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The Potential of PMT Made from Anchovies to Increase the Growth of Toddlers who Experience Stunting

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Abstract

Stunting is a condition that a person's height is shorter than the height of other people in general. Adverse effects that can be caused by short-term stunting such as impaired brain development, intelligence, impaired physical growth and metabolic disorders in the body. This type of research is a quasi-experimental design with a nonequivalent control group design. The population is all stunting toddlers in Bandengan Village. A sample of 79 children under the age of 5 years 39 children as the case group and 40 children as the control group were given PMT 4 times a week for 1 month, the results of the study There were differences in height in the treatment group before and after treatment with ap value of 0.001, and there was a difference in height in the control group before and after treatment with ap value of 0.0001. However, in the different test between the two groups there was no difference in growth with ap value of 0.258. It is recommended that further research monitor other factors that affect stunting.

Keywords

anchovies; stunting; supplementary feeding

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Introduction

Children are every family's dream. Apart from that, every family also hopes that their children will grow optimally (physically, mentally/cognitively and socially healthy), to be proud of and to be useful for their religion, homeland and nation. (TELAUMBANUA, 2019). As national assets, children must receive attention from the time they are in the womb until they become adults(Soetjiningsih, 2013).

Future Indonesian children must be healthy, intelligent, creative and productive. If children are born healthy, grow well and are supported by quality education, they will become the generation that will support the success of nation building. (Tobing et al., 2021).

Indonesia is still facing nutritional problems which have a serious impact on the quality of Human Resources (HR). (Bima, 2019). One of the nutritional problems that is currently a major concern is the prevalence of stunting in children under five.(Ramadhan et al., 2019). The results of the 2017 Nutritional Status Assessment (PSG) by looking at the nutritional status of toddlers based on the Height/Age Index (TB/U) showed that toddlers aged 0-59 months were very short at 9.8%, short at 19.8(Rahmadhita, 2020). This figure has increased compared to the PSG results in 2016 with the percentage of very short toddlers at 8.6% and short at 19.0%. Meanwhile, among toddlers aged 0 - 23 months, the percentage of very short is 6.9% and short is 13.2%. The percentage of stunting/shortness (very short and short) in the toddler group (29.6%) was higher than in the toddler group (20.1%). The incidence rate in Central Java Province in toddlers aged 0 - 59 months is very short, 11.2% and stunting 20.1%. Meanwhile, in toddlers aged 0 - 23 months, the incidence of very shortness was 13.9% and shortness of 19.4%. (Kemenkes RI, 2018).

Methods

The type of research is quasi experimental designwith a nonequivalent control group design. The population in this study were all stunted toddlers in Bandengan Village. The sampling technique was total sampling, so the entire population was a sample of 79 children under 5 years of age, 39 children as the treatment group and 40 children as the control group. This research is a supplementation, in its implementation intervention was given in the form of PMT 4 times a week for 1 month in both groups.

Results and Discussion

Respondent Characteristics

Based on table 1, most of the respondents were aged between 24 - 36 months in both the treatment and control groups. The research results also showed that the majority of respondents were male for each group, namely 56.4% and 55%. Regarding family income characteristics, the distribution of the two groups is different. In the control group, the largest percentage of family income was below the UMR, namely 70%, while in the treatment group the largest percentage in the family income group was at the level equivalent to the UMR, 61.5%.

Height growth will increase during infancy, then slow down and increase again during puberty until it stops at around 18 – 20 years of age.(Alifariki, 2020).

In this study, the majority of respondents were male. In the treatment group and control group, the percentage of men was 56.4% and 55% respectively. From the results of this research, it shows that the majority of children who experience stunting are male. The gender of the child is related to the achievement of growth and development due to differences in growth spurts in girls and boys(Sulistyawati, 2018). The growth and development of girls progresses more significantly than boys, namely during the period from birth until puberty ends(Santri et al., 2014).

Based on the research results, the ave-

Table 1. Characteristics of Respondents

Respondent Characteristics	Kel Intervention (Anchovy Meatballs)		Kel Control (Catfish Meatballs)	
	n	%	n	%
Toddler Age				
< 24 months	11	28.2	9	22.5
24 – 36 months	28	71.8	31	77.5
Gender				
Man	22	56.4	22	55
Woman	17	43.6	18	45
Family Income				
Below UMR	13	33.3	28	70
Minimum wage	24	61.5	11	27.5
Above the UMR	2	5.1	1	2.5

Table 2. Difference Test in Control Group and Treatment Group

Independent Variable	Wilcoxon	Mann Whitney	α = 0.05	Conclusion
Treatment Group Growth (Pre and Post)	0.001	-	p < 0.05	There is a difference
Control Group Growth (Pre and Post)	0.0001	-	p < 0.05	There is a difference
Difference in Growth of Control and Treatment Groups	-	0.258	p > 0.05	No difference

rage family income in both groups is in the UMR and below UMR categories. Family income has an important role in the family's socio-economic life structure. Children who grow up in economically poor families are prone to malnutrition compared to other family members(Nadiyah et al., 2014).

Growth of Stunting Toddlers

Table 2 explains that there are differences in the treatment groups, before and after being given the intervention, namely anchovy meatballs. The results of the different tests in the control group also showed that there were differences before and after being given the intervention in the form of catfish meatballs. This means adding additional food in the form of anchovies and catfish as an important source of protein toddler growth (Riestamala et al., 2021). Providing protein-based foods is related to a child's growth, a lack of protein intake over a long period of time can cause the growth process to stop (Rahmawati et al., 2017). Toddlers' nutritional intake is important to support their growth according to their growth charts to prevent growth failure which causes stunting(Kemenkes RI, 2018). Research by Solihin et al (2013) shows that there is a significant positive relationship between the level of protein adequacy and nutritional status in children under five (Solihin et al., 2013). This statement is different from research by(Hanum et al., 2014)that there is a negative relationship between the level of protein adequacy and the nutritional status of children under five(Hanum et al., 2014).

The results of the difference test in the two groups showed that there was no difference between the treatment group given anchovy meatballs and the control group given catfish meatballs. Both animal

protein foods both contribute good protein for the growth of toddlers, but each has advantages and disadvantages (Anggun, 2018). Rusyantia's research showed that there was no significant relationship between the frequency of fish consumption and the incidence of stunting. The statement is not significant because the frequency variable can only measure the frequency of frequently consuming fish, but does not measure the amount of protein consumed, especially from fish(Rusyantia, 2018).

Conclusion

The results of this study showed that there was no significant difference between the control group given catfish meatballs and the treatment group given anchovy meatballs. Further research is needed to determine the factors that influence growth in toddlers, as well as assessing the increase in growth in stunted toddlers over a longer period of time.

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