

Original Article

Improvement Of Nutritional Status Of Children Age 3-5 Years Through Giving Additional Food Of Dangke Chips

Mikawati^{1*} | I Kade Wijaya²

^{1,2}STIKES Panakkukang
Makassar, Jl. Adhiyaksa
No.05 Makassar, Indonesia,
90243 - Indonesia

***contact**

mikawatirasyid@gmail.com

Received : 01/05/2021
Revised : 01/06/2021
Accepted : 20/07/2021
Online : 23/07/2021
Published : 31/07/2021

Abstract

Nutrition problem is essentially a public health problem. Various efforts to improve nutrition have been made, one of which is by providing nutritious and preferred supplementary food for children. The purpose of this study was to examine the increase in the nutritional status of children through the provision of additional food for dangke chips to children aged 3-5 years in the working area of Puskesmas Tamamaung Makassar. This research method is a Quasi-experimental one group pre-post test design, the method of taking the sample in this study is non-probability sampling with convenience sampling technique and the number of samples is 9 respondents. Dangke chips were given for 4 weeks and followed up every 2 weeks to evaluate the improvement in nutritional status. There were differences score?in the nutritional status of children under five before and after giving dangke chips with the Z-Score indicator BW / U week I ($p = 0.003$), week II ($p = 0.001$). Giving Dangke Chips for 4 weeks can improve nutritional status based on weight / age. It is advisable for parents to find alternatives to provide additional nutritious food that is preferred by the child to fulfill the nutritional status of the child.

Keywords

Supplementary Food, Dangke Chips, Nutritional Status, children aged 3-5 years?

INTRODUCTION

Nutritional problems are essentially a public health problem, but the prevention cannot be done with a medical approach and health services alone, so that the causes of nutritional problems are multifactorial, therefore it requires an approach to overcome them by involving various related sectors (1) Previous research has shown that the prevalence of undernutrition and malnutrition among children under five in Indonesia is around 18.63% in 2007-2013 (Basic Health Research (2), and is scattered in various provinces with the lowest incidence rate in Riau Islands, DI Yogyakarta, DKI Jakarta, and East Kalimantan (<30%) and the highest in East Nusa Tenggara (> 50%), while in South Sulawesi, especially in the city of Makassar, the prevalence of malnutrition in 2013 was

23.5% and malnutrition was 4.6% (2). In the city of Makassar, especially in the District of Panakkukang, in 2013 the prevalence of under-nutrition was 548 under-five and malnutrition was 193 under-five (BPPS Sul-Sel 2014). Based on a preliminary survey conducted in the working area of Puskesmas Tamamaung, Makassar City, the nutritional status of toddlers aged 0 - 5 years, namely in 2014 there were 24 malnutrition, 154 malnutrition, 2671 good nutrition, and 12 overnutrition with a target number of 2881 toddlers (Puskesmas Profile 2014).

Various efforts to improve nutrition have been carried out, one of which is by providing additional food including complementary foods, providing nutritional supplements, monitoring and overcoming malnutrition. Even though in reality there are still many cases of malnutrition and malnutrition, we should appreciate some of the efforts that have shown bright spots. For example, the provision of zinc supplements which can reduce the frequency of diarrhea, and the provision of complementary foods with biscuits and chips can improve nutritional status (3). As a result of the lack of consuming nutritious food in children under five will experience impaired growth and brain development, decreased resistance to disease, increasing the morbidity and risk of death which is quite high (4). In Makassar City, especially in Enrekang Regency, there is a traditional food known as Dangke which is one of the processed products from cow's milk or buffalo milk. Dangke is a kind of shock-free product, and is not coagulated with rennet but with papain (papaya sap). Dangke which is produced in South Sulawesi is generally consumed as a side dish. Dangke products have features as traditional products of Enrekang Regency, so that product characteristics need to be maintained. The nutritional content contained in dangke chips is very beneficial for the body because it contains a lot of nutritional value, including; carbohydrates, proteins, fats, and calcium so that they can provide energy in the body, form in the process of growing bones and teeth, for the growth and maintenance of body cells, the preparation of hormones, antibody substances, and other organelles (5).

The results of previous research related to the provision of additional food (PMT) in children aged under five show that giving PMT mashed rice and complementary foods with breast milk (anchovy and non-anchovy biscuits) can increase weight growth in malnourished children (3,6). Providing a different menu proves that supplementary feeding can improve nutritional status in children. Meanwhile, research on the provision of additional food in the form of snacks or snacks in the form of chips that are preferred in children aged 3-5 years has not yet been found, even though children of this age are very at risk of experiencing nutritional disorders given the characteristics of lazy children to eat quickly get bored with types of food and prefer to play. The purpose of this study was to examine the effect of giving additional food “ kripik dangke” on nutritional status in children aged 3-5 years.

METHODS

The research was a quasi-experimental one group pretest-posttest. design for 4 weeks and a follow-up of 2 weeks to identify the effectiveness of supplementary feeding in the form of “dangke chips” on improving the nutritional status of children aged 3-5 years. The dependent variable in this study is the nutritional status of children under



five, the independent variable is the provision of additional food for dangke chips (PMT-KD).

It was conducted from 15 February to 13 March 2018 in Tammamung Public Health Center. The population in this study were mother age above 20 and having children aged 3 to 5 years old, the child has not had indigestion for at least the last 2 months, and willing to be given additional food in the form of dangke chips. This Exclusion criteria were children with milk allergies, children who were hospitalized, died during the program and moved domicile, and children who stopped consuming dangke chips during the study period (4 weeks).

Samples that met the inclusion criteria were 20 respondents and those who took part in the dangke chips supplementary feeding program were only 9 respondents.

In this study, before being given dangke chips, they were distributed to respondents who were selected samples. The sequence of research procedures is as follows: Before the approval sheet is submitted to the respondent, the researcher provides an explanation of the research objectives. After the respondent understands the research objectives, the respondent is asked to be willing to fill in and sign the consent form.

Dangke chips were given for 4 weeks to identify the effectiveness of giving dangke chips to improving children's nutritional status (BW / U), dangke chips to be given to respondents and collecting plastic dangke chips that had been used up every day to find out how obedient the mother or caregiver was and how much Dangke chips that are spent. In addition, to determine adherence in giving dangke chips, interviews were carried out and weight measurements were carried out every 2 weeks during the intervention period of 4 weeks.

Primary data were collected by means of visits, observations, examinations, and interviews that were collected including sample identity, anthropometric measurements of height and weight using an infantometer with an accuracy of 0.1 cm and body weight using a weighing scale with an accuracy of 0.1 cm. From anthropometric measurements, the initial nutritional status was determined before giving dangke chips.

Data analysis used descriptive statistical analysis to describe the characteristics of the subject and nutritional status. The difference in z-score before and after treatment was analyzed using the ANOVA test.

RESULTS

Characteristics of Research Subjects

Table 1 shows that most of the subjects in this study, 55.6% were at the age of 3 years and as many as 55.6% were male.

Table 1: Characteristics of Study Subjects according to age and sex

Characteristics	n	%
Age		
3 years	5	55.6
4 years	1	11.1
5 years	3	33.3
Gender		
Women	4	44.4
Man	5	55.6

Table 2. Regarding the effect of “kripik dangke” on nutritional status (Z-Score BW / U), it is found that giving “kripik dangke” has an effect on changes in nutritional status with the Z-Score indicator BW / U in week I (p = 0.003) and week II (p = 0.001).

Table 2: Category of nutritional status (Z-Score BB / U)

Time	Mean±SD	Change Mean±SD	CI 95%		p*	
			Lower	Upper		
Z-Score		40,71±6,20				
	Pre Test	41,58±6,66	-0,87±0,20	-1,35	-0,40	0,003
	Week I					
	Post test	40,71±6,20	-1,25±0,22	-1,77	-0,73	0,001
	Week II	41,96±6,32				

Table 3 show the effect of dangke on nutritional status (Z-Score TB / U), it is found that giving “kripik dangke” has an effect on changes in nutritional status with the Z-Score TB / U indicator in week I (p = 0.003) and week II (p = 0.001).

Table 3: Category of nutritional status (Z-Score TB / U)

Time	Mean±SD	Change Mean±SD	CI 95%		p*	
			Lower	Upper		
Z-Score		-1,16±1,13				
	Pre Test	-0,76±1,38	-0,40±0,09	-0,61	-0,18	0,003
	Week I					
	Post Test	-1,16±1,13	-0,58±0,11	-0,85	-0,32	0,001
	Week II	-0,57±1,26				

* Repeated Anova Test

DISCUSSION

Based on the BB / U indicator, nutritional status can be grouped into malnutrition, malnutrition, good nutrition and excess nutrition (7). Based on table 2, it shows that giving dangke has an effect on changes in nutritional status with the Z-Score indicator BB / U at week I (p = 0.003) and week II (p = 0.001).

The food that children eat must contain energy, building blocks and regulators. These three substances can come from carbohydrates, protein, fat, vitamins, minerals and water (8). A balanced nutritional diet is needed in the form of breastfeeding and correct complementary feeding, when the child is one year old, the growth rate begins to slow down, but motor development increases, the child begins to explore the environment around walking around, jumping, running and so on. However, at this age, children often experience health problems and are prone to infectious diseases, such as ARI and diarrhea so that children need high nutrition and balanced nutrition for optimal growth and development (4). That by consuming 100 selected Dangke per day can contribute 19.59% of daily protein needs, based on PMT-AS standards this has met the standard needs (5). In the 3-5 year age range, children often refuse to eat what they don't like and only choose foods they like so that they need to be introduced to a variety of foods (4). In addition, after the child is 1 year old between breakfast and lunch times and between lunch and dinner time, toddlers can be given snacks such as biscuits, cheese, cakes and ice cream (4).

Protein is needed for growth, maintenance and repair of body tissues as well as making digestive enzymes and immune substances that work to protect the toddler's body, good nutritional intake for toddlers is also found in foods containing protein (4).

Meanwhile, the selected Dangke fat content was 18.39%. In general, it shows a higher value compared to alternative PMT-AS. The high fat content in Dangke is due to the high fat content used, namely cow's milk. Consumption of 100 grams of selected Dangke can contribute 9.11% of one's fat needs. The composition of the dangke chips given per serving (50 grams) is total energy = 299 kcal, energy from fat 194 kcal, carbohydrates 23.0 grams with 7.0% RDA, 21.6 grams fat with 39.0% RDA, and 3.0 gram protein with 0% RDA. This composition can contribute 19.59% of protein needs every day, meets the standard needs of pre-school age children and contributes 9.11% of fat needs besides that it also contains calcium between 0.85 and 0.89% so that it can meet the protein needs of Preschool children who need more protein for activities (3) This means that to meet daily fat needs, children still need other sources of fat, such as nuts, milk, and so on (5).

Toddlers need more fat than adults because their bodies use proportionately more energy during their growth and development period (4).

While the TB / U indicator, nutritional status can be grouped into very short, short, normal and tall (9). From the results of table 3 shows that giving dangke has an effect on changes in nutritional status with the Z-Score indicator TB / U at week I ($p = 0.003$) and week II ($p = 0.001$). Bones cannot grow completely without adequate supply of calcium, phosphorus and other inorganic components such as magnesium and manganese (8). Toddlers need regular calcium intake for the growth of bones and teeth of toddlers. One of the best calcium giving is milk that is drunk regularly (4). About 99% of the total body calcium is found in bones and teeth. calcium plays a role in bone mineralization, cell recognition and muscle contraction. In children who are growing, about 180 mg of calcium is added to the bones every day, increasing by 400 mg in adolescence (8).

The nutritional content contained in dangke chips is very beneficial for the body because it contains a lot of nutritional value, including; carbohydrates, proteins, fats,

and calcium so that they can provide energy in the body, form in the process of growing bones and teeth, for growth and maintenance of body cells, preparation of hormones, antibody substances, and other organelles (5). With the calcium content in dangke chips between 0.85– 0.89%. so that it can be an alternative type of additional food that can be given to toddlers to meet their calcium needs (4).

Various efforts to improve nutrition have been carried out, one of which is by providing additional food including complementary foods, providing nutritional supplements, monitoring and overcoming malnutrition. Even though in reality there are still many cases of malnutrition and malnutrition, we should appreciate some of the efforts that have shown a bright spot. For example, the provision of zinc supplements which can reduce the frequency of diarrhea, and the provision of complementary foods with biscuits and chips can improve nutritional status (3).

Lack of food in children at preschool age causes hunger which is exacerbated by chronic infections and has an impact on children's weight loss, suffering from dehydration and weak muscles (4). Besides toddlers who are malnourished will experience impaired growth and brain development, decreased resistance to disease, increasing the morbidity and risk of death which is quite high (6). Nutritional problems are essentially a public health problem, but the prevention cannot be done with a medical approach and health services alone, so that the causes of nutritional problems are multifactorial, therefore the coping approach must involve various related sectors (1).

CONCLUSION

There is a significant effect by providing additional food “ kripik dangke” on changes in children's nutritional status in children aged 3-5 years. The need for counseling and motivation activities is needed to increase the knowledge and awareness of mothers about the importance of providing additional food in the form of snacks which can have an impact on improving the nutritional status of children under five.

REFERENCES

1. Supariasa, I. Dewa Nyoman, B. Bakri, and I. Fajar. "Assessment of nutritional status." Jakarta: EGC (2002): 48-9.
2. ____(2014). Risdas Dalam Angka Provinsi Sulawesi Selatan (2013).
3. Affandy A, dkk. (2008). *Pengaruh Pemberian MP-ASI Biskuit Ikan Teri Terhadap Pertumbuhan Baduta Gizi Kurang Di Kecamatan Tanete Rilau Kabupaten Barru.Jurnal MKMI.*
4. Susilowati, Kuspriyanto. (2016). *Gizi dalam Daur Kehidupan.* Bandung : Refika Adiatma
5. Faradhillah Achmad Tahir Dewa, Saifuddin Sirajuddin, H. (2012). *Pengaruh Konsentrasi Getah Pepaya Terhadap Kualitas Dangke Dan Daya Terima Masyarakat .* Prodi Ilmu Gizi Fakultas Kesehatan Masyarakat Universitas Hasanuddin.



6. Yuki Meistia Indari .(2012). *Pengaruh PMT Beras Tumbuk Terhadap BADUTA GIZI KURANG*. Jurnal Media Gizi Masyarakat Indonesia vol 2 No.1 Agustus 2012
7. _____(2014) .. Riset Kesehatan Dasar. (*Riskedas 2013*)
8. Atikah Purroverawati, Erna Kusumawati. (2017). Ilmu Gizi untuk Keperawatan dan Gizi Kesehatan. Yogyakarta: NuhaMedika
9. Kementrian kesehatan, R I . (2004). *Analisis Situaasi Gizi Dan Kesehatan Masyarakat*.