Effectiveness of Additional Food Recovery Programs (PMT-P) on Nutritional Status and Nutritional Adequacy Rates

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Effectiveness of Additional Food Recovery Programs (PMT-P) on Nutritional Status and Nutritional Adequacy Rates of Children Aged 4-5 Years in Sukasada I Community Health Center

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ABSTRACT

Background: Nutrition is a primary need for toddlers. According to WHO, more than 50% of infant and child deaths related to nutrition problems need proper and quick handling. The implementation of supplement feeding program is one of the programs in the field of nutrition that aims to reduce the prevalence of malnutrition.

Purpose: The purpose of this study was to analyze the effect of recovery supplementation on nutritional status and nutritional adequacy rates of children under five in the Sukasada 1 Community Health Center.

Methods: The study design used was observational using a retrospective cohort design. The sampling technique used was Simple Random Sampling with a sample of 70 respondents. Chi-square test statistical test data analysis techniques.

Results: The results showed that of 70 respondents 35 respondents were known to have received PMT-P and 35 people had never received PMT-P. Chi-Square test results of nutritional kissing and nutritional status indicate p <α (p = 0,000) meaning that there is a relationship between the PMT-P program and the amount of food consumption (adequacy rate) and nutritional status.

Conclusion: there is a relationship between the PMT-P program and the amount of food consumed (nutritional adequacy rate).

Keywords: Supplement feeding, toddlers, nutritional status, nutritional adequacy rates

BACKGROUND

Nutrition is a primary need for toddlers. Toddler age is one of the special target groups, which has a period of the first 1000 days of life. This period of growth and development is very rapid and prone to malnutrition (Ministry of Health, 2012). According to WHO (World Health Organization), more than 50% of infant and child deaths are related to malnutrition and malnutrition, therefore nutritional problems need to be dealt with quickly and appropriately (Ministry of Health, 2011). Children under the age of 1-5 years is a continuation phase of the child's age after passing through infancy that requires special attention in fulfilling nutrients by the body. At this age children need nutrients that are far greater for growth, if the nutritional needs are not met, the body will use the reserves of nutrients that are in the body, consequently the longer the reserves run out and if it lasts longer the body's organs will experience tissue abnormalities so this is considered to be prone to malnutrition and malnutrition (Adriani and Wirjatmadi, 2012).

Malnutrition is a health disorder due to deficiency or imbalance of nutrients needed for growth, thought activity, and all things related to life. Nutrition is less common in children younger than 5 years, especially in developing countries. The age group of less than five years is included in the vulnerable group, because at this time it is a transitional period starting to follow the adult diet or also due to child care patterns that follow the wrong habits. Malnutrition in children can occur due to a lack of energy sources and a lack of protein (builders). Energy and building blocks are needed by children in building their rapidly growing bodies (Hasdianah, 2014). Short-term impacts that occur due to malnutrition on children's development according to Nency & Arifin (2005), including making children apathetic, speech disorders, and other developmental disorders. The long-term impact that can occur is the occurrence of developmental barriers to the brain that are permanently or reversible which can cause a decrease in intelligence quotient (IQ) scores, decreased cognitive development, decreased sensory integration, impaired concentration of attention, impaired immunity that can cause children to become more susceptible to disease, impaired confidence and can also cause a decline in academic achievement in school.

Supplementary feeding is an intervention program for toddlers suffering from malnutrition, where the aim is to improve the nutritional status of children and to meet the nutritional needs of children to achieve nutritional status and good nutritional conditions appropriate for the age of the child (Ministry of Health Republic of Indonesia, 2012). Numerous studies on mice have shown that the conditions of early prenatal and postnatal malnutrition cause many changes in the brain structure of these mice, although the changes will improve when the mice are fed again. Some changes are considered permanent, such as the amount of myelin and cortical dendrites in the spinal cord and an increase in the number of mitochondria in nerve neurons (Baker-Henningham & Grantham-McGregor, 2009). Berkman (2002) in Peru found that malnutrition at under 2 years of age had an impact on poor cognitive function at 9 years of age. Very short children have an average intelligence score of 10 points lower than good nutrition children. Liu (2004) found that malnutrition at 3 years of age had an effect on cognitive neuro deficiencies, which if continued would have an impact on behavioral problems into adulthood.

OBJECTIVE

To see the effects or impacts resulting from childhood malnutrition in the past, researchers are interested in examining the effect of the Recovery Supplementary Feeding Program (PMT-P) on nutritional status, and nutritional adequacy rates of children aged 4-5 years in the working area of the Sukasada I Public Health Center Buleleng.

METHODS

This study was observational, using a retrospective cohort design conducted on two different intelligence, nutritional status, and eating patterns of individuals who did not get PMT-P. In retrospective cohort studies of exposure and disease have occurred in the past before the start of the study, so that these variables are measured through historical records (Murti, 2003). The location of the study was at Sukasada 1 Community Health Center with the population taken were all children 1-5 years with a history of having participated in the 2016-2018 PMT-P program with a total sample of 70 children. The independent variable of this study was supplementary feeding while the dependent variable was the nutritional status and the adequacy rate for children under five. The study began by measuring nutritional status and adequacy and then interviewed mothers of toddlers who were given PMT-P related

to the current and previous condition of the baby. After the results are found then the data is analyzed using Independent Sample T-Test. This research has also been done through the STIKes Buleleng research ethics committee. (127/EC-KEPK-SB/X/2019)

RESULTS

Nutritional status found in this study assessed toddlers based on weight and height of toddlers, then nutritional status based on weight and age as well as height and age. The results are in table 1.

Table 1.Toddler Nutrition Status in the Work Area of Sukasada I Community Health Center

Nutritional status	Toddler Group			
	History Gets PMT-P		Did not get PMT-P	
	n	%	n	%
Nutritional status based on BW / TB				
Overunderweight	0	0	0	0
Underweight	2	5.7	0	0
Normal	33	94.3	33	94.3
Overweight	0	0	2	5.7
Total	35	100	35	100
Nutritional status based on weight				
Undernutrition	0	0	0	0
Malnutrition	22	62.9	1	2.9
Good nutrition	13	37.1	33	94.3
More nutrition	0	0	1	2.9
Total	35	100	35	100
Nutritional status based on TB / U				
Very short	0	0	0	0
Short	8	22.9	14	40.0
Normal	23	65.7	18	51.4
High	4	11.4	3	8.6
Total	35	100	35	100

Based on the table above shows that most of the nutritional status based on BW / TB under five is currently in the normal category (94.3%). Nutritional status based on the weight of children under five currently with a history of getting PMT-P in the category of malnutrition (62.9%), toddlers who do not get PMT-P are mostly in the category of good nutrition (94.3%). Nutritional status based on TB / U at present with a history of ever getting PMT-P in the normal category (65.7%), toddlers who do not get PMT-P are mostly in the normal category (51.4%). Then for the state of nutritional adequacy of children under five in PuskesmasSukasada 1 is shown in table 2.

Table 2. Adequacy of Nutrition for Toddlers receiving PMT-P in the Work Area of Sukasada I Community Health Center

Level of Adequacy of Substances Nutrition	Toddler Group			
	Got PMT-P		Did not get PMT-P	
	n	%	n	%
Total Consumption				
Less	0	0	0	0
Moderate	9	25.7	1	2.9
Well	26	74.3	34	97.1
Total	35	100	35	100

Table 2 shows that the amount of consumption (the adequacy rate) of respondents with a history of getting PMT-P and who did not get PMT-P was mostly in the good category. Then an in-depth analysis related to the effectiveness of PMT-P for both nutritional status and nutritional status of children is shown in tables 3 and 4.

Table 3. PMT-P Program Analysis of Toddler Nutrition Status

Variable	Sig	95% Confidenceinterval of the difference	
		Lower	Upper
Height/U	0.173	-.08972	.48972
Weight/U	0.000	-.81306	.48976
Weight/Height	0.046	-.22662	-.00195

Table 3 shows the results of the calculation of the different tests of two average data presented based on height / U obtained t value with a significance level of $p = 0,173$. These results indicate that $p > 0.05$, meaning there is no difference in nutritional status according to height / U in children in the group with a history of getting PMT-P and not getting PMT-P. It can be said that nutritional status based on height / U in the group of toddlers with a history of getting PMT-P and those not getting PMT-P has a different value. Based on weight / U obtained t value with a significance level of $p = 0,000$. These results indicate that $p < 0.05$, means there are differences in nutritional status according to weight / U in children in the group with a history of ever getting PMT-P and not getting PMT-P. Based on height/weight obtained t value with a significance level of $p = 0.046$. These results indicate that $p < 0.05$, means there are differences in nutritional status according to height/weight in children in the group with a history of having received PMT-P and not getting PMT-P. It can be said that the nutritional status based on height/ weight in the group of children under five who do not get PMT-P has a different value.

While the results of the calculation of the different test of two average data presented in table 4 obtained the value of t with a significance level of $p = 0,006$ These results indicate that $p > 0.05$, means that there is no difference in the nutritional adequacy of children in the group with a history of ever getting a PMT -P and do not get PMT-P. It can be said that the adequacy of nutrition in the group of toddlers who do not get PMT-P has the same value

DISCUSSION

Nutritional status in the results of this study showed that the Chi-Square test results showed $p > \alpha$ (p = 1,000) which means that there was no association of PMT-P administration with nutritional status based on BW / TB. Nutritional status based on the weight of children under five today with a history of getting PMT-P in the category of malnutrition (62.9%),

toddlers who did not get PMT-P were mostly in the category of good nutrition (94.3%). Chi-Square test results show p <α (p = 0,000), which means there is a relationship between PMT-P giving and nutritional status based on weight / U. Nutritional status based on current height / U with a history of ever getting a PMT-P in the normal short category (46.7%), toddlers who did not get PMT-P are mostly in the normal category (51.4%) Based on the results of the Chi-test Square p <α (p = 0,100) which means there is a relationship between PMT-P giving and nutritional status based on height / U.

These results are consistent with research conducted by Indriawati (2013), which states that there is a relationship between nutritional status and children's intelligence. Weight is an anthropometric measure that can be used to see the rate of physical growth and nutritional status of children. Weight can also be used as a basis for calculating food and body weight is also the result of an increase in all bone tissue, muscle, fat, and body fluids. Weight can provide a picture of nutritional status at present and done periodically will give a good picture of growth, besides environmental factors that play an important role in the development of a child is food intake, because the growth and development of a healthy child depend on intake adequate food, good energy, protein and other nutrients.

Height is the second most important anthropometric measure. That is because during the growing period of the child will increase continuously until the maximum height is reached. Although this height increase fluctuates and will experience a rapid increase as a baby, then slow down and become rapid again (spurts grow adolescent), and then will experience slowing again until finally stopped at the age of 18-20 years. The bones of the limbs stop growing, but the vertebrae continue to grow until the age of 30 years, by filling the bones at the upper and lower ends of the corpus vertebrae, so that height increases a little, which is around 3-5 mm. the more children age, the farther away from normal linear growth. This condition is thought to be caused by the higher age of the child, the energy and nutrient requirements also increase. Height is a good indicator to show impaired physical growth that has passed (Candrawati, 2008).

Child growth is increasingly deviating from normal with increasing age if food supply (quantity or quality) is inadequate. Research conducted by Rindu (2013), also stated that there is a relationship between the nutritional status of children with cognitive development and motor development of preschool children. The level of nutritional adequacy of toddlers, especially energy and protein related to their development.

Besides, the results of this study based on nutritional adequacy found that there was a relationship between PMT-P program delivery and the amount of food consumption (adequacy rate). Eating patterns are a description of a toddler's eating habits which include types of food and frequency of eating. According to Sediaoetama (2012), eating patterns are eating habits of repetitive behavior over a long period. A balanced diet, which is by needs accompanied by the selection of the right foods will give birth to a good nutritional status. Food intake that exceeds the body's needs will cause overweight and other diseases caused by excess nutrients. Conversely, food intake less than needed will cause the body to become thin and susceptible to disease. Both conditions are equally bad, so they are called malnutrition. The state of malnutrition due to lack of food and underweight is a common thing in many regions or poor countries.

The ideal type of food consumption is a food consisting of staple foods, side dishes, vegetables, fruit, and milk. For food types are grouped into staple foods, animal side dishes, vegetable side dishes, and vegetables. The composition of nutritious food for children's growth and development is a balanced composition of dishes consisting of several classes of food ingredients, namely food sources of development, food sources of protein (body regulating substances), and food sources of energy sources (Ranti, 2004).

The research also found that the staple food consumed by toddlers is white rice as an energy source, with the reason that when children consume rice it will give a sense of fullness. Besides rice is a staple food consumed by the family down and down until there is an assumption that "when not eating rice, it is considered not eating". But there are also parents of respondents who provide bread and instant noodles as a source of energy, but only given once in a while. The type of animal food that is often given is fish. Consumption of eggs, meat, and chicken are given only occasionally, as an alternative to side dishes if the child does not like the available side dishes. For vegetable food sources consumed by children are tempeh and tofu but sometimes children don't like the taste. For the type of food in the form of green vegetables consumed are spinach and vegetable soup (carrots). But some children don't want to consume vegetables on the grounds they don't like the taste. For the types of fruit consumed are oranges, bananas, watermelons, and papayas. Some children rarely consume fruit because children do not like it and parents who do not accustom children to consume fruit. Whereas in the case of giving milk is rarely given.

Sediaoetomo's research results (2012), explained the need for vitamins and minerals in toddlers. The toddler years of vitamins and minerals are needed because it is a period of growth. Nutrition obtained by a child through daily food consumption plays a major role in meeting the needs of toddlers. To be able to fulfill properly and sufficiently. A child can experience nutritional deficiencies that result in various physical and mental aspects. Giving a variety of foods, especially vegetables that are usually less preferred by children to eat a variety of foods. Balanced nutrition needs to be established in family food. Every child grows at different speeds. For those who grow slowly will eat a little. But some children grow fast and then become slow and grow fast. The more often the frequency of eating a child will further increase the opportunities for the diversity of the types of food consumed. Diversification is an attempt to increase children's food consumption. Sediaoetama's research (2012) also explained the level of consumption of children is influenced by the functionality and quality of dishes available in the family. In terms of the quality of food consumed must contain enough all the nutrients needed by the body in the composition of dishes and in terms of quantity the amount of each nutrient must be by the average food recommendation for each age group and gender.

CONCLUSION

There are differences in nutritional status according to TB/U, there are differences in nutritional status according to BW/U, there is no difference in nutritional status according to TB/BB. There was a difference in the adequacy of nutrition in children in the group with a history of getting PMT-P and those not getting PMT-P. The amount of consumption (nutritional adequacy rate) of respondents with a history of getting PMT-P and those not getting PMT-P is mostly in the good category. Chi-Square test results $p < \alpha$ ($p = 0,000$) means that there is a relationship between the PMT-P program and the amount of food consumed (nutritional adequacy rate). Is expected continue to provide more intensive counseling about the importance of nutrition and toddler health, with efforts to improve child nutrition, especially with the provision of supplementary feeding recovery programs (PMT-P) can be maintained and implemented more optimally to maximize the growth and development of intelligence of children who experience malnutrition.

ACKNOWLEDGMENT

CONFLICT OF INTEREST

We have no conflict of interest to declare

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Hospitalization at Gambiran Hospital, Kediri City", Journal Of Nursing Practice, 2022
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