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Physical activity education to prevent stunting and anemia in SDN Setiawarga

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ABSTRACT

Stunting is an important problem to solve because it has risks to human resource potential. It can even cause death in children. The impact caused by stunting on health in toddlers is that children have a smaller brain volume than healthy toddlers, underweight can also inhibit cognitive and motor development, and adults are susceptible to metabolic disorders. This service aims to provide an understanding to the Indonesian people so that they know the dangers of stunting, especially for students at SDN Setiawarga. Based on the results of the Survey Status Gizi Indonesia (SSGI), Indonesia was at twenty one point six percent in 2022; this figure is still considered high according to WHO, which targets stunting rates to be no more than twenty percent. This activity is implemented through offline socialization, presentations, and questions and answers. From the results of the socialization that has been carried out, it is hoped that it can improve the habits of SDN Setiawarga students, get them used to doing simple physical activities, and help them implement a healthy lifestyle in their daily lives.

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ABSTRAK

Stunting merupakan masalah yang penting untuk diselesaikan karena memiliki risiko dalam potensi sumber daya manusia. Hal tersebut bahkan dapat menyebabkan kematian pada anak. Dampak yang disebabkan oleh stunting dalam kesehatan pada balita berupa anak memiliki volume otak lebih kecil dibanding balita sehat, berat badan yang kurang juga dapat menghambat perkembangan kognitif dan motorik dan saat dewasa rentan mengalami gangguan metabolik. Pengabdian ini memiliki tujuan untuk memberikan pemahaman kepada masyarakat Indonesia agar masyarakat sadar akan bahaya stunting khususnya kepada para peserta didik di SDN Setiawarga. Di Indonesia sendiri berdasarkan hasil Survei Status Gizi Indonesia (SSGI) berada di angka dua puluh satu koma enam persen pada tahun 2022, angka ini masih dinilai tinggi menurut WHO yang menargetkan angka stunting untuk tidak lebih dari dua puluh persen. Metode pelaksanaan kegiatan ini melalui sosialisasi secara luring, presentasi dan juga tanya jawab. Dari hasil sosialisasi yang telah dilakukan, diharapkan dapat meningkatkan kebiasaan para peserta didik SDN Setiawarga untuk membiasakan diri melakukan aktivitas fisik sederhana dan menerapkan pola hidup sehat di kehidupan sehari-hari.

Kata Kunci: anemia; aktivitas fisik; stunting

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INTRODUCTION

Stunting is a form of growth faltering caused by the accumulation of malnutrition over a prolonged period, from pregnancy to 24 months of age. This condition is exacerbated by the lack of adequate efforts to catch up on growth. Stunting is a nutritional status based on the weight-for-height (WHZ) or length-for-height (LZ) index, where in the anthropometric standards for assessing children's nutritional status, the measurement results fall below the 2nd percentile (short/dwarf) and the 3rd percentile (very short/dwarf) (Damayanti et al., 2023).

In addition to poor nutritional status, stunting can also be caused by anemia, which is a global public health issue. Approximately one-third of the world's population is affected by anemia. It is associated with increased morbidity and mortality, particularly among women and children. In pregnant women, anemia may lead to adverse birth outcomes, decreased productivity, and cognitive as well as behavioral developmental disorders in children (Kusnadi, 2021). These effects are generally due to reduced blood volume, low hemoglobin levels, and the narrowing of blood vessels to optimize oxygen delivery. Similar to stunting, anemia can impair children's development and reduce their overall productivity.

In Cimahi City, stunting is a top priority that must be addressed immediately. According to the Electronic Community-Based Nutrition Recording and Reporting System (e-PPGBM) in 2022, there are still 3,036 infants suffering from stunting (9.70%), while based on the Indonesian Nutrition Status Survey (SSGI) on the website katalog.data.go.id, the prevalence of stunting in the city of Cimahi is 16.4%. This has prompted the Department of Women's Empowerment, Child Protection, Population Control, and Family Planning (DP3AP2KB) of Cimahi City to continue implementing various efforts aimed at accelerating the reduction of stunting rates in Cimahi City.

Physical activity is one of the factors that influence the occurrence of stunting in an individual (Purwanto & Rahmad, 2020). In the past, many children's games involved physical activities such as running, jumping, and other movements. However, with the advancement of technology, many children have shifted to online games that require minimal physical movement. Physical activity enhances the body's resistance to illness and helps build the immune system (Alfirdaus & Susanto, 2021). This benefit is most noticeable when physical activity is performed regularly. During physical activity, muscles require a significant amount of energy to perform various movements such as running, jumping, and others. Therefore, periodically engaging in physical activity supports children's physical growth.

The implementation of a healthy lifestyle is also closely related to the prevention of stunting. Currently, many people do not pay enough attention to balanced nutrition. Previous research has discussed the importance of implementing a healthy lifestyle by paying attention to nutrition and exercising regularly (Marselina et al., 2023). Additionally, research on stunting was conducted in Lubuk Agung Village, where awareness-raising activities were carried out effectively, providing explanations about stunting and methods for preventing it (Zufriady et al., 2023).

Signs that indicate that a toddler is experiencing stunting include a decrease in the child's growth rate. In addition, stunting not only interferes with physical growth but also affects the child's cognitive development, intelligence, and mental growth. This is a problem that must be addressed by the government and local communities because once a child is identified as stunted from infancy, it becomes difficult to reverse and persists into adulthood (Hasanah et al., 2023). Therefore, understanding stunting must be instilled as early as possible to serve as long-term prevention and to cultivate healthy lifestyle habits.

Various measures have been taken by the government to reduce the high rate of stunting. However, these measures have not been implemented evenly (Setiavi & Julyandini, 2024). On the other hand, the lack of understanding, awareness, and concern among students regarding healthy living patterns is one of the

issues that needs to be addressed immediately. This lack of awareness undoubtedly harms the health levels of students at SD Negeri Setiawarga. In light of this issue, concrete action in the form of health education for students at SD Negeri Setiawarga is necessary. Therefore, it is necessary to implement community service activities that have a positive impact not only on the personal health of the community but also accelerate the reduction of stunting rates in Cipageran Village, thereby improving the health and well-being of the community in Cipageran Village, Cimahi Utara Subdistrict, Cimahi City. This study aims to educate students at SD Negeri Setiawarga about the prevention of stunting.

Literature Review

Stunting

Stunting is the most common form of malnutrition affecting prenatal and early postnatal infants. Stunting is a condition in children under five years of age who weigh below the standard height or length (Aurima *et al.*, 2021; Hatijar, 2023). Additionally, stunting is also related to the mother's size and nutrition during pregnancy and fetal growth. The occurrence of stunting in children under five years of age is an indicator of chronic malnutrition, reflecting the general socioeconomic conditions of the past and can have irreversible effects on the first two years of a child's life (Dermawan *et al.*, 2022). Stunting is measured based on height or length that is more than two standard deviations below the average of the World Health Organization (WHO) Child Growth Standards. In the future, children who experience stunting will face difficulties in achieving optimal physical and cognitive development (Rusliani *et al.*, 2022).

Other factors contributing to stunting include inadequate nutrition from the womb and throughout early childhood, lack of access to health services, and limited access to clean water and sanitation (Martony, 2023; Priyono, 2020). Nutritional deficiencies in children can result in stunted physical growth, increased pain, impaired mental development, and can lead to death (Hasanah *et al.*, 2023). Children suffering from stunting are at risk of reduced mental capacity, low productivity, and the likelihood of degenerative diseases in the future.

The effects of stunting can be divided into short-term and long-term effects (Yulianti *et al.*, 2024). Short-term effects include increased morbidity and mortality, suboptimal cognitive, motor, and verbal development in children, and increased health costs. Long-term effects include suboptimal body posture during puberty (shorter than average), increased risk of obesity and other diseases, reduced reproductive health, suboptimal learning ability and academic performance, as well as suboptimal productivity and work capacity. Given the long-term and short-term effects that impact children's growth, it is essential to implement stunting prevention measures from an early stage.

Anemia

Anemia is a condition in which the hemoglobin (Hb) level in the blood is below the normal value for the relevant population (Arifah *et al.*, 2022). Physiologically, anemia occurs when there is an insufficient amount of hemoglobin to transport oxygen to the tissues (Ahzani & Kurniasari, 2024). Iron-deficiency anemia is common among adolescent girls due to increased iron requirements during growth. Iron-deficiency anemia is the most common type of anemia among adolescents, due to the high iron requirements for growth (Yunita *et al.*, 2020; Mirani *et al.*, 2021). Symptoms of anemia typically include dizziness, fatigue, and a lack of energy for activities. Additionally, blood loss during menstruation increases the risk of anemia.

Nutritional imbalance is also a cause of anemia in adolescent girls. Adolescent girls are usually very concerned about their body shape, so many of them reduce their food intake and impose many dietary restrictions (Maryusman *et al.*, 2020; Rosida & Dwihesti, 2020). The effects of anemia on adolescent girls

include stunted growth, a more diminutive stature during the growth period, increased susceptibility to infections, leading to reduced physical fitness and health, and impaired academic performance, as anemia in adolescent girls can reduce concentration levels. Adolescent girls with anemia are 1.875 times more likely to achieve lower educational outcomes compared to those without anemia (Renaldi *et al.*, 2024).

Teenage girls are at risk of anemia, particularly iron deficiency anemia. This occurs because adolescence requires higher nutritional needs, including iron, for growth and development. Teenage girls are more susceptible to anemia than teenage boys, as they experience menstruation every month (Wahyuni, 2024; Widyaningrum & Setiyaningrum, 2024). Factors associated with iron-deficiency anemia include parental education, household income, adolescents' knowledge and attitudes toward anemia, dietary intake levels, menstrual patterns, and the prevalence of anemia among adolescent girls (Husna & Saputri, 2022).

Physical Activity

Physical activity encompasses all activities that cause an increase in energy expenditure, resulting in sweating (Merita *et al.*, 2018). Physical activity is essential for maintaining physical and mental health, and it can help preserve quality of life, enabling individuals to remain healthy and fit throughout the day. Physical activity can improve balance, flexibility, mental health, and quality of life in complex ways (Hilinti, 2024). Regular activity can increase stamina and prevent obesity. There are two types of physical activity: active and passive (Putro & Winarno, 2022). Someone who falls under the “active” category is someone who engages in a series of moderate or vigorous physical activities, or both. In contrast, someone who falls under the “inactive” category is someone who engages in moderate or intense physical activities only occasionally or not at all (Mangapi *et al.*, 2024).

Physical activity offers both physical and biological benefits, as well as psychological and mental benefits. The physical and biological benefits include maintaining normal blood pressure, enhancing the body's resistance to illness, maintaining an ideal body weight, strengthening bones and muscles, improving bodily flexibility, and enhancing overall physical fitness. The psychological and mental benefits of physical activity include reducing stress, boosting self-confidence, fostering a sense of sportsmanship, cultivating a sense of responsibility, and building social solidarity. Healthy behavior can be effectively implemented if supported by three factors: 1) Predisposing factors, which include knowledge, attitudes, beliefs, values, and norms; 2) Enabling factors, which originate from the physical environment and health facilities; and 3) Reinforcing factors, which stem from the attitudes and behaviors of healthcare workers (Sangbunthuk & Thiangchanya, 2015).

METHODS

This activity was carried out through socialization. Socialization is a means of influencing someone through the process of knowledge transfer (Hasanah *et al.*, 2023). Socialization was carried out offline by holding face-to-face meetings with the target students of Setiawarga Public Elementary School. The socialization technique took the form of a presentation on physical activities for stunting prevention, which was followed by a question-and-answer session. The activity was conducted on August 21, 2023.

The stages involved in this community service program are divided into three parts: planning, implementation, and monitoring and evaluation. In the planning stage, the implementation team coordinates with SD Negeri Setiawarga regarding the activity plan and requests permission to carry out the activity. A socialization stage follows this. The final stage is evaluation, which aims to improve future activities. The activities carried out include outreach and mentoring focused on conveying the importance of engaging in physical activities as an initial step toward improving health outcomes, as part of efforts to accelerate the reduction of stunting cases in the Cipageran neighborhood.

RESULTS AND DISCUSSION

Kuliah Kerja Nyata (KKN) is a community service activity carried out by students to contribute to a village, one of which involves creating a beneficial program for the targeted village. This year's community service implementation by the UPI KKN team involved activities in Cipageran Village, Cimahi City. During the activity planning phase, the UPI KKN team conducted surveys and coordinated with the Setiawarga State Elementary School to finalize the activity plan, also seeking permission to carry out the activities at the school. This was done to identify issues that could be addressed through a specific activity program.

After discussing with the SD Negeri Setiawarga, the UPI KKN team decided to educate students at SD Negeri Setiawarga, Cipageran Village, Cimahi City, about the importance of physical activity as a form of early prevention of stunting. The UPI KKN team conducted this outreach program for sixth-grade students. Based on the UPI KKN team's observations, the female students reported symptoms such as feeling weak and lacking energy. Symptoms of anemia include weakness, fatigue, lethargy, dizziness, headaches, and blurred vision (Kusnadi, 2021). Additionally, the students rarely engage in physical activities such as sports. Therefore, the UPI KKN team conducted an education session on the importance of basic physical activities for the students, as a step they can take to prevent anemia and as an early preventive measure against stunting issues.



Figure 1. Socialization at SDN Setiawarga
Source: Author's Documentation 2023

In Figure 1, the UPI KKN team conducted an awareness campaign about physical activity to prevent anemia and stunting. This began with an explanation of the symptoms of anemia, healthy lifestyle habits, and stunting. Especially now, there are many types of snacks available, but many of them are not suitable for one's health. Furthermore, the long-term effects of anemia can include having children who are stunted.

Therefore, the UPI KKN team conducted an awareness campaign related to anemia, healthy lifestyles, and stunting. This material is closely related and aims to prevent these issues through early education.

During the outreach program, the UPI KKN team demonstrated simple physical activities that can be done, such as walking around the house for 10-15 minutes, followed by 15 minutes of jogging. The UPI KKN team emphasized that even light physical activity can be beneficial to health if done regularly. This is because it makes the body feel more fit and minimizes pain during menstruation.

After the UPI KKN team explained the importance of engaging in simple physical activities, the students gained a better understanding that even simple physical activities can help prevent stunting from an early age. Additionally, these efforts aim to improve overall health to prevent anemia, especially during the menstrual phase. If menstrual bleeding is excessive, it can lead to iron-deficiency anemia. Furthermore, the UPI KKN team also educated the students about maintaining a clean and healthy lifestyle. This was done to raise students' awareness of the importance of adopting a clean and healthy lifestyle as a preventive measure against contracting diseases in their surroundings.



Figure 2. Socialiaztion at SDN Setiawarga
Source: Author's Documentation 2023

In Figure 2, the students appear enthusiastic after the socialization session. This socialization provides students with knowledge that can be applied in their daily lives to cultivate healthy living habits. Next, the KKN UPI team evaluated the socialization activities that had been carried out, focusing on the shortcomings of the socialization to identify areas for improvement in future activities. The evaluation stage is necessary so that socialization activities in other places can be more interactive and targeted.

Discussion

A healthy lifestyle is a crucial step in maintaining overall well-being. This can be achieved by consuming nutritious foods, such as vegetables and fruits, and engaging in regular physical activity (Atmaja *et al.*, 2021). This healthy lifestyle must be consistently practiced until it becomes a habit, as healthy habits are highly effective in preventing various health issues, including stunting in children (Wiranata, 2020).

Stunting is a chronic nutritional deficiency that often affects children. It is a condition characterized by delayed height growth compared to normal age. Factors causing stunting include inadequate nutritional intake, infectious diseases, poor sanitation, and unhealthy lifestyles (Dharmayani *et al.*, 2022). One way to prevent stunting is through physical activity, which can help improve bone and muscle quality and support optimal child development. Physical activity is also crucial for maintaining energy balance in the body through a balanced intake of nutrients and expenditure (Reswari *et al.*, 2024; Fitrah & Putriningtyas, 2024; Ramadhani *et al.*, 2024).

Additionally, a clean and healthy lifestyle can be achieved through a combination of regular exercise, a balanced diet, and sufficient sleep. A healthy environment must support good personal health. Therefore, health education should be instilled in children from an early age, enabling them to grow into a health-conscious generation (Marselina *et al.*, 2023). A healthy body not only provides physical benefits but also supports a calm and positive mindset.

Anemia is also one of the challenges that needs to be addressed, especially among adolescent girls. Anemia caused by iron deficiency can affect physical stamina, concentration, and academic performance (Maharani, 2020; Lestari *et al.*, 2023). Teenage girls who experience menstruation require adequate iron intake to prevent anemia, as they are at risk of iron-deficiency anemia due to blood loss during menstruation. Irregular menstrual cycles can indicate underlying health issues, including anemia. To address this, the regular administration of Iron Supplement Tablets (IST) is effective in increasing hemoglobin levels and preventing anemia (Amir & Khusarisupein, 2019; Meikawati *et al.*, 2022).

Thus, adopting a healthy lifestyle, engaging in regular physical activity, and consuming a balanced diet are important steps in preventing various health problems, including stunting in children and anemia in adolescent girls. Health education efforts are also key to improving the quality of life of individuals and communities.

CONCLUSION

Socialization activities were carried out as an effort to prevent stunting and improve the health of adolescents. Socialization activities regarding physical activity and healthy lifestyles are important to implement. This is done to raise students' awareness from an early age so that they can better understand their physical condition. Additionally, students are becoming increasingly concerned about stunting, which has long-term effects, and iron-deficiency anemia among adolescent girls due to menstruation. Through these awareness campaigns, it is hoped that students will become more enthusiastic about engaging in simple physical activities and adopting healthy lifestyles in their respective homes.

AUTHOR'S NOTE

The authors declare that there are no conflicts of interest related to the publication of this article. The authors confirm that the data and content of the article are free from plagiarism.

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