembangan Kesehatan, 2023.
[10] World Health Organisation (WHO). Guideline: Optimal Maternal Nutrition for the Prevention of Stunting and Low Birth Weight. Geneva: WHO, 2021.
[11] R. Beal et al., “Community-based nutrition programs and stunting prevention in Southeast Asia: A systematic review,” Public Health Nutr., vol. 22, no. 9, pp. 1718–1729, 2019.
[12] N. Juniarti, et al., “Determinant factors influencing stunting prevention behaviours among working mothers in Indonesia,” BMC Public Health, vol. 25, no. 24078, 2025.

[13] R. Beal, et al., “Community-based nutrition programs and stunting prevention in Southeast Asia: A systematic review,” Public Health Nutr., vol. 22, no. 9, pp. 1718–1729, 2019.