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The Effect of Giving Cookies-Based Local Food on The Body Weight of Stunting Toddlers With Underweight

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Abstract

Based on Indonesian nutritional status survey report in 2021 the incidence of underweight (weight according to age) nationally in 2021 is 17.0%, an increase of 8% from 2019, for the West Nusa Tenggara provincial level at 23.0%, it ranks 26th out of 34 provinces, and at the regency level in 2021, Dompu regency is 10.9% while at the Puskesmas level, East Dompu health center contributes 19.11%. The purpose of study is to analyze effect of giving cookies-based local food on the body weight of stunting toddlers with underweight. This research was conducted in O'O Village, Dompu regency, with data collection and intervention carried out from 4 May to 8 May, 2022. This type of research is a Quasi-Experimental study with one group pre-and post-test design. The sample that meets the inclusion requirements is as many as 21 people. Four stars cookies are given for five days, one pack per day containing six pieces. The analysis used the paired T-test. The results showed that there was an average toddler weight gain of 0.45 kg during the intervention, and statistically, with different trials, there was a significant difference ($p<0.05$). Although there are significant results from this study, this study has a weakness in the number of intervention days, which is too short, so that to get a body weight that is by the recommended dietary allowances (RDA) has not been achieved, and it is necessary to increase the number of administrations to meet the requirements for giving supplemental feeding program.

Keywords: Cookies; Stunting; Underweight

INTRODUCTION

The national underweight incidence rate will increase by 8% in 2021, and West Nusa Tenggara Province will exceed the national figure (23.0%), and Dompu regency contribute by 10.9%. Toddler food supplement is nutritional supplementation in the form of additional food in the form of biscuits with a unique formulation and fortified with vitamins and minerals given to infants and toddlers aged 6-59 months who are underweight. For infants and children aged 6-24 months, this additional food is used with complementary foods for breast milk. The supplemental feeding program is an intervention program for malnourished children everywhere to improve the nutritional status of children and to meet the nutritional needs of children in order to achieve a nutritional and nutritional status that is suitable for these children. Irwan Nuryani's research (2019) results show that giving modified nutritional supplementation based on local wisdom can be an alternative program for eradicating stunting and malnutrition in villages. For example, in O'O Village, Dompu regency, West Nusa Tenggara, nutritional supplementation was given to toddlers as porridge, and 66.09% did not finish it. Based on this, nutritional supplementation was made based on local food ingredients with regionally specific ingredients adapted to local conditions in the form of thumb cookies, which children can directly hold while

eating, which can help the child's motoric development process. Besides, mothers can make these cookies them selves because they use materials that are available in place and known by the community.

METHOD

This research used quasy experimental study design by using one grop pre-test and post-test design. It was conducted for one month in May 2022 and took place in O'o Dompu regency. The data collection was cerried out in Dompu regency, study included humans as subjects with an ethic aprroval number : LB. 01.03/6/3979/2022. The research subjects were toddlers age 6-59 months with underweight, the sample meets the inclusion requirements it as many 21 people. Giving four stars cookies is given five days one pacj per day containing 6 pieces (256 kkal energy, 7 gr protein)

The data collected in this study include primary data and secondary data.

Primary

a. Data on characteristics of children (name of children under five, age, gender, and weight before and after)
b. Data on characteristics of respondents (age, gender, education, occupation, monthly family income).
c. Intake data before and after giving cookies four star.

Secondary

Data obtained without making observations included here is an overview of the research location and data on the number of children under five.

RESULTS AND DISCUSSION

1. Overview of subjects

Table 1 . Characteristics of a sample by age and gender,

Characteristics of respondents		n	%
Age	subjects-3 years	19	90.5
	4-5 years	2	9.55
	Total	21	100
Gender	Male	8	38.1
	Female	13	61.9
	Total	21	100

The government efforts to overcome malnutrition and under nutrition have been carried out since 1998. Where if there is an incident or case finding, they must be immediately referred, and free of charge, recovery, and treatment are carried out. In addition, efforts have been made to provide supplemental feeding program and other treatments for recovery. However, all these efforts have not been able to reduce the incidence of malnutrition and malnutrition (Iskandar, 2017). From the sample of this research, a total of 21 samples were taken, with eight male samples and 13 female samples.

The age used in this study is from the age range of 6 - 59 months, but after taking samples and those who meet the inclusion criteria, the sample's age criteria are 24 - 48 months. Previous research conducted by Zinul Arifin (2015) shows that there is a pattern that means that giving cookies affects changes in children's weight, especially children aged 3-5 years. This can be because, at this age, children can choose the type of food they like both in terms of texture, color, aroma, and taste.

2. General description of respondents

Table 2. Characteristics of respondents by age, gender, occupation, education, and monthly income

Characteristics of respondents		n	%
Age	20-30 yrs	17	80.9
	31-50 yrs	4	19.1
Gender	Male	-	
	Female	21	100
Education	Graduated from junior high school	7	33.3
	Graduated from high school/equivalent	12	57.2
	Diploma/undergraduate	2	9,5
Work	Farmer	16	76.2
	Civil Servant	-	
	Self Employed	5	23.8
The family income per month	Rp 1,500,000,-	18	85,7
	Rp 1,500,000,-	3	14,3

In this study, the age of respondents was grouped into 2, namely those aged 20-30 years and 31-50 years, and the majority of respondents, namely 20-30 years old, amounted to 80.95%, which is a productive age in reproduction. However, the characteristics of the mother's age do not significantly affect the nutritional status of the children. This is in line with the research conducted by Bonita Rizki Ayu Mukti (2017) in the thesis "Relationship of Young Mother Parenting Patterns with Toddler Development Age 212-36 Months in the Saptosari Gunung Kidul Health Center" that there is no relationship that shows changes in improving child care patterns with age. Mother and showed a very weak correlation.

Respondent's education in this study is more in high school education, namely 57.14%, junior high school graduates as much as 33.33%, and the rest for undergraduate level 9.52%. The higher the education of the mother, the better the situation and the nutritional status of their children. This is also supported by the results of research conducted by Destia hayyu dini et al., 2017 that there is an influence of the level of education of parents/mothers on changes in the nutritional status of children and parenting in the family.

This study is also in line with research conducted by Baculu (2017), which states that there is a relationship between a mother's knowledge and an increase in the nutritional status of toddlers, where mothers with high knowledge will be better able to prepare good food for their children.

Parents have different ways of parenting their children. Boys and girls have different feelings of empathy for others. A family is a place where children will be able to have or get a sense of empathy from both parents. This has a massive impact on children's development, especially in their social environment. ,2018).

In this study, 100% of the respondents from the sample were mothers of children under five because the general reason was that everything related to parenting, especially eating habits, was the mother.

The job characteristics of the respondents in this study are primarily farmers, especially field farmers, which are 76.19%, and entrepreneurs, in this case, those who trade, either have a grocery store or vegetable traders and other businesses, are 23.80%.

At a first glance, when it is seen in everyday life that the work of parents will affect the nutritional status of children because if parents have a good job, they will indirectly get a good income, so they can meet the food needs of their household (Ronasari Mahaji Putri. et al., 2017).

One of the characteristics of the family is seen from the income of the family, and if one family is in the middle to lower economic status, it is very likely that the availability of food is minimal and will affect the nutritional intake of the family, especially toddlers (Supariasa et al., 2012).

Family income is very influential on our daily consumption. The proportion of children experiencing malnutrition is inversely proportional to family income. The smaller the family income, the greater the chance of malnutrition. Poverty is one of the socio-economic problems. In addition, a dense, unhealthy place to live, the availability of clean water is also a factor in the occurrence of nutritional problems, one of which is malnutrition (Sodikin et al., 2018).

In this study, families with an income of 1,500,000 rupiah amounted to 85.71%, and those with an income of Rp 1,500,000 amounted to 14.28%. So it can be concluded that there are still many residents in O'o Village who are still of low economic status, so that which affects the availability of food in the household apart from other contributing factors.

3. Nutrient intake before and after administration cookies four stars

Table 3. Intake energy, protein, fat, and carbohydrates before and after the intervention.

Nutrients	Food Intake		Difference
	Before	After	
Energy	866.24	820.49	45.75 kcal
Protein	38.78	35.70	3.08 g
Fat	44.04	41.37	2.67 g
Carbohydrates	90.18	75.83	14.35 g

Referring to nutritional adequacy rate according to the Minister of Health Regulation No. 28 of 2019 concerning the recommended nutritional adequacy rate for the Indonesian people, there has not been any change in nutritional status for all subjects because it is still below the standard for the Nutrition Adequacy Rate according to age and is still in the underweight. After calculating based on the results of the toddler's food intake record conducted before and after the intervention, the difference in the subject's food intake for energy was 45.75 kcal, for protein 3.08 g, for fat 2.67 g, and for carbohydrates 14. ,35 g. From the difference in the addition of the intake of energy, protein, fat, and carbohydrates above, it is seen that there is an increase in intake, and it is hoped that this increase in intake will come from the consumption of cookies.

Another reason could be because the subject, before giving the intervention, showed that his intake was still below the RDA, so although there was an increase in the difference in energy intake before and after, it had not reached the level of intake according to the Nutrition Adequacy Rate in accordance with the recommended (visit). In addition, because the intervention time is still short; namely five days, to several existing research journals, the average time for giving an intervention to get maximum results is at least 14 days of intervention, as in research conducted by Dian Septiana. , et al. (2017).

Efforts have been made to increase the nutritional intake of undernourished toddlers in O'o Village, namely by giving four star cookies, a modification of thumb, a form of supplemental feeding program issued by Dompu Regency, especially for stunting management because it consists of high food ingredients—protein source. From the results of research conducted for the average intake of supplemental feeding program based on the requirements for giving supplemental feeding program, which is as much as 300-400 kcal from daily food intake, it is also still lacking, which is still 59.4 kcal, and for protein, it still has to be met around 2.1 g. This is reinforced by research conducted by Iskandar et al., 2017 on the effect of feeding modified food on the nutritional status of toddlers showing significant results in improving the nutritional status of toddlers from undernourished to normal nutritional status. This result is further strengthened by Irwan et al. (2020) that the modified

form of supplemental feeding program will give more value to the number of nutrients that are important to improve the nutritional status of children from undernourished to normal.

4. The effect of giving cookies on children's weight and nutritional status before and after an intervention.

Table 4. Paired T-test results of giving cookies on weight and nutritional status before and after intervention

Variables	Giving Cookies				
	n	Mean	SD	t-count	Sig.(2-tailed)
Changes in weight					
before	21	-0.447	0.4805	-4.043	0.001
After	21				
Changes in nutritional status					
Before	21	-0.414	0.483	-3.926	0.001
After	21				

After the paired sample test was carried out, there were significant results from giving these 4-star cookies to weight gain, seen from the results obtained that the provision of four star cookies was significant to the sample's weight gain. This increase in body weight can be seen from the probability p-value of 0.05, or the 95% confidence level. The difference in the average body weight before and after the administration of modified supplemental feeding program was 0.447 kg.

This research was strengthened by Irwan et al. (2020) in a study entitled "Effectiveness of giving modified supplemental feeding program based on local wisdom to improve the nutritional status of undernourished and stunting toddlers" that the change in body weight was due to the intake of energy and protein derived from the modified supplemental feeding program that was administered. Consumption by toddlers during the intervention was carried out apart from the leading food.

However, to achieve a weight gain of at least 0.5 kg/week in this study, adequate intake was needed, both from main meals and snacks, to help children achieve average weight according to the age of toddlers.

CONCLUSION

The intake before and after the intervention given 4 Star Cookies looks significant with a value of 0.00 < 0.05, although there is a difference in the intake before and after the intervention. Seen from energy intake, namely 45.75 kcal/day, protein 3.08 g. /day, fat 2.67 g/day and carbohydrates 14.35 g/day. The results of the paired sample test with a probability value of 0.00 (p-valiue<0.05) showed a significant effect on giving cookies to toddlers' body weight before and after the intervention. Moreover, for the nutritional status variable by, calculating the t-count value produces a probability of 0.01 (p-value <0.05), which means that the intervention of four-star cookies has a significant effect on changes in the nutritional status of children under five before and after the intervention, The difference between the average body weight before and after giving 4 Star Cookies was 0.447 kg.

The weakness of this study is that the intervention time is still short, so although there is a significant weight gain, the intake based on the Nutritional Adequacy Ratio is still in deficit. To improve the nutritional status of toddlers, especially undernourished toddlers, it is hoped that the provision of cookies can be made routinely, not only as supplemental feeding program during integrated services point implementation, but can also be used as additional food for recovery given within 90 HMA.

To fulfill the requirements for giving supplemental feeding program, increasing the

number of calories of cookies by 59.4 kcal is necessary.

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