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Nutritious food education and the practice of providing complementary foods are appropriate in efforts to prevent stunting

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ABSTRACT

Stunting is a chronic nutritional problem that is still a public health challenge in Indonesia. One of the factors contributing to the high prevalence of stunting is the lack of knowledge of parents, especially mothers, about balanced nutritional intake and proper practices of feeding Complementary Breast Milk (MP-ASI). This community service activity aims to improve the knowledge and skills of mothers under five related to the importance of nutritious food and the practice of giving MP-ASI in accordance with the guidelines of WHO and the Ministry of Health of the Republic of Indonesia. The methods used are education through interactive counseling, demonstrations of making local food-based MP-ASI, and question and answer sessions. The target of the activity was 40 mothers with children aged 6-24 months in the Posyandu in the assisted area. The evaluation results showed an increase in participants' knowledge by 65% after participating in educational activities. In addition, 80% of participants stated that they were motivated to implement MP-ASI feeding practices that are in accordance with the principles of balanced nutrition. This activity also encourages the use of affordable and nutritious local food resources. With the increase in mothers' knowledge and skills in compiling and delivering MP-ASI, it is hoped that the risk of stunting in early childhood can be minimized. This service activity proves that education-based interventions and direct practices can effectively support programs to accelerate stunting reduction at the community level. The recommendation for the future is to expand the scope of similar activities with cross-sectoral collaboration, especially among health workers and posyandu cadres.

Keywords: Nutrition Education, MP-ASI, Nutritious Food, Stunting.

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INTRODUCTION

Stunting is still one of the significant public health problems in Indonesia. Data from the 2022 Indonesian Nutrition Status Survey (SSGI) shows that the national stunting prevalence reached 21.6%. Although this figure has decreased compared to the previous year, it is still above the threshold set by the World Health Organization (WHO), which is 20%. Stunting impacts children's physical growth and cognitive development, body immunity, and long-term productivity [1]. Therefore, handling stunting must be a priority in public health development, especially in the First 1000 Days of Life (HPK), a critical period of child growth and development [2]. One of the main causes of stunting is the inaccuracy of the provision of Complementary Foods (MP-ASI) to infants and toddlers. WHO recommends that the administration of MP-ASI begins when the child is six months old, because at that age, the energy and nutrient needs cannot be met with breast milk alone [3]. However, many parents still do not understand the basic principles of proper MP-ASI administration, both in terms of time, frequency, amount, and nutritional quality. In addition, limited access to information and low nutritional literacy are factors that worsen children's feeding practices [4].

This condition is exacerbated by local perceptions and cultures that are not always in harmony with the principles of balanced nutrition [5]. For example, there is still the notion that high-protein foods such as eggs or meat should not be given to children before a certain age, or that instant and unnutritious feeding is considered more practical [6]. On the other hand, the potential of local resources that are rich in nutritional content such as tempeh, fish, green vegetables, and tubers often have not been optimally utilized in preparing the MP-ASI menu. Seeing the importance of education in improving parents' knowledge and skills in providing MP-ASI, this community service activity is designed to understand nutritious food comprehensively and MP-ASI giving practices according to health principles [7]. Education is participatory through counseling, group discussions, and demonstrations of making local food-based MP-ASI. This approach not only aims to transfer knowledge but also builds mothers' awareness and motivation to change child-feeding behavior sustainably [8].

This activity was carried out in the fostered Posyandu area, one of the spearheads of basic health services at the community level. Posyandu has a strategic role in providing promotive and preventive services, including overcoming stunting. However, for this role to run optimally, support is needed in the form of capacity building for Posyandu cadres and mothers who are the program's main targets [9]. Therefore, synergy between health workers, academics, and the community is key in creating effective and sustainable interventions. The main purpose of this service activity is to improve nutritional literacy and mothers' skills in compiling and providing MP-ASI in accordance with the needs of children based on the principle of balanced nutrition. In addition, this activity also encourages the use of local food as an economical, nutritious, and easily obtainable source of MP-ASI in the surrounding environment. With an empowerment and education-based approach, it is hoped that this activity can make a real contribution in supporting the national program to accelerate stunting reduction, as well as improve the quality of life of children as the nation's next generation [10].

In particular, this activity targets mothers with children aged 6-24 months who are in the Posyandu's work area. This age is crucial because it is a transition period from exclusive breastfeeding to solid food. During this period, the quality and quantity of food provided will greatly determine the nutritional status of children. Therefore, educational

interventions in this target group are expected to reduce stunting rates in the future. With this background, this community service activity is expected to be a form of real contribution from universities in answering public health challenges, especially in stunting prevention through increasing family capacity in fulfilling child nutrition. The community's active role in understanding and applying the principles of proper MP-ASI will be an important first step towards creating a healthy, intelligent, and superior generation.

METHOD

This community service activity was conducted using a participatory approach through education, demonstrations, and interactive discussions with mothers with children aged 6 to 24 months. This method aims to improve the participants' understanding and skills in providing complementary feeding (MP-ASI) based on balanced nutrition principles and the use of locally available nutritious foods.

Time and Location

This activity was carried out for three days in May 2025 at the Posyandu. This location was chosen because it is an area with a relatively high prevalence of stunted toddlers based on data from the local Health Center.

Target Participants

The target participants were 40 mothers with children aged 6–24 months. Participants were recruited with Posyandu health volunteers (kader) and village midwives. Inclusion criteria included willingness to participate fully and a commitment to applying the knowledge and skills gained from the activity in daily practice.

Implementation Stages

The activity was carried out in several stages:

Preparation

Coordination with local Posyandu, Puskesmas, and village authorities. A preliminary survey will assess participants' knowledge of MP-ASI and child feeding practices. Development of educational materials and activity modules, including local food-based MP-ASI recipes. Procurement of tools and ingredients for MP-ASI demonstration sessions.

Education Session

Interactive Counseling: Materials were delivered and communicated, covering topics such as: understanding stunting, the importance of the first 1,000 days of life, principles of balanced nutrition, proper timing and types of MP-ASI, and food hygiene and sanitation.Focus Group Discussion: Participants were divided into small groups to share their experiences, challenges, and solutions related to complementary feeding. The community service team and local nutrition volunteers facilitated the sessions.

MP-ASI Demonstration

Hands-on practice preparing MP-ASI using local ingredients such as tempeh, eggs, pumpkin, spinach, and rice. Demonstrations were conducted by the community service team and a nutritionist, emphasizing safe and hygienic food preparation methods that preserve nutritional value. Participants were encouraged to prepare and taste the MP-ASI recipes themselves.

Evaluation and Follow-Up

Pre-test and post-test assessments were conducted to measure changes in knowledge. A feedback questionnaire was used to gather participants' impressions and suggestions regarding the activity. Each participant received a printed guide and a sample 7-day MP-

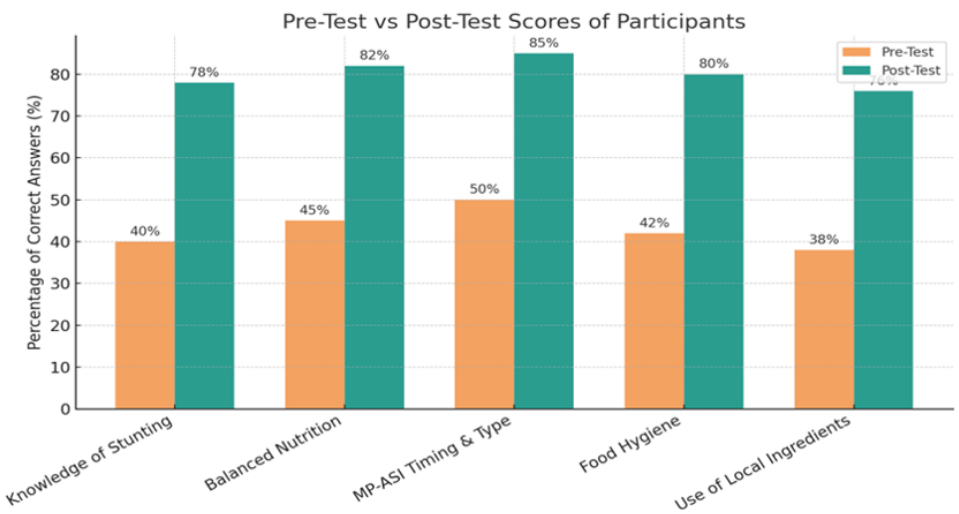
ASI menu to implement at home. Health volunteers were empowered to carry out follow-up monitoring and mentoring for one month after the activity.

Approach and Evaluation Methods

The success of the program was evaluated both quantitatively and qualitatively. Quantitative evaluation was based on the comparison of pre-test and post-test scores. Qualitative evaluation involved observations of active participation during sessions and short interviews to assess behavioral changes and intentions to apply appropriate MP-ASI practices at home.

RESULT

This community service program significantly improved participants' knowledge after attending the educational sessions and hands-on demonstrations on appropriate complementary feeding (MP-ASI) practices. The pre-test and post-test evaluation across five key indicators showed consistent progress in all areas covered.



Grafik 1. Pre-test and post-test results of community service activity participants

Knowledge of Stunting. Before the activity, only 40% of participants understood the basic concept of stunting and its long-term impacts on child development. This increased to 78% after the intervention. This indicates that the educational session effectively raised awareness about the urgency of early stunting prevention. Balanced Nutrition Principles Initially, 45% of participants had a basic understanding of balanced nutrition. After the sessions, this figure rose to 82%. This reflects the effectiveness of the material in explaining the importance of food diversity, portion sizes, and proper combinations in a child's diet. Timing and Types of MP-ASI. Prior to the activity, 50% of mothers were aware of the appropriate timing and types of MP-ASI. After the program, this increased significantly to 85%. This shows that participants absorbed theoretical knowledge and gained practical understanding of when and how to provide complementary feeding according to their child's age: Food Hygiene and Safety. Participants' knowledge regarding food hygiene and safety improved from 42% to 80% following the demonstration. This suggests that the visual and practical approach used in the sessions effectively emphasized the importance of hygiene in preparing food for infants and toddlers. Utilization of Local Ingredients. Only 38% of participants initially

recognized that local food ingredients could be used to prepare nutritious MP-ASI. After the activity, this number increased to 76%, indicating that the cooking demonstration successfully raised awareness of the nutritional value and accessibility of local foods.

Overall, the average improvement across all indicators was 37.2 percentage points, highlighting the effectiveness of the participatory educational approach combined with hands-on practice. This method proved to be an impactful strategy for enhancing mothers' knowledge and skills in preparing and providing appropriate complementary foods, thereby supporting national efforts to reduce stunting at the community level.

DISCUSSION

Stunting remains a significant public health issue in many developing countries, particularly Indonesia. As noted in previous research and national health reports, one of the leading causes of stunting is chronic malnutrition during the first 1,000 days of a child's life, which includes inadequate nutritional intake, poor feeding practices, and limited maternal knowledge about child nutrition. In this community service program, we sought to address these challenges by empowering mothers through structured nutrition education and hands-on MP-ASI preparation using local food sources. The results from the pre-test and post-test evaluations revealed significant improvements in participants' knowledge across all five key indicators: understanding of stunting, principles of balanced nutrition, correct MP-ASI timing and types, food hygiene and safety, and using local ingredients. These findings indicate that the educational and participatory approach employed in the program was effective in increasing awareness and practical knowledge among mothers of children aged 6–24 months.

Increased Awareness of Stunting and Its Long-Term Impacts. Before the intervention, only 40% of participants could accurately define stunting and understand its long-term consequences. This low baseline is consistent with studies showing that public knowledge about stunting is often minimal, especially in rural or underserved areas. After the intervention, the percentage increased to 78%, which shows a substantial gain in awareness. This improvement is crucial, as knowledge is the first step in encouraging behavior change. When mothers understand that stunting is not merely a matter of physical shortness but a condition with cognitive and developmental implications, they are more likely to take preventative actions [11].

Understanding the Principles of Balanced Nutrition. The improvement in participants' knowledge regarding balanced nutrition from 45% to 82% demonstrates the effectiveness of interactive educational sessions. The concept of balanced nutrition, which includes diversity in food groups, appropriate portion sizes, and nutrient density, is often misunderstood or oversimplified [12]. Many mothers previously believed carbohydrate-rich foods like rice were sufficient for child growth. This program taught them the importance of including proteins, vitamins, and minerals in their children's daily meals. Previous interventions have shown that when mothers are exposed to contextualized nutrition education using local food examples, the information is more relatable and easier to implement. The discussions and demonstrations incorporating commonly found ingredients helped solidify these principles and gave mothers the confidence to apply them at home [13].

Improved Knowledge of MP-ASI Timing and Quality. The data also indicated a sharp rise from 50% to 85% in participants' knowledge of appropriate MP-ASI timing and food types. Before the program, many participants initiated MP-ASI too early or delayed it unnecessarily due to cultural beliefs or misinformation. Some participants

reported giving infants solid foods before 6 months, while others withheld protein-rich foods until after one year, believing them to be “too heavy” for infants [14]. By aligning the sessions with WHO and national guidelines, the program clarified that MP-ASI should begin at six months while continuing breastfeeding, and that it must be rich in energy and nutrients [15]. The hands-on demonstrations allowed participants to directly observe how to prepare MP-ASI meals that are age-appropriate, nutrient-rich, and culturally acceptable. This approach helped reduce resistance to change and bridged the gap between knowledge and action [16].

Promotion of Safe and Hygienic Feeding Practices. Food safety is often overlooked in complementary feeding discussions, despite its critical importance in preventing diarrhea and infections contributing to malnutrition. The knowledge increased from 42% to 80% in food hygiene and safety, highlighting the program’s effectiveness in addressing this often-neglected area. Mothers were taught how to properly wash ingredients, use clean utensils, store food safely, and reheat leftovers appropriately [17]. The participatory cooking sessions further emphasized that good hygiene is not about expensive tools but consistent habits. Feedback from participants also revealed that many of them had not previously considered food safety as a determinant of their child’s health, and were eager to adopt the new practices [18].

Utilization of Local Food Ingredients for MP-ASI. Promoting local food sources is essential for sustainability and accessibility, especially in low-income communities. The knowledge increased from 38% to 76% in this domain, indicating that many participants had previously overlooked the nutritional potential of local ingredients such as tempeh, eggs, pumpkin, and leafy greens. Instead, they often relied on store-bought instant baby foods, which are more expensive and usually less nutritious. By demonstrating how to turn affordable, local ingredients into balanced MP-ASI meals, the program improved knowledge and supported local food systems [19]. Several mothers expressed surprise that nutritious MP-ASI could be made using items they already had at home. This realization can contribute to long-term changes in feeding practices that are both cost-effective and health-promoting [20].

Relevance of Participatory Education Methods. The structured yet participatory approach of the program played a significant role in its success. Adult learning theories suggest practical, experience-based learning is more effective than passive learning methods. The use of group discussions, visual aids, real food samples, and live demonstrations created a learning environment that was both engaging and supportive. In addition, the involvement of Posyandu cadres and local health workers increased community trust and improved communication. This collaboration ensures the intervention is embedded in the local health system and can be continued or scaled up beyond the initial implementation phase. The community service program has successfully demonstrated that targeted nutrition education can significantly improve maternal knowledge and practical skills in complementary feeding when delivered using participatory and culturally sensitive methods. The observed improvements in all key areas, especially stunting awareness, balanced nutrition, MP-ASI practices, hygiene, and local food use, suggest that this approach can contribute meaningfully to national efforts to reduce stunting. However, continuous support, follow-up, and integration with broader health strategies are needed to sustain these gains and achieve lasting impact.

CONCLUSIONS

This community service program successfully demonstrated that structured nutrition education combined with hands-on MP-ASI preparation can significantly enhance maternal knowledge and awareness in five key areas: stunting, balanced nutrition, appropriate MP-ASI practices, food hygiene, and use of local ingredients. The improved post-test results highlight the effectiveness of participatory methods such as interactive counseling and cooking demonstrations. Furthermore, the program strengthened the role of Posyandu and community health workers as grassroots agents in health promotion. To sustain and expand the impact, it is recommended to replicate the program in other high-stunting areas through cross-sector collaboration; conduct follow-up mentoring to ensure behavior change; provide accessible educational tools; involve the broader family unit; integrate efforts with existing health programs; and promote the use of local food systems. These strategies will help ensure that community-based nutrition interventions are more impactful, sustainable, and aligned with national efforts to reduce stunting and improve child health outcomes.

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