



**Dedicated:**  
**Journal of Community Services**  
**(Pengabdian kepada Masyarakat)**  
<https://ejournal.upi.edu/index.php/dedicated/>



**The urgency of introducing balanced nutrition in early childhood to prevent stunting**

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**ABSTRACT**

Maternal and child mortality has increased due to stunting, triggered by the unbalanced nutritional intake of food consumed. 1000 HPK is essential for food needs, such as consuming vegetables, fruit, protein, carbohydrates, and fats. The method used to overcome this problem is counseling on nutritious intake to avoid the dangers of stunting for children. The results of the service activities are known that children in some areas of Margaasih Village already know and are aware of nutritious food intake. Nutritious food intake needs to be consumed every day by children to avoid stunting problems that cause them to have low IQ and developmental disorders until they grow up. However, the counseling activities we do through the method of coloring pictures of the contents of my plate need to be complemented with natural vegetables or fruits so that children better understand the images we provide. This counseling is expected to instill good habits for children to consume food with balanced nutrition.

**ARTICLE INFO**

**Article History:**

Received: 1 Jul 2023

Revised: 31 Aug 2023

Accepted: 11 Sep 2023

Available online: 23 Sep 2023

Publish: 8 Dec 2023

**Keyword:**

Balanced nutrition; childrens; stunting

**Open access**

Dedicated: Journal of Community Services (Pengabdian kepada Masyarakat) is a peer-reviewed open-access journal.

**ABSTRAK**

Kematian ibu hamil dan anak meningkat salah satu penyebab dikarenakan stunting atau disebut balita pendek. Hal ini dipicu karena tidak seimbang asupan gizi makanan yang dikonsumsi. Bagi akan kebutuhan makanan ketika 1000 HPK itu penting, seperti mengonsumsi sayuran, buah, protein, karbohidrat, dan lemak. Metode yang dilakukan untuk mengatasi permasalahan ini dengan memberikan penyuluhan mengenai asupan bergizi supaya terhindar dari bahaya stunting bagi anak. Hasil dari kegiatan pengabdian diketahui bahwa anak-anak di sebagian wilayah Desa Margaasih sudah mengetahui dan sadar akan asupan makanan yang bergizi. Di mana asupan makanan bergizi perlu dikonsumsi setiap hari oleh anak-anak supaya terhindar dari permasalahan stunting yang menyebabkan mereka memiliki IQ rendah dan gangguan tumbuh kembang hingga mereka dewasa nanti. Namun, kegiatan penyuluhan yang kami lakukan melalui metode mewarnai gambar Isi Piringku perlu dilengkapi dengan sayur atau buah asli, supaya anak-anak lebih memahami gambaran yang kami berikan. Penyuluhan ini diharapkan dapat menanamkan kebiasaan baik untuk anak mengonsumsi makanan dengan gizi seimbang.

**Kata Kunci:** Anak-anak; gizi seimbang; stunting

**How to cite (APA 7)**

Nurjanah, R. S., Safitri, W., Somantri, W. R., & Ikrimah, A. L. M. (2023). The urgency of introducing balanced nutrition in early childhood to prevent stunting. *Dedicated: Journal of Community Services (Pengabdian kepada Masyarakat)*, 1(2), 219-228.

**Peer review**

This article has been peer-reviewed through the journal's standard double-blind peer review, where both the reviewers and authors are anonymised during review.

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## INTRODUCTION

Stunting, or short stature in children, is a serious issue for all institutions, from the community to the government. Maternal and child mortality is partly caused by stunting. Stunting can occur from the fetal stage in the womb until the child is around two years old (Rahmadhita, 2020). The government has established a national-level program called the National Action Plan for Stunting Prevention. This program focuses on providing specific nutrition for infants from birth to the first 1,000 days of life, until the child reaches the age of six (Laili & Andriani, 2019). The issue of stunting is not something that can be resolved alone; the presence and policies of the government play a crucial role in addressing this problem.

According to the World Health Organization (WHO), stunting is caused by poor nutrition, inadequate psychosocial stimulation, and repeated infections. The WHO has established a standard deviation median for child growth, with a height criterion of more than -2. Children who meet this criterion are classified as stunted. In 2019, based on data from the Indonesian Under-Five Child Nutrition Status Survey (SSGBI), the prevalence of stunting reached 27.7%, which is still considered high, as the WHO threshold is set at 20%. Indonesia remains a country with a high prevalence of stunting among infants (Rahayu *et al.*, 2022; Dzakiy & Nugroho, 2021; Permatasari, 2020). The issue of stunting has become a global concern and is one of the targets of the Sustainable Development Goals (SDGs), which aim to eradicate hunger by 2030. Efforts to address stunting are expected to decrease annually. A key SDG objective is to ensure healthy lives and promote well-being for all aspects of life (Nirmalasari, 2020).

There are three indicators of nutritional status used as references for measuring child growth and development: weight for age (WFA), height for age (HFA), and weight for height (WFH). These indicators facilitate the categorization of children affected by stunting. It is not just based on physical appearance; a mathematical calculation is used as a guideline for categorizing stunted children (Umam *et al.*, 2022). The impact of stunting affects children's development, such as motor, cognitive, and verbal skills, resulting in suboptimal development. Children's productivity, learning capacity, and reproductive health are disrupted due to stunting. If this issue persists, children with stunting will be more numerous than those with obesity or other diseases (Ruswati *et al.*, 2021).

One study states that the number of mothers and children experiencing stunting is caused by low maternal education, with 96.7% of mothers living in rural areas and 80% of mothers living in urban areas (Sutarto *et al.*, 2018). Additionally, the education of a prospective mother is crucial for the development and growth of a child. It does not matter whether the prospective mother lives in a rural or urban area, as both areas can contribute to stunting problems. Other factors include family environmental conditions, which influence children's nutritional status (Cermeño, 2023). Family behavioral patterns can have an impact because inadequate nutrition can trigger infections (Noviana *et al.*, 2022; Santika, 2020; Sutarto *et al.*, 2018).

Research conducted by Mugiarti *et al.* (2018) found that infectious diseases, low energy intake, and low protein intake cause stunting. Therefore, this community service activity aims to provide education and an overview of stunting in children caused by inadequate and unbalanced nutrition, as well as the factors contributing to stunting, as observed during the community service. This is particularly targeted at villagers who lack information on this issue. It is hoped that this study will serve as a reference for all stakeholders to continue prioritizing children and mothers to prevent cases of child and maternal mortality due to stunting. All stakeholders must play their respective roles to create a stunting-free community environment.

### Definition of Stunting

The definition of stunting itself has evolved in tandem with changes in nutritional intake standards that have emerged in society. According to the WHO in 2015, stunting is a growth and development disorder

in children caused by inadequate nutritional intake, characterized by a height below normal. Malnutrition and stunting are two closely related problems. Poor nutrition in children is the result of a lack of nutrients in the first thousand days of life. This leads to permanent impairments in physical development, which in turn result in reduced performance (Yadika *et al.*, 2019).

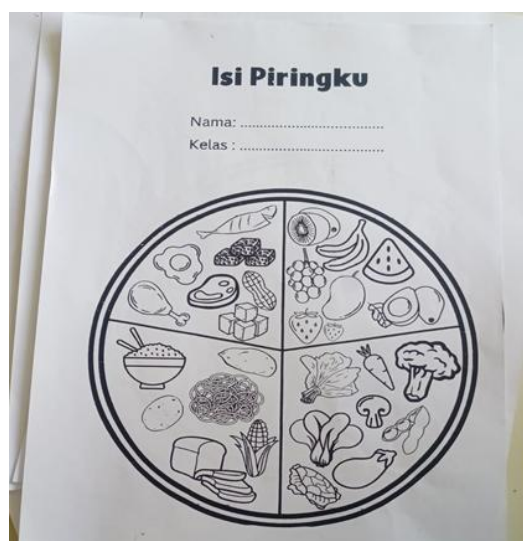
Children with developmental delays typically have a lower average IQ than their typically developing peers. Growth and development disorders in children due to malnutrition, if not treated early, will persist into adulthood. Low energy intake, infectious diseases, and inadequate protein intake can be factors that contribute to stunting (Setiawan *et al.*, 2018). Other factors contributing to stunting include limited parental education and insufficient knowledge about proper nutrition for children. Additional factors include incomplete immunization and family economic status that does not support proper nutrition (Zulaekah *et al.*, 2014). Access to water, sanitation, and a hygienic environment also contributes to stunting (Gaffan *et al.*, 2023). Consuming a variety of nutritious foods, including sweet, salty, high-protein, and fiber-rich options, is important. Engaging in physical activities to achieve an ideal body weight is also recommended. Consuming fruits and vegetables is crucial for body metabolism, maintaining immune function, and preventing free radicals that can lead to various diseases (Sibuea, 2021; Apriluana & Fikawati, 2018; Mugiarti *et al.*, 2018; Sukohar & Catur, 2016).

The government also implements PKGBM as a form of support for the prevention of stunting in children. PKGBM is a nutrition and public health project aimed at preventing stunting and malnutrition in the community. PKGBM is a planned and ongoing program designed to prevent stunting in specific areas. The expected outcomes of this program include reducing and preventing malnutrition, poor nutrition, and stunting in children, as well as increasing household income through cost savings, improved productivity, and higher earnings (Laili & Andriani, 2019).

## **Prevention of Stunting in Children**

Children under the age of three years, from birth to two years of age, are in the golden period for rapid growth and development. During this golden period, children's growth and development occur rapidly and will not be found again in other age groups (Wahyurin *et al.*, 2019; Uce, 2018). Failure in growth and development during this period will affect children's nutritional status in adulthood. Therefore, efforts to prevent stunting are being actively promoted in Indonesia, as many cases of stunting are still found in the country. One of the government's efforts is to establish a stunting prevention policy through Presidential Decree No. 42 of 2013 on the National Movement for Accelerated Nutrition Improvement, with a focus on the first 1,000 days of life, as follows: "1. Pregnant women receive at least 90 iron-folic acid tablets (Tablet Tambah Darah or TTD) during pregnancy; 2. Providing supplementary food (Pemberian Makanan Tambahan or PMT) for pregnant women; 3. Ensuring adequate nutrition; 4. Childbirth attended by a doctor or skilled midwife; 5. Promoting early breastfeeding (Inisiasi Menyusu Dini or IMD); 6. Exclusive breastfeeding (ASI) for infants up to six months of age; 7. Providing complementary foods (Makanan Pendamping ASI or MP-ASI) for infants over 6 months to 2 years of age; 8. Providing complete basic immunizations and vitamin A 9. Monitoring the growth of toddlers at the nearest health center; and 10. Implementing clean and healthy living behaviors (Penerapan Perilaku Hidup Bersih dan Sehat or PHBS)." (Yuwanti *et al.*, 2021).

## Definition of ISI PIRINGKU



**Figure 1.** Example of Isi Piringku  
Source: Author's Documentation 2023

A meal should consist of 50% fruits and vegetables, 50% carbohydrates, and protein. A balanced diet is a daily eating pattern that provides the body with the necessary nutrients, taking into account the variety of foods in a meal, physical activity, hygiene, and body weight. Balanced Nutrition in Indonesia is likened to the Balanced Nutrition Pyramid (Tumpeng Gizi Seimbang or TGS), which is relevant to Indonesian eating habits. The TGS is designed to help people choose the right types and amounts of food based on their body's needs, taking into account age (Widyaningrum *et al.*, 2021).

A balanced diet is the food we consume daily that contains nutrients necessary for the body's needs. The food we eat should include protein, fat, carbohydrates, vitamins, and fiber, found in staple foods, side dishes, fruits, and vegetables. A balanced and proper diet leads to good health. In Indonesia, there is a dual nutrition problem among children, where some children are overnourished and others are undernourished, co-occurring. This issue affects children's nutritional status. Understanding the factors causing undernutrition and overnutrition can serve as a basis for developing strategies to prevent and address nutritional problems (Astuti & Krstianto, 2015).

The principle of balanced nutrition should be applied from childhood to old age, especially for pregnant women, adolescents, and infants up to 2 years of age, as they will become the future leaders of the nation. Balanced nutrition for pregnant women is an effective measure today to prevent stunting, as if a pregnant woman is malnourished and continues to become pregnant, the fetus will also experience malnutrition, and may result in a double nutritional burden. Double malnutrition refers to undernourished children who experience growth delays, have slow growth, are prone to illness, have impaired cognitive development, and, as adults, are more likely to be overweight and at risk of developing degenerative diseases (Pratiwi, 2020).

## METHODS

The implementation of this activity is a community service initiative aimed at fulfilling the requirements of the Community Service Learning (CSL) program, conducted in Margaasih Village, Margaasih Sub-district, West Bandung Regency, over approximately 30 days from July 27, 2023, to August 27, 2023. The stages of the activity include planning, preparation, implementation, and evaluation. The objective of this activity

is to provide education on nutritious food intake to prevent the risks of stunting in children. Therefore, the community service team selected schools as the location for the educational sessions (Dewi *et al.*, 2022; Dewi & Auliyah, 2020).

In planning and preparing for this activity, the community service team identified problems in Margaasih Village and found four neighbourhood associations (RT) with stunting problems after conducting a survey and obtaining permission from the relevant parties. The team conducted direct observations to assess the children's understanding of stunting and their knowledge of nutritious food intake in Margaasih Village. Based on the results of these observations, the community service team designed an educational program targeting elementary school and kindergarten students as participants to raise awareness about the importance of nutritious food intake, thereby preventing stunting among children.

The educational activities for children as students did not take the form of direct lectures. Instead, the team adapted the activities to the students' preferences so that they could easily understand the concept of nutritious food. Therefore, the team chose coloring activities accompanied by explanations about nutritious food, conducted through question-and-answer sessions with the students. An evaluation of the activity was conducted to identify shortcomings in achieving the objectives of the educational activity among the participants (Fitri *et al.*, 2022; Wahyurin *et al.*, 2019).

## RESULT AND DISCUSSION

The socialization was conducted in two kindergartens, one early childhood education center, and one elementary school in Margaasih Village, focusing on providing materials to students. Before conducting the socialization with the students, orientation methods were carried out, including introductions, jokes, and singing. Such ice-breaking activities were necessary to ensure that the students' attention was entirely focused on the community service team. Once the students were settled, the community service team provided education on the importance of a balanced diet, using the theme "Isi Piringku" (My Plate). The theme was presented using paper materials featuring an image of a plate containing various nutritious foods such as staple foods (rice, corn, bread, noodles, and others), vegetables (broccoli, bok choy, cabbage, eggplant, and others), fruits (grapes, bananas, mangoes, and others), and side dishes (fish, tofu, tempeh, meat, and others). Then, the students were given 30 minutes to color any foods they liked and enjoyed.



**Figure 2.** Group photo at Al-Hidayah Kindergarten  
*Source: Author's Documentation 2023*



**Figure 3.** The results of the children's coloring  
*Source: Author's Documentation 2023*

Their preference can be demonstrated through various types of nutritional intake, including staple foods, vegetables, fruits, and side dishes. However, it is also known that, on average, students who are also children in Margaasih Village do not like green vegetables such as bok choy, mustard greens, long beans, cabbage, and eggplant. They prefer fruits such as bananas, mangoes, avocados, watermelons, and others. They also often mention that their parents at home frequently provide delicious, nutritious foods, such as corn, noodles, tofu, tempeh, fish, and meat. The educational activities conducted by the community service team using the "Color My Plate" method should be supplemented with real vegetables or fruits to help children better understand the illustrations provided.

## Discussion

The students, who are also children in some areas of Margaasih Village, are already aware of the importance of nutritious food. Nutritious food needs to be consumed daily by children to prevent stunting, which can lead to low IQ and growth and development disorders that persist into adulthood. In line with the findings of Zulaekah *et al.* (2014), children with delayed growth and development tend to have lower IQs compared to the average IQ of typically developing children. Growth and development disorders in children caused by malnutrition, if not addressed early, will persist into adulthood. The causes of stunting include limited parental education and insufficient knowledge about proper nutrition for children. Other factors include incomplete immunization and family economic status that does not support proper nutrition.

A nutritious diet is also essential for children to consume daily to accelerate their growth and development, ensuring they have an ideal body, a robust immune system, and protection from various diseases. In line with the opinion of Apriluana and Fikawati (2018), it is important to develop the habit of consuming a variety of nutritious foods, including sweet, salty, high-protein foods, and those rich in fiber. Increase physical activities to achieve an ideal body weight. Consuming fruits and vegetables is essential for maintaining a healthy metabolism, supporting a robust immune system, and preventing the formation of free radicals that can contribute to various diseases.

The knowledge of children in Margaasih Village regarding the importance of consuming nutritious food is expected to help reduce nutritional problems. A balanced diet is essential for the body to function correctly. A balanced diet must include protein, fat, carbohydrates, vitamins, and fiber. A balanced diet is the food we consume daily that contains nutrients necessary for the body's needs. The food we eat should contain protein, fat, carbohydrates, vitamins, and fiber, found in staple foods, side dishes, fruits, and vegetables. Consuming a balanced and nutritious diet will lead to good health.

However, this problem of balanced nutrition can lead to a new problem in Indonesia, namely double malnutrition, where nutritional imbalances co-occur. This nutritional imbalance means that there are well-nourished children and malnourished children. In line with Litaay's statement in her book, "Kebutuhan Gizi Seimbang," the problem in Indonesia is that children experience both excessive and inadequate nutrition simultaneously. This problem will affect children's nutritional status. Understanding the factors causing malnutrition and overnutrition can serve as a reference for developing strategies to prevent and address nutritional problems (Ula *et al.*, 2021).

The counseling provided to children in this school aims to instill in them an understanding of the importance of nutritious food for their future growth and development. In line with the statement by Wahyurin *et al.* (2019), children under the age of three, or from birth to two years of age, are in a golden period for rapid growth and development. During this golden period, children's growth and development occur rapidly and will not be found again in other age groups. Failure of growth and development during this period will affect children's nutritional status in adulthood. Therefore, efforts to prevent stunting are being intensified in Indonesia, as the country still experiences a significant number of stunting cases.

Therefore, introducing nutrition to children through the "My Plate" concept is important because "My Plate" is a guide to healthy eating for children, consisting of a plate containing nutritionally balanced foods. In line with the statement by Akbar & Aidha (2020), "My Plate" is a guide developed by the Ministry of Health to promote food consumption within the framework of balanced nutrition guidelines. In each meal, half of the plate should be filled with vegetables and fruits, while the other half should contain the main dish and side dishes. Thus, the "My Plate" concept not only regulates the types of food and beverages that should be consumed at each meal but also provides information on portion sizes needed to meet daily nutritional requirements.

The guidelines on "My Plate" include precise measurements for children's nutritional needs, ensuring their growth and development are not disrupted. In line with the statement by Widyaningrum *et al.* (2021), a meal should consist of 50% fruits and vegetables and 50% carbohydrates and protein. Balanced nutrition is a daily eating pattern that provides the body with the necessary nutrients, taking into account the variety of foods in a meal, physical activity, hygiene, and body weight. Balanced Nutrition in Indonesia is symbolized by the Balanced Nutrition Pyramid (TGS), which aligns with Indonesian dietary habits. The TGS is designed to help the public select the appropriate types and quantities of food based on their body's needs, taking into account age (Widyaningrum *et al.*, 2021).

Nutrition education on balanced nutrition for young children is expected to instill good eating habits in children, so that the next generation of the nation will be intelligent and competent. In line with Pratiwi (2020) statement, the principle of balanced nutrition should be applied from childhood to old age, especially for pregnant women, adolescents, and infants up to 2 years of age, as they will become the future leaders of the nation. The principle of balanced nutrition for pregnant women is an effective measure today to prevent stunting, as if pregnant women are malnourished and continue to become pregnant, the fetus will also experience malnutrition, and may result in a double nutritional burden. Double malnutrition refers to children who are malnourished and experience growth delays, slow growth, frequent illnesses, and impaired cognitive development. As adults, they are more likely to be overweight and at risk of developing degenerative diseases (Pratiwi, 2020; Munthe, 2022).

## CONCLUSION

Based on the results and discussion, it was concluded that children in Margaasih Village, aged 4-12 years, have not received optimal education about balanced nutrition as a preventive measure against stunting. This is due to a lack of socialization by parents and their play environment. Children are not typically taught about the health benefits of consuming green vegetables. Additionally, some children have been identified as stunted, and efforts have been made to prevent further stunting. Therefore, through the community service activities conducted, it is hoped that the surrounding community of Margaasih Village will pay more attention to children's nutritional intake to prevent the recurrence of stunting.

## AUTHOR'S NOTE

We would like to express our gratitude to those who have supported our community service activities, especially Margaasih Village. The authors declare that there are no conflicts in this writing and that the research data is free from plagiarism.

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