

Giving Nuggets (Libertry) of Broccoli, Eel, Anchor, Against the Growth of Stunting Children in 2019

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ABSTRACT

Keywords:

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Stunting is a major nutritional problem that will have an impact on social and economic life in society. There is clear evidence that individuals who are stunted have a higher mortality rate. Stunting will affect physical work performance and mental and intellectual functions will be impaired (Mann and Truswell, 2012). This is also supported by Jackson and Calder (2004) who state that stunting is associated with impaired immune function and increases the risk of death. So that high protein is needed to stimulate the growth of toddlers with stunting by using foods that have high protein such as anchovies, eels and broccoli. Food and nutrition are factors that are closely related to efforts to improve the quality of human resources. People who have fulfilled their needs with balanced nutritional quality are better able to participate in development. Food and nutrition problems are complex problems and are interrelated with one another. Several approaches are used in determining food and nutritional status assessments by assessing consumption and eating habits as well as assessing the nutritional status of a particular area or group. Each region has food and nutrition problems that are different from other regions. The area where the population lives also determines the consumption pattern of the community (Augustyn, 2002). To fulfill the dietary pattern of children under five requires an innovation in research to fulfill the nutrition of children in the form of naget (libertri) giving programs, namely broccoli, anchovies and eels. The research objective was to identify whether giving nuggets could increase the growth of toddlers with stunting. Research method using quasi experiment. Research results There was a significant difference in the mean z-score of TB / U before and after treatment in the group given the libertarian nugget, with a p-value of 0.000 (p <0.05). There was a significant difference in the growth of stunting children who were given nuggets and those who were not given nuggets. The increase in the nutritional status of toddlers from very short to short and from short (stunting) to normal, namely 36%. Meanwhile, in the control group there was an increase of 4%.

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1. Introduction

The incidence of short children or commonly known as stunting is one of the nutritional problems experienced by toddlers in the world today. In 2017, 22.2% or around 150.8 million children under five in the world were stunted. In 2017, more than half of stunting children in the world came from Asia (55%) while more than a third (39%) lived in Africa. Of the 83.6 million stunted children under five in Asia, the largest proportion came from South Asia (58.7%) and the lowest proportion was in Central Asia (0.9%) (BJDKes, 2018)

Stunting prevalence data for children under five collected by the World Health Organization (WHO), Indonesia is included in the third country with the highest prevalence in the Southeast Asia / South-East Asia region (SEAR). The average prevalence of stunting under five in Indonesia in 2005-2017 is 36.4%.

Nutritional intake in children under five is very important in supporting growth according to the growth chart so that there is no growth failure which can cause stunting. In 2017, 43.2% of children under five in Indonesia experienced an energy deficit and 28.5% experienced a mild deficit. For protein adequacy, 31.9% of children under five had a protein deficit and 14.5% had a mild deficit. To meet the nutritional adequacy of children under five, a special supplementary feeding program (PMT) has been implemented for stunting toddlers in the form of local PMT in the form of nuggets (libertri).

The results of the research by Suiroka and Nugraha (2011) show that there is an influence between energy, protein and vitamin A consumption and the incidence of stunting in children under five. Energy and protein consumption is very influential on the growth and development of children

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under five and the body's resistance to infectious diseases. Low energy and protein consumption will put children under five at risk of stunting.

Provision of protein with processed products will encourage toddlers to want to consume protein, one of the techniques is making nugget. Based on the results of interviews with mothers who have toddlers with stunting, 10 mothers did not know about giving protein, so the mother told the researchers the difficulty of consuming protein foods to toddlers aged 24-59 years. So that researchers are interested in making a nugget product (libertri) for the growth of stunting toddlers in the work area of the bandar khalipah health center in 2019.

Nutrition is a major problem and especially for the incidence of short children under five or commonly known as stunting is one of the nutritional problems experienced by children under five in the world today. In 2017, 22.2% or around 150.8 million children under five in the world were stunted. In the year of

2017, more than half of stunting children in the world come from Asia (55%) while more than a third (39%) live in Africa. Of the 83.6 million stunted children under five in Asia, the highest proportion came from South Asia (58.7%) and the lowest proportion in Central Asia (0.9%) (1)

Stunting prevalence data for children under five collected by the World Health Organization (2) Indonesia is included in the third country with the highest prevalence in the Southeast Asia / South-East Asia region (SEAR). The average prevalence of stunting under five in Indonesia in 2005-2017 is 36.4%.



Fig 1. Condition of nutritional status in Indonesia

Based on these data, to meet the nutritional adequacy of children under five, a special supplementary feeding program (PMT) has been implemented for stunting toddlers in the form of local PMT, namely in the form of nuggets (libertri).



Fig 2. Press Stunting With Improved Nutrition

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The effect of energy consumption, protein and vitamin A with the incidence of stunting in children under five. Energy and protein consumption is very influential on the growth and development of children under five and the body's resistance to infectious diseases. Low energy and protein consumption will put children under five at risk of stunting (3).

Provision of protein with processed products will encourage toddlers to want to consume protein, one of the techniques is making nuggets. Based on the results of interviews with mothers who have stunted children, 10 mothers did not know about giving protein so that the mothers told the researchers the difficulty of consuming protein foods to toddlers.

24-59 years. So that researchers are interested in making a nugget product (libertri) for the growth of stunting toddlers in the work area of the bandar khalipah health center in 2019. The problem statement in this study is whether there is "giving nuggets (libertri) to the growth of stunting toddlers in the work area of the bandar khalipah puskesmas in 2019? .

This research is very important to do, because the problem regarding protein deficiency in stunting children greatly affects the growth of children under five with stunting and is a topic of problems in children's health both in the world and in Indonesia in particular. To reduce this figure, the public needs to understand what factors cause stunting (conditions of growth failure in children (body and brain growth) due to malnutrition for a long time, one of which is protein deficiency, so that children are shorter than normal children of their age and have delays. This research has a strong correlation / relevance to the university roadmap, namely Maternal Reproductive Health and Child Nutrition.

2. Method

The research objective was to identify whether giving nuggets could increase the growth of toddlers with stunting. Research method using quasi experiment. The results of this study are expected to provide improvements in influencing the growth of toddlers with stunting. Then the research can add to the mother's insight in easy and practical food processing in giving protein to stunting toddlers.

3. Results & Analysis

The characteristics of children under five based on age and sex of 50 under five in the treatment group and 50 under five in the control group can be seen in table 1 below:

Table 1.
Distribution of Children by Age and Gender

Karakteristik	Kelompok Perlakuan (yang diberi Nugget Libertri)		Kelompok Kontrol	
	n	%	n	%
Jenis Kelamin				
- Laki-laki	27	54,0	19	38,0
- Perempuan	23	46,0	31	62,0
Umur				
- 13-24 bulan	13	26,0	18	36,0
- 25-60 bulan	37	74,0	32	64,0
Jumlah	50	100,0	50	100,0

Based on table 1 above, it is known that the sex in the treatment group was obtained by 54% male and 46% female. While in the control group, most of the girls (62.0%). The age characteristics of the treatment group were mostly in the 25-60 month age group at 74.0%, and in the control group most of them were 25-60 months (64.0%).

The characteristics of mothers under five based on age, education and occupation of 50 mothers under five in the treatment group and 50 mothers under five in the control group can be seen in the following table:

Table 2.
Distribution of Mother Characteristics by Age, Education and Occupation

Karakteristik	Kelompok Perlakuan (yang diberi Nugget Libertri)		Kelompok Kontrol	
	n	%	n	%
Umur				
- <20 tahun	9	18,0	3	6,0

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Karakteristik	Kelompok Perlakuan (yang diberi Nugget Libertri)		Kelompok Kontrol	
	n	%	n	%
- 20-30 tahun	22	44,0	22	44,0
- 31-40 tahun	19	38,0	25	50,0
Pendidikan				
- SMP	21	42,0	19	38,0
- SMA	24	48,0	26	52,0
- Perguruan Tinggi	5	10,0	5	10,0
Pekerjaan				
- Bekerja	27	54,0	20	40,0
- Tidak Bekerja	23	46,0	30	60,0
Jumlah	50	100,0	50	100,0

Based on table 2, it can be seen that the distribution of maternal age from the treatment and control groups has differences, but as a whole it is included in the age group of women of reproductive age (15-49 years), in the treatment group most of the age group is 20-30 years of 44.0 % and the control group mostly aged 31-40 years amounted to 50.0%, which means the productive age. In terms of education, the average number of mothers in the treatment group was mostly with high school education, followed by elementary and junior high school education, a small proportion with tertiary education. Likewise in the control group, mostly with high school education, followed by junior high and elementary schools, a small proportion of universities.

Nutritional Status According to Height / Age of Treatment Group (Given Libertry Nugget)

Based on the results of z-score measurements using anthropometry, the assessment of nutritional status in toddlers who were given libertry nuggets obtained nutritional status (TB / U) with the following details:

Table 3.
Nutritional Status According to TB / U Treatment Group

Status Gizi(TB/U)	Sebelum Perlakuan (Pre tes)		Sesudah Perlakuan (Post tes)	
	n	%	n	%
SangatPendek	9	18,0	6	12,0
Pendek	28	56,0	16	32,0
Normal	13	26,0	28	56,0
Jumlah	50	100,0	50	100,0

Based on table 3, it can be seen that the nutritional status according to height / age has changed after treatment. This table illustrates that there was a change in nutritional status based on the Z score of TB / U where after the intervention there was a shift from very short to short by 16 children (32%) and from short to normal as many as 28 children (56%)

Nutritional Status According to TB / U Control Group (Not Given Libertri Nugget)

Based on the results of z-score measurements using anthropometry, the assessment of nutritional status in the control group (toddlers who were not given libertry nuggets) obtained nutritional status (height / age) with the following details:

Table 4.
Nutritional Status According to TB / U Control Group

Status Gizi(TB/U)	Sebelum Perlakuan (Pre tes)		Sesudah Perlakuan (Post tes)	
	n	%	n	%
SangatPendek	0	0,0	0	0,0
Pendek	23	46,0	21	42,0
Normal	27	54,0	29	58,0
Jumlah	50	100,0	50	100,0

Based on table 4 it can be seen that the nutritional status according to height / age in the control group also changed, but not significantly. The change in nutritional status of children under five increased from 23 short toddlers to 21 toddlers (42%) and from 27 normal children to 29 normal toddlers (58%).

3.1 Bivariate Analysis

Bivariate analysis of Z-Score TB / U before and after treatment in the treatment group and the control group

After giving it for 6 months and weighing it every month using a weigh and measuring device for height, the results of the data obtained can be analyzed using the Wilcoxon test to determine the

differences in nutritional status of toddlers before and after treatment in the treatment group (given the libertarian nugget) control group. the results of data analysis can be seen in the following table:

Table 5.
Wilcoxon Test in the Treatment and Control Groups

Z-ScoreTB/U	Kelompok Perlakuan (yang diberi Nugget Libertri)		Kelompok Kontrol	
	Sebelum	Sesudah	Sebelum	Sesudah
Rata-Rata	-2,664	-2,138	-2,080	-1,962
Standar Deviasi	1,170	1,078	,6325	,6233
Minimum	-6,4	-5,0	-3,0	-3,0
Maximum	-0,2	0,3	-0,5	-0,3
Z (Wilcoxon)		-4,243		-1,414
p-value		0,000		0,157
MeanDifferent		-0,526		0,118
N		50		50

Based on table 5 above, it can be seen that the treatment group (which was given a libertarian nugget) had an average Z-score TB / U before treatment of -2.664. After the treatment of libertarian nuggets, the Z-score TB / U value decreased a minus value to -2.138. The results of statistical tests showed a p-value (0,000) <0.05, so it can be concluded that there was a significant difference in the mean z-score of TB / U before and after treatment in the group given the libertarian nugget.

Whereas in the control group is the group (which is not given a libertarian nugget), the average z-score at the beginning of the measurement is -2.080 and the final measurement is -1.962 meaning that in the control group there is also a change in the average z-score, however The change is not significant because the p-value is 0.157 (p> 0.05).

Analysis of the Differences in the Growth of Stunting Toddlers in the Treatment Group (Given a Nugget and the Control Group (Not Given a Nugget))

Analysis of the differences in the growth of stunting toddlers who were given nuggets and those who were not given nuggets using the Mann Withney test statistical test is a non-parametric test used for differences in the growth of stunting children who were given nuggets and those not given nuggets can be seen in the following table:

Table 6.
Mann Withney Test in the Treatment Group and the Control Group

Data	Peningkatan Status Gizi	
	Kelompok Perlakuan (Yang diberi nugget libertri)	Kelompok Kontrol
Tetap	32 (64%)	48 (96%)
Meningkat	18 (36%)	2 (4,0%)
Z (<i>mann withney</i>)		-3,980
p-value		0,000
N		50

Based on table 6 above, it can be seen that in the treatment group (which were given liberal nuggets) there was an increase in the nutritional status of toddlers from very short to short and from short (stunting) to normal, namely by 36%. Meanwhile, in the control group there was an increase of 4%. The results of statistical tests with the Mann Withney test showed a p-value (0.000) <0.05, so it can be concluded that there was a significant difference in the growth of stunting children who were given nuggets and those who were not given nuggets.

Differences in Z-Score TB / U before and after intervention in the treatment group and the control group

This study gave the results that the treatment group (which was given a libertarian nugget) had an average Z-score TB / U before treatment of -2.664. After the treatment of libertarian nuggets, the Z-score TB / U value decreased a minus value to -2.138. The results of statistical tests showed a p-value (0,000) <0.05, so it can be concluded that there was a significant difference in the mean z-score of TB / U before and after treatment in the group given the libertarian nugget.

This research is also in line with Juhartini's (2016) study regarding the provision of additional food with biscuits and mixed food ingredients for weight loss and TB of malnourished children in the Kalumpang City Ternate Health Center in 2015 for 30 days with significant results where underfives experienced an average increase. TB of 1.04 cm, an increase in TB of 0-0.5 cm in 9 children under five and an increase in TB> 1 cm in 2 children under five. Likewise, the research of

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Syarfaini et al., (2016) where elementary school children experienced an average increase in TB of 0.54 cm when given tempeh nuggets with snakehead fish substitution for 1 month.

From some of the studies mentioned above, it is evident that the provision of additional food such as libertric nuggets in this study will increase the TB of children who are stunted, the acceleration of TB increment in this study is possible because the provision of additional food made from fish, anchovies containing protein, calcium and high zinc. However, this study was pre-posttest, so the increase in TB that was achieved was probably not only due to supplementary feeding but also by other factors such as the child's main food consumption.

Differences in the growth of stunting toddlers who were given nuggets and those who were not given nuggets

In table 4.6 above, it can be seen that after the Mann withney test was carried out, it can be seen that in the treatment group (which was given a liberal nugget) there was an increase in the nutritional status of toddlers from very short to short and from short (stunting) to normal, namely 36% . Meanwhile, in the control group there was an increase of 4%. The results of statistical tests with the Mann Withney test showed a p-value (0.000) <0.05, so it can be concluded that there was a significant difference in the growth of stunting children who were given nuggets and those who were not given nuggets.

This situation shows that giving interventions to empower mothers or to improve their abilities in knowledge about giving libertry nuggets whose composition includes broccoli, anchovies and eels will increase the intake of protein, calcium, and zinc. The increase in nutritional intake also increases the growth of TB in stunting children.

In line with Mazengia's research, Biks (2018) who stated that maternal education is an important risk factor for stunting in Indonesia, South China and Abeokuta, Southwest Nigeria. Mothers who have good education and knowledge will have the ability to receive knowledge and be more open to new information provided so that they have a better understanding of nutrition and health. Knowledge becomes one of the factors that can increase greater authority at home and can increase productivity to improve and improve the nutritional status of families and children. Therefore, increasing knowledge will increase women's ability to provide family food, this is one method to reduce stunting rates.

This study is also in line with research by Alaofe et al., (2017) which conducted research on maternal empowerment in the Kalaly district, North Benin, where the results of the study provide a positive association of empowering women (mothers) with dietary diversity, where mothers can work synergistically with a food-based approach to improve food quality, so there is a need to strengthen the role and confidence of mothers in their families.

4. Conclusions

Based on the results of the research and discussion that has been described, it can be concluded that: There is a significant difference in the average z-score TB / U before and after treatment in the group given the liberty nugget, with a p-value of 0.000 ($p < 0.05$) and there was a significant difference in the growth of stunting children who were given nuggets and those who were not given nuggets. The increase in the nutritional status of children under five from very short to short and from short (stunting) to normal, namely 36%. Meanwhile, in the control group there was an increase of 4%.

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