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Stunting Prevention and Management through Community Service Programs: "Smartly Overcome Stunting"

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A B S T R A C T

The activity was carried out in February 2024 in Gunung Pancar Village, Babakan Madang District, Bogor Regency. Participants consisted of 30 mothers with toddlers and 10 integrated health post (Posyandu) cadres. The activity design used a community-based participatory educational approach (community-based learning) which included: (1) interactive counseling on the concept of stunting, balanced nutrition, and the importance of 1,000 HPK; (2) demonstrations of making nutritious food from local ingredients; (3) simulations of using the Health Card (KMS); and (4) pre-test and post-test evaluations to measure the increase in participants' knowledge. The evaluation results showed a significant increase in participants' understanding of stunting prevention. The average knowledge score increased from 54.3% to 88.6% after the intervention.

INTRODUCTION

Stunting is a chronic nutritional problem that remains a major challenge to health development in Indonesia. This condition is characterized by a child's height being shorter than the standard for their age due to prolonged malnutrition, particularly during the first 1,000 days of life (HPK) from pregnancy to age two (*WHO Child Growth Standards: Length/Height for Age, Weight for Age, Weight for Length, Weight for Height and Body Mass Index for Age: Methods and Development*, 2025). According to the 2022 Indonesian Nutritional Status Survey (SSGI), the prevalence of stunting in Indonesia reached 21.6%, or approximately 4 million children under five. This figure shows a decrease compared to 2019 (27.7%), but remains above the 20% threshold set by the World Health Organization (WHO) as an indicator of a serious public health problem (*SDG Indicators*, 2025). West Java Province is one of the regions with a high stunting prevalence, at 23.3%, with significant variation between districts/cities (Jabar, 2021). Bogor Regency, as a densely populated area, still has a relatively high stunting prevalence, according to data from the Bogor Regency Health Office (2023), at around 22.5%. This shows that there are still many families who do not have sufficient awareness and ability to meet the nutritional needs of children and pregnant women.

Short-Term and Long-Term Impacts of Stunting

The impact of stunting extends beyond stunted physical growth and includes broad implications for a person's cognitive development, motor skills, and future productivity. Children who experience stunting are at higher risk of impaired brain development, reduced learning ability, weakened immune systems, and an increased risk of chronic diseases in adulthood, such as type 2 diabetes mellitus, hypertension, and coronary heart disease (Victora et al., 2008) Furthermore, stunting reduces the quality of human resources (HR), leading to lower national competitiveness. According to the World Bank (2021), countries with a high prevalence of stunting can experience a decline in economic potential of up to 3% of Gross Domestic Product (GDP) per year due to reduced labor productivity (Organization, 2020). Therefore, reducing stunting rates is not only a health issue but also a long-term investment in Indonesia's human development.

Causes of Stunting

The causes of stunting are multifactorial and interconnected. Based on the UNICEF (2022) framework for the causes of stunting, direct causes include inadequate nutritional intake and recurrent infectious diseases, such as diarrhea or acute respiratory infections. Indirect causes include lack of access to nutritious food, inappropriate parenting practices, limited maternal and child health services, and inadequate sanitation and clean water (sitecontrol, 2013). In addition, socioeconomic factors such as low maternal education, poverty, and lack of nutritional awareness also play a significant role in exacerbating stunting (Nyirenda et al., 2025). A study by Sihotang et al. (2023) in Cirebon Regency showed that maternal education and family income significantly correlated with the nutritional status of toddlers, with children from families with low maternal

education having a 2.3 times greater chance of experiencing stunting compared to those with higher education (Sihotang et al., 2023).

Government Efforts to Reduce Stunting

The Indonesian government, through the National Action Plan for the Acceleration of Stunting Reduction (RAN-PASTI) 2021–2024, aims to reduce stunting prevalence by 14% by 2024. This strategy is implemented through two main approaches: 1) Specific nutrition interventions (30%), which focus directly on the causes of malnutrition, such as exclusive breastfeeding, iron and folic acid supplementation, and food fortification; 2) Sensitive nutrition interventions (70%), which include improving access to clean water, sanitation, health services, education, and family economic empowerment. However, despite the implementation of various programs, challenges in the field indicate that many families do not fully understand the importance of balanced nutrition and proper feeding practices. A gap remains between community knowledge and behavior regarding nutrition, particularly in rural and semi-urban areas such as Gunung Pancar Village, Bogor Regency.

Community Conditions in Gunung Pancar

Gunung Pancar Village is a village in Babakan Madang District, Bogor Regency, where the majority of residents work as farm laborers, small traders, and housewives. Based on the implementation team's initial observations in January 2024, it was found that:

a. Most mothers of toddlers do not yet understand the importance of the 1,000 Days of Childhood (HPK) in preventing stunting.
b. Toddlers' diets tend to be unbalanced, still relying on carbohydrates without a variety of animal protein sources.
c. Sanitation and clean water facilities are not evenly distributed throughout the village.

These conditions indicate a real need for nutrition and health education programs that can bridge knowledge with real-world practices in the community. A participatory education-based approach involving Posyandu (Integrated Service Post) cadres and mothers of toddlers is highly relevant to achieving sustainable behavior change.

The "Smart Stunting Overcome" program was designed to address challenges in the field through practical and applicable education. This activity focuses on three main components:

a. Increasing community knowledge about the causes, impacts, and prevention of stunting.
b. Practical skills training for mothers and integrated health post (Posyandu) cadres in preparing balanced, nutritious meals from local ingredients.
c. Empowering communities to become change agents in their communities.

This educational approach has proven effective in changing community behavior, as evidenced by Tyarini et al. (2024), who reported that a community empowerment-based nutrition education program increased nutritional knowledge scores by 30% and nutritious feeding practices by 45% after three months of implementation (Tyarini et al., 2024) Furthermore, this program also integrates behavior change communication (BCC), which focuses on changing individual behavior through visual communication media, hands-on practice, and interactive dialogue. The BCC method is considered effective in building community awareness in rural areas with varying levels of education (Nancy & Dongre, 2021).

IMPLEMENTATION AND METHODS

This community service activity was held in February 2024 in Gunung Pancar Village, Babakan Madang District, Bogor Regency. The target group was 30 mothers with toddlers and 10 integrated health post (Posyandu) cadres.

1. Activity Stages
   a. Preparation
      Included an initial survey of community needs, coordination with the village and local community health center (Puskesmas), and the development of an educational module entitled "Smartly Overcoming Stunting."
   b. Implementation
      a) Activities were implemented in the following forms:
      b) Interactive counseling on stunting, balanced nutrition, and the importance of the first 1,000 days of life.
      c) Demonstrations on making nutritious, affordable, and local menus, such as mung bean porridge, vegetable omelettes, and fish dishes.
      d) Simulations of child growth monitoring using the Health Card (KMS).
      e) Group discussions and question-and-answer sessions to deepen participants' understanding.
   c. Evaluation
      Assessment was conducted through pre and post tests on nutritional knowledge and active participant observation.
2. Approach
   The approach used is community-based participatory education (community-based learning) with an emphasis on behavior change communication (BCC), which encourages behavioral change through direct experience and concrete examples.

RESULTS AND DISCUSSION

Participant Overview

The "Smart Stunting Overcoming" activity was attended by 40 participants, consisting of 30 mothers with toddlers and 10 integrated health post (Posyandu) cadres. The majority of participants were aged 25–40 (65%), with a high school education (52.5%), and from lower-middle economic backgrounds (70%). The participants' active engagement throughout the activity demonstrated strong enthusiasm for stunting prevention and family nutrition. Over 90% of participants attended the training and actively participated in discussions and demonstrations of making nutritious food using local ingredients.

Quantitative Results: Improved Participant Knowledge and Attitudes

To measure the activity's effectiveness, a pre-test and post-test were conducted, with 10 questions covering basic knowledge of stunting, balanced nutrition, and child feeding practices.

Table 1. Increase in Participants' Knowledge Before and After the Activity

No	Knowledge Indicator	Before Activity (Pre-test)	After Activity (Post-test)	Improvement (%)
1	Understand the definition and causes of stunting	57.5%	90.0%	+32.5
2	Understand the importance of the first 1,000 days of life	60.0%	92.5%	+32.5
3	Understand the long-term impacts of stunting	55.0%	87.5%	+32.5
4	Understand the importance of exclusive breastfeeding for 6 months	72.5%	95.0%	+22.5
5	Understand the composition of a balanced nutritious diet	58.0%	90.0%	+32.0
6	Understand the role of animal protein in child growth	46.0%	85.0%	+39.0
7	Understand how to read a KMS (Healthy Card)	46.0%	85.0%	+39.0
8	Understand the importance of sanitation and environmental cleanliness	64.0%	90.0%	+26.0
9	Understand the prevention of diarrhea and acute respiratory infections in toddlers	55.0%	85.0%	+30.0

10	Understand the role of integrated health post (Posyandu) cadres in stunting prevention	61.0%	92.0%	+31.0
Mean		**54.3%**	**88.6%**	**+34.3**

Qualitative Results: Changes in Attitudes and Practices

In addition to increased knowledge scores, post-activity interviews indicated positive changes in attitudes toward nutrition practices and childcare. Some qualitative findings include:

a. 92.5% of participants stated they would increase the portion of animal-based side dishes, such as eggs and local fish, in their family menus.
b. 87.5% of participants committed to regularly taking their children to the integrated health post (Posyandu) every month.
c. 75% of participants stated they would practice handwashing before preparing food.
d. Posyandu cadres expressed greater confidence in providing nutrition education to residents and identifying stunting risks using the Community Health Card (KMS).

Table 2. Changes in Participants' Attitudes and Practices after Training

Aspects Assessed	Before (%)	After (%)	Improvement (%)
Awareness of the importance of animal protein in complementary feeding	58	90	+32
Habit of taking children to integrated health posts (Posyandu)	70	95	+25
Habit of washing hands before eating	62	85	+23
Cadres' ability to read the Child Health Card (KMS) and provide counseling	50	88	+38
Understanding the importance of household sanitation	64	92	+28

Effectiveness of the Participatory Education Program

This activity has proven effective in increasing community knowledge and skills regarding stunting prevention. The average increase in knowledge of 34.3% indicates that the community based participatory education method (community-based learning) is highly suitable for implementation in rural and semi urban areas such as Gunung Pancar.

This aligns with research by Tyarinit et al. (2023), which found that a community empowerment-based education model can increase mothers' nutritional knowledge by 30–45% within three months (Tyarini et al., 2024). The Behavior Change Communication (BCC) approach used in this activity plays a crucial role in encouraging behavioral change because the message is delivered in a simple, practical manner, and is accompanied by direct examples such as demonstrations of nutritious food preparation (Ngigi & Busolo, 2018)

Empowering Cadres as Agents of Change

The involvement of Posyandu cadres has been proven to increase program sustainability. Trained cadres become local facilitators and trusted sources of information for the community. This aligns with WHO guidelines (2022) that the involvement of community health workers is an effective strategy for expanding the reach of nutrition education at the community level. Cadres trained in this activity can carry out follow-up activities such as routine education, mentoring families of toddlers, and monitoring children's nutritional status using the Community Health Card (KMS). Thus, Community Health Workers (PKM) activities do not stop at a single intervention but have the potential to become a sustainable movement within the community.

Integration of Nutrition, Sanitation, and PHBS Aspects

This activity emphasized that stunting cannot be solved solely through nutrition. Lack of sanitation, environmental cleanliness, and handwashing habits are indirect causes that worsen the nutritional status of children 14 years old. Health messages regarding PHBS, handwashing, and clean drinking water were integrated into the training materials to help the community understand the link between sanitation, infection, and child growth.

Obstacles and Solutions in the Field

During the activity, several obstacles were encountered, such as local myths prohibiting giving eggs and fish to young children because they are thought to cause internal heat. The implementation team responded by explaining the scientific facts simply and providing examples of safe processing methods, such as boiled eggs and steamed fish. Furthermore, family financial constraints were a reason for the low consumption of animal-based side dishes. The solution proposed was the use of affordable local ingredients such as eggs, small fish, and tempeh, which still contain high protein content.

Implications for National Programs

The results of these activities support the 2021–2024 National Action Plan for the Acceleration of Stunting Reduction (RAN-PASTI), which emphasizes the role of communities and cross-sectors in stunting reduction efforts. The "Smart Stunting Overcome" program plays a role in strengthening nutrition-sensitive interventions, particularly through family education, cadre empowerment, and strengthening healthy and clean behaviors at the household level.

CONCLUSIONS AND RECOMMENDATIONS

Overall, the "Smart Stunting Overcome" community service program successfully improved community understanding and practices in stunting prevention through nutrition education, cadre involvement, and the integration of clean and healthy lifestyles. The participatory education model has proven effective, affordable, and sustainable for village-level implementation in support of the national stunting reduction target.

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