

The Effects of Nutritious Food on Stunting

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Abstract:

Stunting is a problem of chronic malnutrition for a long time which interferes with children's growth so that children are shorter than their legal age. This study aims to analyze the effect of nutritious food on stunting in Sukodadi Village, the working area of the Paiton Health Center, Paiton District, Probolinggo Regency. This study used an experimental design with a total sampling technique form of all 30 stunted toddlers in Sukodadi Village. Research instruments in the form of questionnaires and anthropometry. The data is processed by editing, coding, and tabulating techniques. The results showed that additional food in the form of quail eggs had been distributed to all respondents. However, only 26 respondents (87%) have consumed it regularly and correctly. The other four respondents failed to consume properly and continued to experience stunting. So, there is an effect of nutritious food on stunting in Sukodadi Village, with a p-value: of 0.001. The author suggests that the results of this study can be applied in other areas by providing additional food in the form of quail eggs to prevent stunting.

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INTRODUCTION

Stunting or shortness is a health problem often found in developing countries, including Indonesia (Unicef, 2017). Stunting is a chronic malnutrition problem caused by a lack of nutritional intake for quite a long time, resulting in impaired growth in children, namely, the child's height is lower or shorter (dwarf) than the standard age (Ministry of Health of the Republic of Indonesia, 2018a). Stunting is a condition in which a toddler has an insufficient height or length (Kurniyawan et al, 2023). Stunting causes detrimental functional consequences for the future of toddlers, such as the increased risk of cognitive problems, loss of productivity, and being left behind in education or school (Rudolfo et al., 2022; Ardiana et al., 2021).

Based on the Decree of the Minister of Health of the Republic of Indonesia Number 1995/MENKES/SK/XII/2010 concerning Anthropometric Standards, the assessment of a child's nutritional status is a condition where the results of measurements of Body Length for Age (PB/U) or Height for Age (TB/U) are between -3 SD to -2 SD. If the results of PB/U or TB/U measurements are below -3 SD, it is called very short (severe stunting) (Directorate General of Nutrition and Maternal and Child Health Development, 2011).

Short problems in children will hinder the development that will continue in life in the future. This is because about 70% of brain cell formation occurs from when the fetus is still in the womb until the child is two years old. If the brain is experiencing growth disturbances, the number of brains cells, cell fibers, and brain cell connectors will decrease greatly. This causes a decrease in

intelligence (Trihono et al., 2015; Ardiana et al., 2020). Studies that have been conducted show that short children are closely related to poor school performance. Short children have a greater risk of growing into adults who are less educated and more susceptible to infectious diseases (Unicef, 2017). The short-term adverse effects caused by stunting are disruption of brain/intelligence development, metabolic disorders in the body, and disruption of physical growth (Carolyn et al., 2021). Children with stunting will experience impaired cognitive, physical, intellectual, and mental development, so children cannot learn optimally (Novelia et al., 2021).

Based on a 2017 survey by the East Java Provincial Health Office (Ministry of Health of the Republic of Indonesia, 2018b), an estimated 653 thousand children under five are rate stunted based on the 2021 prevalence calculation. In Probolinggo Regency, East Java, the stunting is quite high. According to data from Basic Health Research (Riskesdas) (Firmansyah, 2018, Ardiana et al, 2019), the stunting in this district reaches 39.9%. This means that 4 out of 10 toddlers in Probolinggo District experience chronic malnutrition. In 2013, the stunting rate in Probolinggo Regency even reached 49.9%. Nearly half of the toddlers in this district suffer from stunting. This is inversely proportional to the existence of an advanced economic growth sector in Probolinggo Regency, the largest power plant in Asia, located in Sukodadi Village, Paiton District.

From the data taken by the author directly from the Paiton Health Center, there were 60 cases of stunting in the working area of the Paiton Health Center. Then, in Sukodadi Village itself, there are 35 stunted toddlers, which means more than 50% of the total stunted in the Paiton working area are in this village. After assistance from nutrition officers and local health facilities, the food that toddlers in Sukodadi Village routinely consume is in the form of healthy snacks, namely quail eggs containing 13.1 protein, 11.1 fat, and 1.0 protein content. This study aims to analyze the effect of nutritious food on stunting in Sukodadi Village, the working area of the Paiton Health Center, Paiton District, Probolinggo Regency.

METHOD

This study used an observational analytic research design with an experimental. The data collected comes from the LB3 Report and the monthly report of Sukodadi Village, Paiton District in 2021. In this study, researchers looked for the influence of the independent variable which became a risk factor, namely nutritious food (quail eggs), and the dependent variable, which became the effect, namely the incidence of stunting under five in Sukodadi village, Paiton Health Center Working Area, Probolinggo Regency from April to June 2022. This study used a total sampling technique with a sample of stunted in the working area of the Sukodadi Village Health Center. The research instrument was a questionnaire with 10 questions on a yes and no rating scale and anthropometry to measure a form of malnutrition characterized by height that does not match age.

The data is processed by editing, coding, and tabulating techniques. Data were analyzed by: (1) univariate analysis; frequency distribution and (2) bivariate analysis; with chi-squares. To draw conclusions, H1 is accepted if the p value $\leq \alpha$ with $\alpha = 0.05$ and Ho is accepted if the p value $> \alpha$ with $\alpha = 0.05$.

RESULT

Respondents' Characteristics

Table 1. Toddler-Stunting Mothers' Characteristics based on Age, Education, and Occupation (n=35)

Variables	Frequency	Percentage
Age		
20-25 years	13	43
26-30 years	8	27
31-35 years	6	20
>35 years	3	10
Educational background		
Elementary School	4	13
Junior High School	4	13
Senior High School	19	63
University	3	10
Occupation		
Housewife	26	70.6
Farmer	1	20.6
Entrepreneur	3	8.8

Bivariate Analysis Results

Table 2. The Relationship between Preeclampsia and the Incidence of Premature Labor

Providing Supplementary Food	Incidence of Stunting				Total		p-value
	No		Yes				
	n	%	n	%	f	%	
Given	25	83.3	1	3.3	26	100	0.001
Not given	0	0	4	13.3	4	0	
Total	25	83.3	5	16.6	30	100	

DISCUSSION

From the data above, the results obtained were a p-value of 0.001. Most respondents received PMT (supplementary food) as quail eggs, namely as many as 26 respondents (87%). Meanwhile, 4 respondents (13.3%) still need to get regular and correct supplement food of quail eggs. The four respondents (13.3%) include all toddlers who have not experienced a significant increase in height or are still short.

During the implementation of the *Posyandu* (integrated service post), every stunted gets PMT in the form of quail eggs to meet their nutritional needs. However, only 26 respondents gave PMT in the form of quail eggs properly and regularly at home, and the rest did not provide it regularly because mothers under five were busy working as farmers or entrepreneurs. Therefore some respondents did not experience a significant increase in height or were still stunted.

In addition to the irregular provision of quail eggs, a total of 5 toddlers are still experiencing stunting due to their improper diet and pattern of giving PMT. This is also influenced by upbringing, which is influenced by the level of education and age of parents. The higher the level of parental education, the lower the risk of stunting. In addition, the more mature the age of a parent, the lower the risk of stunting.

According to the researchers, one of the successes in increasing 25 toddlers to not being stunted was related to the fulfillment of the protein contained in quail eggs. Breast milk is the best source of nutrition for babies aged 0-6 months (Pakilaran et al., 2022). This is in line with research conducted by Sutarto, Mayasari, and Indriyani, Sutarto et al. (2018), which found that stunting can be prevented by; (1) meeting the nutritional needs of pregnant women; (2) giving babies exclusive breastfeeding until the age of 6 months, and after 6 months of age they are given complementary food in sufficient quantity, and quality; (3) monitor the growth of toddlers in Posyandu; and (4) Increasing access to clean water and sanitation facilities, as well as keeping the environment clean.

The most dominant factor related to the incidence of stunting in toddlers is the parenting style of feeding. Toddlers from mothers with low-feeding parenting styles tend to be 6 times more likely to cause stunting in toddlers than mothers with high-feeding parenting styles (Dayuningsih et al., 2020). Research on stunting can be further developed by applying PMT as quail eggs to other Puskesmas work areas that have high stunting.

CONCLUSION

From the research, nutritious PMT in the form of quail eggs has been distributed to 30 respondents (100%). After the PMT distribution, stunting still occurred in 5 respondents (17%). Therefore, H1 is with the evidence that there is an effect of nutritious food on stunting in the Working Area of the Sukodadi Village Health Center, Paiton District, Probolinggo Regency with $p=0.001$.

For educational institutions, the authors suggest that the results of this study can be used as information material regarding health education. In addition, research results can be used as a reference and evaluation in teaching and learning activities. For the midwifery profession, the results of this study show the importance of nutritious PMT in the form of quail eggs for the incidence of stunting in the Working Area of Sukodadi Village, Paiton Health Center, Probolinggo Regency. This PMT can reduce the prevalence of stunting, which can be applied in the working areas of other health centers throughout Indonesia.

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