

Family Empowerment through Psychosocial Stimulation Assistance and Child Feeding in Increasing Nutrition Intake and Body Weight of Children 2-3 Years Old to Prevent Stunting

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Abstract

Background: The prevalence of stunting in Indonesia still high based on Basic Health Research 2018 with prevalence 30.8%. The percentage of children under five with stunting in South Sulawesi more increasing, from the results of Basic Health Research in 2007, 2010, and 2013, respectively 29.2%, 39.8%, and 40.9%. In 2018, the position of South Sulawesi on the fourth highest prevalence of stunting from all provinces in Indonesia. The extent and height number of children under five with stunting in South Sulawesi have a very big impact on the quality of human resources in the future⁽¹⁾⁽²⁾.

Objective: The aims of this study to analyze the effect of family empowerment through psychosocial stimulation assistance and child feeding on nutritional intake and body weight of children aged 2-3 years to prevent stunting.

Methods: The research design and type was quasi-experimental with the Pre-Post Test Control Group Design. The sample of this research is 30 children under five aged 2-3 years at Paccerakang Health Center, Makassar City. The analysis data using Paired T-Test.

Results: There was an increase intake of carbohydrates, protein, fat, calcium, zinc, and vitamin A, which was higher in the treatment group than in the control group. There was an increase in body weight in the treatment group which was higher at 0.35 kg while in the control group it was only 0.08 kg.

Conclusion: Family empowerment through psychosocial stimulation assistance and child feeding has a significant effect on increasing nutrient intake (carbohydrates, protein, fat, calcium, zinc, and vitamin A) and body weight of children aged 2-3 years. It is hoped that Puskesmas officers and posyandu cadres will provide more assistance to mothers of toddlers on psychosocial stimulation and child feeding.

Keywords: Family Empowerment, Psychosocial Stimulation Assistance, Child Feeding, Nutrient Intake, Body Weight, Stunting.

Background

The prevalence of stunting in Indonesia still high based on Basic Health Research 2018 with prevalence 30.8%, it means that around 8.9 million Indonesian children or one of three Indonesian children suffer from

suboptimal growth. The prevalence of stunting in Indonesia is higher than other countries in Southeast Asia, such as Vietnam (23%), and Thailand (16%)⁽³⁾. The percentage of children under five with stunting in South Sulawesi more increasing, the results of the Basic Health Research in 2007, 2010, and 2013 are respectively 29.2%, 39.8%, and 40.9%. In 2018, the position of South Sulawesi Province on the fourth highest prevalence stunting of all provinces in Indonesia. The extent and

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high number of children under five with stunting in South Sulawesi have a very big impact on the quality of human resources in the future⁽¹⁾.

The consequences if the stunting problem in children under five is not resolved, that it will lead to four aspects, such as low cognitive abilities, low motor skills, low language skills and low social development and independence in children. These four variables are the most dominant cause of the low academic achievement of children at all levels of education⁽⁴⁾. The long-term impact of stunting children will get a risk factor for Non-Communicable Diseases (PTM), low work productivity⁽⁵⁾.

In September 2012, the Government of Indonesia launched the “First 1,000 Days of Life Movement” known as 1,000 HPK. This movement aims to accelerate the improvement of nutrition to improve the lives of Indonesian children in the future. This movement involves various sectors and policymakers to work together to reduce the prevalence of stunting and other forms of malnutrition in Indonesia⁽⁶⁾⁽²⁾

Research in Bandung Regency, West Java Province (2017) by Hastuti, W Par'iil, HM, Utami, regarding Nutrition Assistance for Toddler Nutritional Status, concluded that before and after the nutrition assistance intervention showed a significant difference between nutritional status (BB/TB) maternal nutritional

knowledge and knowledge on child feeding. Nutrition assistance activities must be carried out regularly and continuously to oversee the efforts to improve nutrition in order to prevent stunting⁽⁷⁾.

Several programs that have been launched by the government in order to reduce prevalence of stunting in Indonesia, have not shown maximum results. Based on the study of the problem, it is very reasonable to conduct research on the effect of family empowerment through psychosocial stimulation assistance and child feeding on nutritional intake and body weight of children aged 2-3 years to prevent stunting.

Methods

The type of research is Quasi Experiment with the Pre-Post Test Control Group Design. The research consisted of 3 stages, the first stage is the preparation of the module, the second stage is training of assistants and mothers of toddlers, and the third stage is giving intervention in the form of mentoring psychosocial stimulation and child feeding.

The research sample was children under five years of age. The sample size of 30 children consisted of 15 children as treatment group and 15 children as control group with Simple Random Sampling. The research was conducted in the working area of Pacerakkang Health Center, Makassar City, South Sulawesi Province, Indonesia⁽⁸⁾.

Results

1. Characteristics of Children

Table 1. Characteristic distribution of Children 2-3 years in the Work Area of Pacerakkang Health Center Makassar City

Samples Characteristics	Treatment		Control	
	n	%	n	%
Gender				
Male	11	73,3	10	66,7
Female	4	26,7	5	33,3
Total	15	100	15	100

Cont... Table 1. Characteristic distribution of Children 2-3 years in the Work Area of Paccerakkang Health Center Makassar City

Samples Characteristics	Treatment		Control	
	n	%	n	%
Nutritional Status Indicator Weight Before Treatment				
Good Nutrition	13	86,7	13	86,7
Less Nutrition	2	13,3	2	13,3
Total	15	100%	15	100%
Nutritional Status Indicator Weight After Treatment				
Good Nutrition	15	100	13	86,7
Less Nutrition	0	0	2	13,3
Total	15	100%	15	100%

Table 1 shows that the sex of the sample is generally male in both the treatment and control groups. Nutritional status before treatment based on indicators of body weight according to age (BB/U), the nutritional status of both the treatment group and the control group was the same (86.7%) and malnutrition status was the same (13.3%). After treatment in the treatment group all children under five changed to good nutritional status (100%), while in the control group there was still no change (13.3%). children under five have low nutritional status

2. Nutrient intake

a. Macro Nutrient Intake (Carbohydrate, Protein, Fat)

Table 2. Macro Nutrient Intake for Children 2-3 years in the Work Area of Paccerakkang Health Center Makassar City

Group	n	Macro Nutrient Intake		p-value
		Before	After	
Average Carbohydrate Intake (g)				
Treatment	15	198,06 ± 25,80	227,18 ± 31,05	0,00
Control	15	195,10 ± 23,51	210,10 ± 27,22	0,76
Average Protein Intake (g)				
Treatment	15	19,06 ± 2,46	28,86 ± 3,36	0,00
Control	15	19,26 ± 2,46	22,13 ± 4,85	0,46
Average Fat Intake (g)				
Treatment	15	36,26 ± 13,58	62,20 ± 14,52	0,00
Control	15	33,86 ± 12,93	37,66 ± 14,07	0,25

The results of statistical analysis (*T-Test*) in table 2 showed p-value ($p = 0.00$) in treatment group for carbohydrate, protein and fat intake, it means that after intervention there was a significant difference (increase) in carbohydrate, protein and fat intake in treatment group. In control group p-value $p > 0.005$

(carbohydrate $p=0,76$, protein $p=0,46$, fat $p=0,25$), it means that after intervention there is no significant difference (increase) in carbohydrate, protein and fat intake in the control group.

b. Micro Nutrient Intake (Zinc, Calcium, Vitamin A)

Table 3. Average Micro Nutrient Intake for children aged 2-3 years in the Work Area of Paccerakkang Health Center Makassar City

Group	n	Micro Nutrient Intake		p-value
		Before	After	
Average Zinc Intake (g)				
Treatment	15	3,00 ± 1,19	4,61 ± 1,76	0,00
Control	15	2,80 ± 1,08	3,00 ± 1,30	0,51
Average Calcium Intake (g)				
Treatment	15	471,88 ± 93,63	585,04 ± 84,09	0,01
Control	15	469,88 ± 93,68	512,89 ± 94,29	0,13
Average Vitamin A Intake (g)				
Treatment	15	308.09 ± 131.17	378.80 ± 143.05	0.00
Control	15	310.95 ± 130.59	336.99 ± 130.99	0.28

The results of statistical analysis (*T-Test*) in table 3, showed p value ($p < 0.005$) in treatment group, it means that after intervention there was a significant difference (increase) in zinc, calcium, vitamin A intake in treatment group. In control group the value ($p > 0.005$) and it means that after intervention there was no significant difference (increase) in zinc, calcium, vitamin A intake in the control group.

3. Body Weight

Table 4. Average Body Weight of Children Under 5 Years Old in the Work Area of Paccerakkang Health Center Makassar City

Group	n	Average Body Weight (Kg)		p-value
		Before	After	
Treatment	15	11,80 ± 1,81	12,15 ± 1,82	0,00
Control	15	11,95 ± 1,50	12,03 ± 1,45	0,69

The results of statistical analysis (*T-Test*) showed a value ($p = 0.00$) in treatment group, it means that after intervention there was a significant difference (increase) in body weight in treatment group. In control group the value ($p = 0.69$) means that after intervention there is no significant difference (increase) in body weight in the control group.

Discussion

In this study, there are two types of mentoring provided to mothers. First, psychosocial stimulation assistance in the form of play activities between mother and child using stimulation toys that are routinely carried out every day. The games played by mother and child make the child's mood happy and happy. The happy and happy mood of the child stimulates the formation of happiness hormones (Dopamine, Endorphine, Oxytocin, and Serotonin hormones). The balance of happiness hormones causes the child's mood to be happy and happy, which causes the child's appetite to increase so that the intake of nutrients is sufficient by the child's body needs. Second, the provision of child feeding, which includes setting the frequency of children's meals, amount/portion and type of food for each meal, variety and proper and correct way of feeding. The results of the study proved that in treatment group after the assistance intervention there was an increase in the intake of carbohydrates, protein, fat, zinc, calcium and vitamin A. In treatment group after the intervention, the total intake of nutrients is compared to the nutritional adequacy ratio (RDA) of children 2-3 years carbohydrates, fat, protein, and zinc are in accordance with the RDA, but the intake of Calcium and Vitamin A is still below the RDA. The two types of mentoring that have been provided are proven to be able to increase nutritional intake in children under five.

The results of this study are in line with research conducted by Hastuti, W. Par'11, HM, Utami, (2017) in West Java, which revealed that before and after the nutrition assistance intervention showed a significant difference between maternal nutritional knowledge ($p 0.001$), and knowledge of feeding ($p 0.015$). Nutrition assistance activities must be carried out regularly and continuously to guard efforts to improve nutrition⁽⁷⁾.

The results of this study are in line with the theory (Soetjningsih, 2013) which explains that children who are given stimulation from their environment and get enough food according to children's needs are important for children's growth and development⁽⁹⁾. Children who get directed and regular stimulation will grow and develop faster than children who don't / don't get stimulation. Adequate food intake in quality and quantity will support weight gain in children.

This study concluded that psychosocial stimulation assistance and child feeding (PMA) had an effect on increasing the weight of children under five because in the treatment group the average increase was 0.35 kg (350 grams), while in the control group it was only 0,08 kg (8 grams). The average weight gain in the treatment group was good because it passed the minimum weight gain (KBM) of children aged 2-3 years, namely 300 grams.

Hasanah N's research, YunitaDyahFitriani (2018) on the relationship between mentoring using the KIA book and the growth and development of infants under two years of age (BADUTA) in the working area of the Sukomulyo Gresik health center, concluded that there is a relationship between mentoring using the KIA book and the growth and development of under fives two years (BADUTA)⁽¹⁰⁾.

Conclusion

Family empowerment through psychosocial stimulation assistance and child feeding significantly affects (increases) intake of carbohydrates, fat, protein, calcium, zinc, vitamin A and body weight of children aged 2-3 years.

Suggestions

It is hoped that the health center nutrition workers and posyandu cadres provide more assistance for psychosocial stimulation and child feeding using psychosocial stimulation modules and child feeding to mothers of children under five to prevent *stunting*.

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References

1. Ministry of Health I. Anthropometry Handbook. Jakarta, Indonesia; 2010.
2. Ministry of Health I. Guidelines for national planning movement program to accelerate nutrition improvement in the framework of the first thousand days of life (1000 HPK Movement), Jakarta. Jakarta, Indonesia; 2013.
3. MCA I. Stunting and future of Indonesia. Millenium Challenge Account - Indonesia, PP 2-5. www.mca-indonesia.go.id [Internet]. Jakarta, Indonesia; 2013. Available from: www.mca-indonesia.go.id
4. Grantham-McGregor, S., Cheung, Y. B., Cueto, S., Glewwe, P., Richter, L., & Strupp B. Developmental potential in the first 5 years for children in developing countries. *Lancet*. 2007;369(9555):60–70.
5. Lawrence Haddad, Endang Achadi, Mohamed Ag Bendeck, Arti Ahuja, Komal Bhatia, Zulfiqar Bhutta, Monika Blossner EB. *Global Nutrition Report Actions and Accountability to Accelerate The Wordlds Progress on Nutrition*. 2014.
6. Subuh M. Health Indonesian Program, Indonesian Healthy Program with a Healthy Family Approach. 2015.
7. Hastuty W. Nutrition Specific Interventions with Nutrition Assistance for Toddler Nutritional Status in Bandung Regency, West Java. *J Heal Res Heal Polytech Bandung*. 2017;9.
8. Kuntoro H. *Statistiic Method*. Surabaya: Pustaka Melati; 2011. 12–18 p.
9. Soetjiningsih. *Child Development*. Jakarta: EGC Kedokteran; 2013. 17–61 p.
10. Hasanah, N., Fitriani Y. Assistance Using KIA Handbook with Growth and Development of Children Under Two Years (BADUTA) in the Sukomulyo-Gresik Health Center Working Area. *Sci J Midwifery*. 2018;