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**OBSTACLES IN BREASTFEEDING CONTRIBUTED TO STUNTED CHILDREN STATUS IN BARRU REGENCY, SOUTH SULAWESI** Lydia Fanny<sup>1</sup>, Bambang Wirjatmadi<sup>2</sup>, Merryana Adriani<sup>3</sup>, Sirajudin<sup>4</sup>, Hendrayati<sup>5</sup>, Suriani Rauf<sup>6</sup> (1: Doctoral Program Of Public Health Faculty, Airlangga, Surabaya, Indonesia. ,4,5,6. : Department of Nutrition, Makassar Health Polytechnic, Makassar, Indonesia) (2,3,; Public Health Faculty, Airlangga, Surabaya, Indonesia). : Email Address: lydiafanny90@yahoo.com **ABSTRACT**  
The effects of obstacles in breastfeeding towards height of children aged 0-6 were investigated.

The purpose of this study was to analyze relationship between obstacles in breast-feeding with the height status of children. This study was a survey research using cross sectional study design. Sample size was as many as 201 and were selected systematically and randomly from 15 villages in Barru Regency in South Sulawesi.

Nutritional status were obtained through anthropometric measurements using seca for weight and fixation board for height. The tools used were in good condition and had been previously calibrated. Nutritional intake was obtained using a 24-hour recall with multi-pass consumption method. The numerators were nutritionist, while the supervisor worked as lecturer at nutrition department, Health Polytechnic Makassar.

This study had been approved by internal ethics committee at nutrition department. Statistical analysis was done using Chi Square with 95% significance. The results showed that 81% of respondents worked as housewives, 26.9% graduated from secondary education, 65.7% had 1-5 family members per household, 67.7% had a lower energy intake, 50.7% had lower protein intake, 42.8% had a lower intake of vitamin A, and 80% for low of zinc intake respectively.

Nutritional status were in accordance to the index of weight/ height, height/ age and weight /age, 10.4% were in severe thinnes, 12.4% stunted and 2.6% severe malnutrition. The results of statistical analysis showed that there is a relationship between the obstacles in breastfeeding with height status of children ( $p = 0.002$ ). Recommendation from this study is to put more intensive efforts from stakeholders to locate lactation counselors and motivator of breastfeeding in each primary health care and optimized the giving of vitamin A for breastfeeding mother also the giving of food supplement rich of zinc such as fish in Barru.

INTRODUCTION Healthy, intelligent and productive human resource is assets to a nation. These precondition assets can be planned by all government. The government of Indonesia was committed to materialize nutrition improvement efforts which are a joint effort between the government and society [1]. They decide priorities plans in the first thousand days of life which started at the time of pregnancy up to 2 years old.

Nutritional improvement is focused on the range of age between 0-24 months as a priority. Nutritional problems among children aged 0-24 months in Indonesia were malnutrition (based on weight for age), severe underweight (based on weight for height) and stunted (based on height for age) with 5.7%, 6.8 % and 19.2% respectively in 2013. Nutritional problems in children aged 0-24 months in South Sulawesi were malnutrition and severe malnutrition (based on weight for age), severe thinnes, and thinnes (based on height to age) and stunted and shortness (based on height for age) that were 25%, 40%,% and 11% resectively.

Nutritional problem in children aged 0-24 months in Barru, South Sulawesi were malnutrition (based on weight by height), severe thinnes (based on weight by age) and stunted (based on weight by age) which were 10.4%, 2.6%, and 12.4% respectively (2). Triggers of those aforementioned nutritional problems above were poor quality and quantity of nutrient intake.

Macro nutrients with low intakes were energy, protein, as well as micronutrient intake. Effort to improve nutrition for 0-24 month period is by breastfeeding. Breast milk is an ideal food for babies in all social and economic conditions within communities. The declining trend of exclusive breastfeeding at the age of 1,3,4,5, and 6 months were 52.7%, 48.7%, 46%, 42.2%, 41.9%, 36.6 and 30.2% respectively.

This data was one of evidence that the quality of the nutritious feeding for children decreases by age. The cause of the low breastfeeding in Indonesia was related to many factors. Technical factors are factors that directly related to the management of lactation

while non-technical factors are associated to the local culture.

Study conducted by Fanny, et al, 2012 in the city of Makassar it was reported that only 17.65% of mothers that perform precise baby positioning during breastfeeding while the rest were improper. This imprecision resulted in the emergence of obstacles in breastfeeding (3).

Manjilala (2012) conducted a study concerning to obstacle in breastfeeding in Maros Regency, and from the result it was concluded that no solution was found among mothers to solve the problem. Breastfeeding counselors were in existence, although the results of their activities were minimal. As a result of these conditions, the obstacles in breastfeeding resulted to a significant nutrient intake in children.

A study conducted by Siti Nur Rochimiwati, Hikmawati Mas.ud and Jayanti Giringan (2013) reported the results of their study in Tana Toraja that complementary foods at the time of early breast milk was a solution to the obstacles in breastfeeding (7). The result of study conducted by Campbell at.al (2010), it was known that the quantity of staple foods as a supplier of nutritional intake was associated with the incidence of stunting.

The higher quantity of staple foods, the lower the incidence of stunting. This is clearly dissimilar according to socioeconomic status. Yet another study mentioned that nutritional intake is not the main triggering factors of malnutrition at all times (5) (6) (9). At the age of 0-6 month the staple food is milk. Obstacles in breastfeeding were resulting to the incidence of severe malnutrition.

The incidence of severe malnutrition is known by height indicator of nutritional status according to age. Based on the framework above, this study aimed to analyze the relationship between obstacles in breastfeeding with the incidence of stunting in Barru Regency, South Sulawesi. Methods This study was a survey study that was conducted in 15 villages, in two districts in Barru Regency. The sample size was 201 children aged 0-6 months.

Samples were randomly selected using a systematic random table. The variables in this study were identity of family, identity of the child, nutritional status height by age, intake of macro and micronutrients, breastfeeding and obstacles in breastfeeding.

Anthropometry was measured in accordance to the standard measurement of height and weight of the Ministry of Health Republic of Indonesia.

Macro and micro nutrient intake was obtained using 24-hour recall method with

multi-pass approach. Interviews were performed independently at each respondent houses. Respondents signed research approval in entirety. This approval was issued by the research committee of Health Polytechnic Makassar. Instruments in this study has been tested at 10% of the population and declared fit for use.

Enumerators in this study were nutritionist graduates from State Polytechnic Makassar. Enumerator were trained in caution to conduct interviews and anthropometric measurements. Anthropometric tool for height used fixation board which was a product of State Polytechnic Makassar in 2010 and was in state of good for use, while for weight, seca was used with precision of 0.01 kg and was also in good state. Processing and analysing of the nutritional status data was done using WHO Antro 2005 application.

Chi Square statistical test used with significance level of 95%. Results of the Study Respondents Characteristics Characteristics of respondents in this study is broken down into variables, namely occupation of the mother, mother's educational background, occupation of father, number of family members and the number of infants (Table 1).

These variables were considered in relation to nutritional status of children. As much as 81% mother worked as housewives and represented occupation in rural mothers. Occupation of the mother in rural area in South Sulawesi, was housewife in general. Aside from being a housewife, mother has a role to accompany her husband to make a living as well.

Major occupation of the populace in Barru Regency, South Sulawesi was farmer (10),(11), (12). As much as 26.9% mothers' education was completed at secondary school that was at the highest proportion, while the same educational level was also very common in the area. Formal educational equity remained a priority in education sector.

Improved skills of the population can be pursued with increasing duration of formal education, including groups of women as caregivers of children in Indonesia. Indonesian culture puts the mother as the primary caregiver. Mother that posses good knowledge and education, will have a better chance in good childcare. Number of family members in general was in range of 1 up to 5 individuals (65.7%).

This fact was in accordance with the success of the Indonesian government to suppress population increase. Family planning program was quite successful in this area. Tendency to adjust birth spacing was known based on the number of children under five in the family. Families that possess one toddler were as much as 65.7%, although it was known that as much as 34.3% of families had two children under five.

Macro nutrient and Micronutrient Intake Macro nutrient intake in this study was the intake of energy, protein and fat. Micronutrient intake was the intake of vitamin A, and mineral such as zinc (Table 2). Energy intake was lower than the recommended daily requirement, which was as much as 67.7%.

Protein intake was also lower than the recommended daily requirement which as much as 50.7%. Lower macro nutrient intake affects lower micronutrients intake, in which vitamin A, and zinc were 42.8% and 80% respectively. Nutritional Status Nutritional status in this study was known through the use of anthropometric indices, weight/height, height/age and weight/age.

Nutritional problems based on the three indices were still high. Thresholds were to set area free of nutritional problems, according to the principle of normal distribution is <5%. The nutritional status facts were according to the weight/height, height/age and weight/age indices, for severe thinness, stunting, and severe malnutrition categories, with 10.4%, 12.4%, 2.6% respectively.

The Practice of Breastfeeding The practice of breastfeeding in this study was described according to the variable early initiation of breastfeeding, exclusive breastfeeding, duration of breastfeeding, daily frequency of breastfeeding, obstacles in breastfeeding, and current status of breastfeeding. Early initiation of breastfeeding was still very low at 23.4%. The low percentage of early initiation of breastfeeding is not recommended by UNICEF/WHO, 1993.

Exclusive breastfeeding was also very low, at 24.9%. Duration of breastfeeding was not fully in accordance with the rules of science that gives freedom of time for the infants. The percentage of mothers that breastfed in accordance to willingness of their infants, which was known by the emptiness of breast milk was 34.8%.

Obstacles were found in 23.9% of breastfeeding mothers. Obstacles in Breastfeeding and Children's Nutritional Status Due to the occurrence of obstacles in breastfeeding, the growth of the children's height was hampered. From the results of statistical analysis, it was known that there was a relationship between obstacles in breastfeeding with height status of the children ( $p = 0.002$ ).

DISCUSSION The prevalence of stunted children was still quite high. The findings in this study were consistent with several other studies, both in national and regional level. In Indonesia, the percentage of either stunted children or shortness was 25%, whereas in this study it was obtained as much as 21.3%.

Thus it could be concluded that the problem of stunting in this area was a serious nutritional problem and required special concern to any relevant stakeholders. The results of another study conducted by Manjilala, et.al (2013) reported the results of their study in Lombok, West Nusa Tenggara, which was as much as 13.9% children aged 9-11 months were underweight, 5.6% wasting and 16.7% stunting, and for total 25.6% children aged 12-24 months were underweight, 5.4% wasting and 34.9% stunting. Maroor M, et.al (2014) reported the results of his study in Malaysia, which 28.6% children were stunting at Pekan Regency.

Malnutrition also occurred to infants with less than 24 months of age (13). Chronology of stunting can be traced from as early as time of birth up to current age. Consumption of nutritious foods that qualify, the quality and quantity is also required. At the time the required intake of nutrients in quality and quantity can be fulfilled, it guarantees a good nutritional status (20).

The data in this study demonstrated that the intake of macronutrients and micronutrient, also occurs in 0-6 month period. The case of low nutritional intake in a study conducted in Tanzania, children that did not receive breastmilk due to concern of HIV infection, it was known that the height was hampered gradually (22).

Fulfillment of nutrient intake can be influenced by many variables, including the number of children, education as well as income (14). In this period, it had ever been found children with low energy intake, which was as much as 67.7%. Low protein intake even reached 50.7% and a low fat intake was 71.1%. While low intake of vitamin A was 42.8% and 80% for low zinc intake.

Nutritional intake of macronutrients and micronutrients are very critical in this period, could not be fulfilled, particularly those micronutrient supports height growth. And as a consequence, children height growth was hampered (26), (25), (24), (23), (22). Low intake of macronutrients and micronutrients at this period starts from the practice of minimum breastfeeding.

Facts related to child feeding practices can be known by various variables namely early initiation of breastfeeding, exclusive breastfeeding, duration of breastfeeding, daily frequency of breastfeeding, obstacles in breastfeeding and breastfeeding status at current time. Successful child feeding begins with early initiation of breastfeeding practice. The practice of early initiation of breastfeeding was very low at 23.4%.

This suggests that the opportunity to obtain the best quality food was only 23.4%.

Food other than breast milk is not recommended. Early **Initiation of breastfeeding** is a determining factor in the success of later breastfeeding. Failure in this practice, will lead to the poor practice of feeding children. Good feeding practices will contribute to the improvement of child nutrition.

Good knowledge concerning to the child's diet should be followed by practice. From **the result of study conducted** in Zambia, it is understood that having knowledge of good breast milk, is not enough if it is not applied in daily practice (15). Nevertheless the results of research in Nepal by Khanal, et.al, (2013), it is known that a lack of knowledge and lack of maternal contact with health workers before birth lead to increasement in prelactal feeding.

Prelacteal food is any kind of food that supplanted before breast milk is given first to the baby (18). Exclusive breastfeeding was also low which was 24.9% in this study. This data was a logical consequence of unsuccessful early initiation of breastfeeding. Health care practices are often decided unilaterally to feed complementary foods besides breast milk prematurely.

Thus, low exclusive breastfeeding will theoretically be correlated with disorders in height growth. The provision of proper information to the mother should start from health care by counselors. This was revealed in a study in Canada in 2015 that wrong mother perception if not corrected will lead to a negative impression and impact on the success of breastfeeding (16). Basically myriad factors that affect the exclusive breastfeeding in particular environmental factors both micro and macro as a form of social support.

The results of systematic review conducted in Saudi Arabia, **it was known that a** common reason to feed any alternative food other than breast milk is because of insufficient of the latter (17). Despite of many publications **are known to have a** weak study design and thus it is recommended to be corrected through the longitudinal study (27) (29).

Obstacles in breastfeeding, is clearly the strongest factor in hindering for the continuity of feeding children in the period of 0-6 months. Children **at the age of 0-6** months should only be given breast milk alone. **If there are obstacles existed in breastfeeding, then the quality of nutritional intake will not be fulfilled.**

Study conducted by Manjilala (2012), **stated that the obstacle in breastfeeding continue in every month.** For a period of 0-1 months, 1-3 months and 3-6 months, **they were 96.1%, 81% and 79.5** respectively. Among them 80% sought assistance to various parties and 60% to health professionals.

Precipitating factors in obstacle in breastfeeding in other studies in the city of Makassar mentioned the accuracy of positioning and the baby attachment. The position of the mother during breastfeeding and the attachment were associated with problems in breastfeeding. Not every maternity clinic possessed lactation counselors that provide support for consulting services (3).

Studies that conducted at the maternity clinic in the city of Makassar, conveyed that counseling in health services could help overcome obstacles in breastfeeding. While a study conducted in Australia reported that the mother's ability to solve their own problems in breastfeeding by many ways, had a significant effect on breastfeeding practices. Maximized mother potentials by determining their own way of overcoming the problem is a good thing to follow (28).

From the results of statistical analysis it is known that due to obstacles in breastfeeding it was found growth disorders in children ( $p = 0.002$ ). Thus increasement in the child's height is influenced by breastfeeding (19). Results of a study conducted in South Africa suggested that shortness in children was because of not performing recommendation of proper feeding for children, which are exclusive breastfeeding, breastfeeding up to 2 years old, and the provision of complementary foods for children started at age 6 months (22),(23),(30).

The findings in this study served as an input for the nutrition program managers to give serious concern to the techniques of handling problems with breastfeeding. This can be done by placing a lactation counselor at all basic health services. Performiiing more training for breastfeeding motivators at each neighborhood health center is a good strategy.

Maximizing supplementation of vitamin A and the need for addition of zinc capsules for nursing mothers are also recommended. These options are goods since it has great leverage and its achievements are easy to measure. Community empowerment in an effort to increase breastfeeding, that provides many benefits to reduce the incidence of stunting in children aged 0-6 months.

From this study, it is recommended to provide assistance to mothers with obstacles in breastfeeding. The focus is on those infants aged 0-6 months. CONCLUSION Obstacles in breastfeeding contributed to the high percentage of stunted children in the study area. Obstacles began with low early breastfeeding, the low exclusive breastfeeding and low intake of vitamin A and low intake of zinc.

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It is addressed as well to all data collector, the nutritionist, supervisor, and the lecturer in Nutrition Department of Health Polytechnic Makassar. CONFLICT OF INTEREST This study, does not have a conflict of interest with any party involved in this study. The study was planned, performed, monitored and the result reported results scientifically and was not interfered by any other parties.

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Table 1. Characteristics of Respondents in Barru Regency, South Sulawesi

Variables	Category	N	%		
Occupation of Mother	Employee	15	7,5		
	Farmer	6	1,5		
	House Wife	164	81,0		
Sub total				201	100,0
Mother Educational Background	Elementary	49	24,4		
	Junior High School	54	26,9		
	Senior High School	53	26,4		
	Tertiary	45	22,4		
Occupation of Father	Elementary	59	29,4		
	Junior High School	41	20,4		
	Senior High School	69	34,3		
	Tertiary	32	15,9		
Family Members	<= 5 individual(s)	132	65,7		
	5 individuals	69	34,3		
	Sub total				201

Table 2.

Macro and Micronutrien Nutritional Intake in Children

Intake Variable	Category	n	%		
Energy	Sufficient	65	32,3		
	Low	136	67,7		
Protein	Suffivcient	99	49,3		
	Low	102	50,7		
Fat	Suffivcient	58	28,9		
	Low	143	71,1		
Vitamin A	Suffivcient	115	57,2		
	Low	86	42,8		
Mineral Zn	Suffivcient	40	20,0		
	Low	161	80,0		
Sub total				201	100,0

Table 3.

Nutritional Status Indicators of Nutritional Status

Category	n	%		
Weight to Height	Severe thinnes	21	10,4	
	Thinnes	22	10,9	
	Normal	133	66,2	
Overweight		25	12,4	
	Sub total			201
Height to Age	Stunting	25	12,4	
	Shortness	10	5,0	
	Normal	148	73	
Tall		18	9,0	
	Sub total			201
Ordinary Weight in Average	Poor	5	2,6	
	Severe	11	5,6	
	Good	165	84,2	
Overweight		20	7,7	
	Sub total			201

Tebel 4.

Practice of Breasfeeding Practice of Breasfeeding

Category	n	%		
Initiation of Breastfeeding	Yes	47	23,4	
	No	154	76,6	
Sub total			201	100,0
Exclusive Breasfeeding	Yes	50	24,9	
	No	151	75,1	
Sub total			201	100,0
Duration of Breastfeeding	Less than 15 menit	66	32,8	
	More than 15 menit	49	24,4	
	Up to State of Emptiness	70	34,8	
Uncertain		16	8,0	
	Sub total			201
Daily Frequency of Breastfeeding	Less than 3 times a day	11	5,5	
	More than 3 times a day	71	35,3	
	Uncertain	119	59,2	
Sub total			201	100,0
Obstacles in Breastfeeding	Yes	153	76,1	
	No	48	23,9	
Sub total			201	100,0
Current Breasfeeding Status	Yes	160	79,6	
	No	82	40,8	
Sub total			201	100,0

Table 5.

Relationship between Obstacles in Breastfeeding and Nutritional Status

Nutritional Status	Obstacles in Breastfeeding	X2	Yes n(%)	No n(%)	(p)
Height by Age	Stunting		13 (6,5)	12 (6,0)	0,002
			3 (1,5)	7 (3,5)	
			31 (15,4)	117 (58,2)	
Tall			1 (0,5)	17 (8,5)	
			3 (1,5)	19 (9,5)	
			31 (15,4)	102 (50,7)	
Weight by Height	Severe thinnes		8 (4,0)	13 (6,5)	0,304
			3 (1,5)	19 (9,5)	
			31 (15,4)	102 (50,7)	
Overweight			6 (3,0)	19 (9,5)	
			3 (1,5)	19 (9,5)	
			31 (15,4)	102 (50,7)	
Weight by Age	Poor		0 (0,0)	5 (2,5)	0,650
			2 (1,0)	9 (4,5)	
			39 (19,4)	127 (63,2)	
Overweight			3 (1,5)	12 (6,0)	
			3 (1,5)	12 (6,0)	
			31 (15,4)	102 (50,7)	

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