

Community-Based Nutrition Education and Local Food Innovation for Stunting Prevention among Pregnant Women

**Rini Kundaryanti¹, Dian Haerani², Eka Purwasari^{3*}, Ergawati⁴, Fika Zahara⁵,
Irawati⁶, Nani Nasihah⁷, Sunengsih⁸**

¹ *Midwifery Professional Education Program, Faculty of Health Sciences, Universitas Nasional, Indonesia Email: ekapurwasari2405@gmail.com*

² *Midwifery Department, Faculty of Health Sciences, Universitas Nasional, Indonesia*

** Corresponding Author: Eka Purwasari*

Midwifery Professional Education Program, Faculty of Health Sciences, Universitas Nasional, ekapurwasari2405@gmail.com

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Abstract

Stunting remains a critical public health problem with long-term impacts on child growth, cognitive development, and future productivity, particularly in vulnerable communities. Prevention strategies need to be initiated during pregnancy by improving maternal knowledge and nutritional practices through community-based interventions. This community service program aimed to improve pregnant women's knowledge of stunting prevention through nutrition education combined with local food innovation. The program was implemented at a community health post and involved 30 pregnant women as participants. The intervention included health education sessions on stunting prevention and a practical demonstration of a local food innovation using purple sweet potato pudding as a nutritious supplementary food. Program evaluation was conducted using a pretest–posttest approach to assess changes in participants' knowledge, supported by participatory observation and direct feedback to evaluate the acceptability of the food innovation. The results showed a significant increase in knowledge, with the mean score improving from 67.7 before the intervention to 90.7 after the program. Participants also demonstrated positive responses toward the local food innovation, perceiving it as easy to prepare, acceptable in taste, and feasible for daily consumption during pregnancy. In conclusion, community-based nutrition education integrated with local food innovation is an effective and practical approach to support stunting prevention among pregnant women and has the potential to be applied more widely within community health services.

Keywords: stunting prevention, pregnant women, local food innovation

Introduction

Stunting remains a major public health challenge that affects child growth, cognitive development, and long-term productivity, particularly in low- and middle-income countries^{[1], [2]}. The condition originates from chronic nutritional deficiencies and adverse health exposures occurring during the first 1,000 days of life, starting from pregnancy through early childhood^[3]. Maternal nutritional status during pregnancy plays a critical role in fetal growth and development, making pregnant women a key target group for stunting prevention efforts^[1].

Despite national and global strategies aimed at reducing stunting prevalence, gaps persist in translating policy into effective community-level actions. Nutrition-related knowledge among pregnant women remains uneven, especially in rural and resource-limited settings, where access to health information and nutritious food options may be constrained^{[4], [5]}. Previous studies have demonstrated that inadequate maternal knowledge regarding balanced nutrition and prenatal health practices contributes significantly to the risk of stunting in children^[6].

Community-based nutrition education has been widely recognized as an effective promotive and preventive approach to improving maternal knowledge and encouraging healthy behaviors during pregnancy^{[6], [7]}. Programs implemented through existing community health structures, such as community health posts, enable direct engagement with pregnant women in familiar and accessible environments^[8]. Moreover, community participation enhances program relevance, acceptance, and sustainability, which are essential components of successful community service initiatives^{[7], [8]}.

In addition to education, the utilization of local food resources represents a practical strategy to address nutritional challenges in community settings. Local food innovation not only supports dietary diversity but also promotes food security and cultural acceptability^{[9], [10]}. Purple sweet potato is a locally available food source rich in carbohydrates, dietary fiber, vitamins, minerals, and antioxidants, making it a potential supplementary food for pregnant women^[9]. Transforming local food ingredients into simple and appealing products can increase their acceptance and daily use within

households^[10].

Several community service initiatives have combined nutrition education with local food utilization to support maternal and child health outcomes^{[11], [12]}. However, many programs focus primarily on information delivery without integrating practical food-based innovations that empower communities to adopt sustainable nutritional practices. This gap highlights the need for community service models that integrate education with hands-on local food innovation tailored to the needs of pregnant women.

Therefore, this community service program was conducted to improve pregnant women's knowledge of stunting prevention through community-based nutrition education combined with local food innovation. By integrating health education with the practical demonstration of a locally sourced nutritious food, this program seeks to contribute an applicable and empowering model for stunting prevention at the community level.

Method

This community service program employed a community-based approach focusing on nutrition education and local food innovation to support stunting prevention among pregnant women. The primary methods used in this program included counseling, educational sessions, and practical demonstration as part of an integrated community empowerment activity.

The program involved 30 pregnant women who participated voluntarily and were recruited through a community health post. The participants represented the target group for early stunting prevention, considering the importance of maternal nutrition during pregnancy.

The implementation of the community service was carried out through several structured steps. The first step was a preliminary assessment conducted through coordination with local health workers to identify community needs related to maternal nutrition and stunting prevention. This step ensured that the program content was relevant to local conditions.

The second step involved nutrition counseling and health education, delivered using an interactive approach. Educational materials covered topics such as the definition of stunting, its long-term impacts, the importance of balanced nutrition during

pregnancy, and practical strategies for stunting prevention. Participants were encouraged to actively engage through discussion and question-and-answer sessions.

The third step consisted of a practical demonstration of local food innovation, introducing purple sweet potato pudding as an alternative nutritious supplementary food for pregnant women. The demonstration emphasized the nutritional value of local food ingredients, simple preparation methods, and feasibility for daily consumption using locally available resources.

The final step was program evaluation, conducted using a pretest and posttest to assess changes in participants' knowledge following the educational intervention. In addition, participatory observation and direct feedback from participants were used to evaluate the acceptance and practicality of the local food innovation. This step provided insight into both the educational outcomes and the community's response to the intervention.

Results

The community service program was implemented as planned and received positive participation from the target group. A total of 30 pregnant women attended the activity and completed all stages of the program, including nutrition education, local food innovation demonstration, and evaluation.

Improvement of Participants' Knowledge

The effectiveness of the nutrition education component was assessed using a pretest and posttest consisting of structured questions related to stunting, its impacts, and prevention strategies during pregnancy. The results showed a clear improvement in participants' knowledge following the intervention.

The mean pretest score was 67.7, indicating a moderate level of baseline knowledge. After the educational sessions, the mean posttest score increased to 90.7, reflecting a substantial improvement in participants' understanding of stunting prevention. In addition, the minimum and maximum scores also increased, suggesting that knowledge improvement occurred across most participants rather than only a few individuals. These findings indicate that community-based nutrition education was effective in enhancing pregnant women's knowledge regarding stunting prevention.

Acceptance of Local Food Innovation

The introduction of local food innovation in the form of purple sweet potato pudding was evaluated through participatory observation and direct feedback from participants. During the demonstration session, most participants actively engaged in the activity, showed interest in the preparation process, and asked questions related to ingredient substitution and nutritional benefits.

Feedback from participants indicated that the local food innovation was well accepted. Participants perceived the ingredients as easily accessible, the preparation process as simple, and the product as suitable for daily consumption during pregnancy. The taste and texture of the pudding were also considered acceptable, increasing the likelihood of adoption at the household level.



Figure 1. Community service activities on stunting prevention among pregnant women.

(A) Group photo with participants after the completion of nutrition education activities;
(B) Delivery of community-based nutrition education and counseling sessions on stunting prevention;

(C) Demonstration and distribution of local food innovation in the form of purple sweet potato pudding as a nutritious supplementary food for pregnant women.

Overall, the results demonstrate that integrating nutrition education with a practical local food innovation not only improved knowledge among pregnant women

but also promoted the acceptance of locally based nutritious food as a feasible strategy to support stunting prevention within the community.

Discussion

The findings of this community service program indicate that community-based nutrition education plays an important role in strengthening pregnant women's understanding of stunting prevention. The observed improvement in participants' knowledge reflects the effectiveness of educational interventions delivered through community health settings. Previous community service studies have consistently shown that nutrition education targeting pregnant women contributes to better awareness of maternal nutrition and early stunting prevention strategies^{[4], [5]}. The present program supports this evidence by demonstrating that education delivered in a familiar community environment can enhance participant engagement and learning outcomes.

The use of community-based approaches aligns with existing knowledge that emphasizes the importance of accessibility and social context in health education programs^{[6], [7]}. Community health posts serve as strategic platforms for delivering promotive interventions, as they facilitate direct interaction between health workers and community members^[8]. Compared with community service programs that rely solely on lecture-based education, the interactive approach applied in this program encouraged active participation and discussion, which has been reported to improve knowledge retention and acceptance of health messages^{[6], [8]}.

A notable contribution of this program is the integration of nutrition education with local food innovation. Previous community service initiatives have highlighted the value of utilizing locally available food resources to address nutritional challenges in maternal and child health^{[11], [12]}. However, many programs focus primarily on education without providing practical demonstrations that enable communities to apply nutritional knowledge in daily life. The incorporation of purple sweet potato pudding as a local food innovation represents a practical strategy to bridge this gap by translating nutrition messages into tangible actions. This approach reinforces existing evidence that food-based interventions increase the likelihood of sustained behavioral change compared to information-based education alone^{[9], [10]}.

The novelty of this community service lies in its combined approach, which integrates knowledge enhancement with hands-on local food innovation tailored to pregnant women's needs. By emphasizing the use of locally accessible ingredients and simple preparation methods, the program supports community empowerment and promotes self-reliance in nutritional practices. This model is particularly relevant in rural settings, where access to commercially fortified foods may be limited.

Despite its positive outcomes, this community empowerment activity has certain limitations. The program was conducted with a relatively small number of participants and within a limited time frame, which may affect the generalizability of the findings. In addition, the evaluation focused primarily on knowledge improvement and participant acceptance, without assessing long-term behavioral changes or nutritional status outcomes. These limitations are common in community service settings and should be considered when interpreting the results.

Overall, the advantages of this community service program include its participatory approach, contextual relevance, and practical application of local food resources. The main challenges involve sustaining behavioral change and expanding program coverage. Future community service initiatives may benefit from longer implementation periods, repeated educational sessions, and collaboration with local stakeholders to strengthen program sustainability and impact.

Conclusion

This community service program demonstrates that community-based nutrition education combined with local food innovation is an effective approach to support stunting prevention among pregnant women. The integration of educational activities with practical demonstrations enabled participants to better understand the importance of maternal nutrition during pregnancy and to apply this knowledge through the utilization of locally available food resources. The program contributed to improved maternal knowledge and strengthened community engagement in promotive and preventive health efforts.

Furthermore, the use of local food innovation highlights the potential of community empowerment strategies that emphasize feasibility, accessibility, and cultural relevance. This approach supports sustainable nutrition practices and

encourages self-reliance at the community level. Although the program focused primarily on knowledge improvement and acceptance of innovation, the findings suggest that similar community service models may be adapted and implemented more widely within community health services to strengthen early stunting prevention initiatives. Future programs are recommended to incorporate longer follow-up periods to assess behavioral changes and broader health outcomes.

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Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this manuscript.

References

- [1] W. H. Organization, *WHO guideline on nutrition interventions for pregnant women*. Geneva: World Health Organization, 2016.
- [2] W. H. Organization, *Stunting in children: global trends and prevention strategies*. Geneva: World Health Organization, 2023.
- [3] A. J. Prendergast and J. H. Humphrey, "The stunting syndrome in developing countries," *Paediatr. Int. Child Health*, vol. 34, no. 4, pp. 250–265, 2014.
- [4] D. Rahmawati, E. Susilowati, and F. Anwar, "Effect of nutrition education on pregnant women's knowledge related to stunting prevention," *J. Gizi Indones.*, vol. 9, no. 2, pp. 123–131, 2021.
- [5] M. Sari, H. Hadi, and D. S. Nurdiati, "The role of maternal nutrition education during pregnancy in stunting prevention," *J. Reprod. Heal.*, vol. 13, no. 1, pp.

- 56–64, 2022.
- [6] Y. Kurniawan, E. Sulastri, and R. Mahendra, “Effectiveness of community-based health education in improving maternal knowledge,” *J. Heal. Promot. Indones.*, vol. 15, no. 1, pp. 25–32, 2020.
- [7] A. Widodo, D. Pramono, and R. Setiawan, “Community empowerment approaches in maternal and child health programs,” *J. Community Serv. Heal.*, vol. 7, no. 1, pp. 55–63, 2022.
- [8] E. Yuliana, N. Fitri, and B. Prakoso, “Community participation in maternal and child health education programs,” *J. Community Heal. Dev.*, vol. 7, no. 2, pp. 98–105, 2021.
- [9] S. Nur Rohmah, A. Fitriani, and R. Susanti, “Nutritional composition and functional potential of purple sweet potato,” *J. Food Technol. Nutr.*, vol. 12, no. 1, pp. 45–53, 2021.
- [10] N. Hidayati, A. Wibowo, and D. Lestari, “Utilization of local food-based nutrition to support maternal health,” *J. Public Heal. Nutr.*, vol. 14, no. 2, pp. 101–109, 2022.
- [11] A. D. Putri and R. Handayani, “Community service-based health education for stunting prevention among pregnant women,” *J. Community Heal. Serv.*, vol. 5, no. 1, pp. 33–40, 2023.
- [12] S. Raharjo, T. Wulandari, and P. A. Siregar, “Participatory community service models for stunting prevention,” *J. Community Empower.*, vol. 7, no. 3, pp. 211–219, 2022.