



The Relationship of Food Consumption with Nutritional Status of Children Under Two Years at Tolaki Tribe Families in Sub District of Abeli

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Abstract

The child is a potential human resources for the future of the nation, therefore improving the quality of child welfare is strategic position and importance in the development of Indonesian society. Malnutrition in children under 2 years will cause the brain cells was reduced by 15-20%, so in the future, the children will be a human with only 80-85% quality brain. There are still greater of shorter prevalence rate (37.8%), thin (15.8%) and malnutrition (22.8%) in Southeast Sulawesi included on critical public health issues. This study aims to determine the relationship of the families, parents work, parental income, parental education, parenting eat, time allocation of mothers and children's food consumption with nutritional status of children (below 2 years) in the family of Tolaki and Bajo in Southeast Sulawesi province. The type of study was observational analytic using cross sectional approach and implemented in Kendari, Southeast Sulawesi Province. Site selection was purposively. The sampling carried out by random sampling and the sample obtained were 217 Tolakinese children. Data were analyzed using statistical analysis SPSS version 13.0 through univariate, bivariate and multivariate.

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The results showed there is a great relationship the size family with the nutritional status of children in the family of Tolaki tribe ($p = 0.007$) and become one of the most strongly factors linked to the nutritional status ($OR = 1.036$), there was no relationship income with nutritional status, there is a relationship father education with a nutritional status of children under 2 years ($p = 0.037$), there is a relationship energy consumption with the nutritional status of children ($p = 0.021$) and there is a relationship proteins and nutritional status ($p = 0.005$) and become one of the most strongly factors linked to the nutritional status ($OR = 2.598$). It is necessary improvement quality of food consumption for giving impact better growth of children under 2 years.

Keywords: Nutritional status; family characteristics; food consumption

1. Introduction

Children under five is one segment of the population who prone malnutrition, specifically malnutrition among children resulting in impaired growth and development, such as abnormal weight gain and height gain less where stunted growth is a reflection of a shortage of complex nutrients [1].

Malnutrition and poor nutrition were still a public health problem in developing countries and can be the cause of death, especially in high-risk groups of infants and toddlers. To the world the prevalence of stunting 26% while African (sub-Saharan) was about 40%, 39% for South Asia, East Asia and the Pacific region East were 12%) [2].

The incidence of nutritional problems in children due to various factors related with each other, either directly or indirectly. The direct cause were infectious diseases and lack of food consumption in families while indirect causes were the insufficient availability of food in the household, lack of good parenting, especially in feeding patterns in young children, inadequate sanitation and environmental health as well as the lack of good health care. All this situation were closely related to the low level of education, level of income and poverty. Where the root of the problem of nutrition were the economic, political and social crisis including the incidence of natural disasters, which affect the imbalance between food intake and the presence of infectious diseases, in turn affecting the nutritional status of children [3].

Malnutrition was manifested in different patterns such as, underweight, stunting, wasting, marasmus kwashiorkor [4]. The numerous studies have shown the important role of nutrients not only on the physical growth of the body but also the brain development, behavioral development, motor skills, and intelligence [5,6].

According to the WHO, if the prevalence of wasting over 10%, showing the country has a very serious nutritional problem and was closely linked to child mortality. Public health problem was considered serious if the prevalence of underweight among 10.1% - 15.0%, and it was considered critical if the prevalence of underweight has been above 15.0%, the short prevalence > 20% and the prevalence of malnutrition > 15% [7].

There are still greater of shorter prevalence rate (37.8%), thin (15.8%) and malnutrition (22.8%) in province of Southeast Sulawesi included on critical public health issues [8], so this study was conducted to determine the relationship food consumption and nutritional status at children below 2 years in Kendari.

2. Material and Method

Location and design of research

This research was conducted in the sub district of Abeli, Kendari Southeast Sulawesi Province. The study is especially only selected Tribe of Tolaki purposively with the reason that the tribe still holds strong cultural values in terms of feeding the family. This type of research is analytic observational study using cross sectional approach, this research was carried out for a month beginning in April until the May 2012.

Population and Sampel

The population of research was the whole tolaki tribes family who have children under two years old, and they who live in Abeli Sub district, Kendari. The sample in this research were taken by purposive for tribes and ages as well as families that meet the following criteria: a complete family with children under two years of age (6-24 months) and are willing to be sampled, and not have settled on their parents or other relatives, then children below 2 years elected conducted by random sampling.

Method of data collection

The data sample of family characteristic includes size family, the occupation and income of parents and education level of parents through questionnaires, the data of children food consumption was obtained by the method of recall 2 times 24 hours to ask directly to mothers or caregivers of children about food that has been eaten by the children during the day while research was conducted and the day before the research. While data on the nutritional status of children was obtained by using anthropometric methods including measurement of body weight and body length / height.

Processing and analysis of data

Data processing is performed by using a computer program, namely Program of Nutrisurvey and SPSS vs. 13, 0 for Windows. Nutrisurvey used to process data in order to process recall results data for getting view about nutrient intake. The further analysis with chi square test and to refine the analysis has also been conducted logistic regression test.

3. Results

The number of samples in this research were 217 children, socio-demographic characteristics of children can be seen in Table 1. For the characteristics of children by the age of children aged 12-17 months were 81 children (37.3%), and 75 children aged 6-11 months (34.6%). Most of the mother's education were primary school education (elementary) education (54.8%) , while the majority of father education were high school educated (37.8%). The majority of maternal employment were housewife (90.8%) and father occupation were farmer (25.3%) then a large majority of respondents have a size family ≤ 4 (63.6%) with a sufficient level of income (85.7 %) and the low income levels were 14.3% with an average spending were Rp.111.187.87 and food and

non-food expenditures were Rp.70.232.62.

The consumption of energy and protein

The average energy consumption of children aged 6-11 months in the Tolaki tribe family included in either category were 807.68 calories (100.96% RDA), while children aged 12-17 are at less category were 931.59 (74.53% RDA) when compared to adequacy (Table 2).

The average consumption of protein as well, children aged 6-11 months in the Tolaki tribe family included in good categories consist of 15,79 gram (105.26% AKG), while children aged 12-17 months were less category with 17:39 grams (75.61% AKG when compared to the adequacy (Table 2).

Table 1: The distribution of socio-demographic characteristics in child of Tolaki tribe below 2 years

Variables	n	%
Age (month)		
6 – 11	75	34.6
12 – 17	81	37.3
18 – 23	61	28.2
Size of familys		
≤ 4 people (small)	138	63.6
5 - 6 people (moderate)	65	29.9
≥ 7 people (larges)	14	6.5
The father education		
1. Elementary school	68	31.3
2. Junior high school	49	22.6
3. Senior high school	82	37.8
4.Academy	12	5.5
5. University	6	2.8
The mother education		
1. Elementary school	119	54.8
2. Junior high school	51	23.5
3. Senior high school	39	17.9
4.Academy	8	3.8
5. University		
Father occupation		
1. Civil Servant	8	7.4
2. Farmer	35	25.3
3. Digger	16	17.9
4. Bricklayer	13	13.4
5. Carpenter	11	11.5

6. Motorcycle driver	9	18.4
7. Own business	5	4.15
8. .Driver	3	1.8
Mother occupation		
1. Civil Servant	5	2,3
2. Merchant	11	5,1
3. Factory workers	23	10,5
4. No occupation	178	82,1
Income		
Enough (\geq Rp 555.000)	186	85,7
Poor (\leq Rp 555.000)	31	14,3
1. Food expenditure		
a.Staple foods	32200.24	17.75
b.Complementary food	65866.63	36.31
c. Delicatessen	9305.00	5.13
d. Others	3816.00	2.1
Quantity	111187.87	61.29
2. Non Food expenditure		
a. Fuel kitchen	2115.05	1.17
b. Lighting (electricity, other)	2677.32	1.46
c. Health (drug, soap, tooth paste and other)	5890.26	3.25
d. Transportation	11738.25	6.47
e. Education	1022.03	0.56
f. Cigarette	13380.00	7.38
g. Clothing	5063.33	2.79
h. Other (rent of house, tax and other)	28346.44	15.63
Aggregate	70232.68	38.71

The results showed that the level of energy consumption of children below 2 years in were 53.5% included in the category enough and were 26.2% including the poor category. The protein consumption of children below 2 years in this study were 56,78% and it included enough category (Table 3).

Nutritional Status

Table 4 shows the nutritional status of children below 2 yars in the tolaki tribe family with indicators BB / U which included good nutritional status were 193 people or (88.9%), and poor nutritional status were 24 people or 11.1%.

The relationship between variables with nutritional status

The chi-square test results showed that there was a relationship between the families with nutritional status according to the indicators BB / U in tolaki tribe family with $p = 0.007$, with the highest percentage in middle families (5-6 persons) who are on the nutritional status of either category (97.0%). The analysis showed no relationship with nutritional status according to BB / U ($P = 0.160$). The results of the analysis found that the father's education level associated with nutritional status according to BB / U ($p = 0.037$). There is a relationship of energy consumption with the nutritional status of children under indicators BB / U ($P = 0.021$, there are relationship protein consumption to the nutritional status of children based on indicators BB / U on the tolaki tribe family ($p = 0.005$), where the highest percentage of protein consumption with the good nutritional status (95.2%), and it can be seen in Table 5.

Table 2: The average of consumption, the energy and protein consumption in tolaki tribe family in city of Kendari

Nutritional status	n	Average	AKG	% AKG
Tolaki tribe				
Energy (calorie)				
6 – 11 month	78	807.68	800	100.96
12 – 17 month	82	931.59	1250	74.53
18 - 23 month	57	1053.72	1250	84.3
Protein (gram)				
6 – 11 month	77	15.79	15	105.26
12 – 17 month	83	17.39	23	75.61
18 – 23 month	57	20.05	23	87.04

Table 3: The sampel distribution based on energy and protein consumption at tolaki tribe family in Kendari

Category	Tolaki tribe	
	n	%
Energy		
Excellent	44	20.3
Enough	116	53.5
Poor	57	26.2
Protein		
Excellent	36	16.6
Enough	123	56.7
Poor	58	26.7

Table 4: Distribution of nutritional status based on BB/U in tolaki tribe family in Kendari

Category	The nutritional status (BB/U) Tolaki tribe	
	n	%
Good	193	88.9
Poor	24	11.1
Quantity	217	100,0

Table 5: The relationship between variables and nutritional status according to BB / U on the Tolaki tribe family in Kendari

Variables	The nutritional status (BB/U)				P Value
	Excellent		Poor		
	n	%	n	%	
Size of family					
≤ 4 (small)	128	87.7	15	12.3	0.007
5-6 (moderate)	52	97.0	5	3.0	
≥ 7 (large)	13	60.0	4	40.0	
Income					
Enough ≥Rp 555000/month	164	88.4	18	11.6	0.160
Poor <Rp 555000/month	29	83.3	6	16.7	
The father education level					
Enough	110	88.2	16	11,8	0.037
Poor	83	91,9	8	8,1	
The mother education level					
Enough	84	88,2	11	11,8	0.742
Poor	109	89,8	13	10,2	
The energy consumption					
Excellent	43	89,7	2	10,3	0.021
Enough	106	91,4	10	8,6	
Poor	44	77,8	12	22,2	
Protein consumption					
Excellent	34	94,4	2	0,6	0.005
Enough	115	95,2	5	4,8	
Poor	44	75,9	14	24,1	

Based on the results of logistic regression analysis showed that the most associated variable with nutritional status according to the BB / U is the consumption of protein with Exp (B) or the highest odds ratio (2.598) and then a size of family with Exp (B) = 1.036 and it can be seen in the table 6.

Table 6: The results of regression variables related to nutritional status according BB / U on the tolaki tribe family

Variables	Nutritional status (BB/U)			
	B	SE	Sig	Exp (B)
Size of family	0.035	,433	,936	1.036
The father education level	-.786	,467	,093	.456
Energy consumption	-.626	,481	,193	.535
Protein consumption	0.955	,596	,109	2.598

4. Discussion

This research was an observational study on the relationship of family characteristics and food consumption with nutritional status of children below 2 years on Tolaki tribe in Southeast Sulawesi, with a total sample were 217 children below 2 years in tolaki tribe family.

Size of family

The results of the variables of the families size found the number of family members ≤ 4 people belonging to small family and have a good largest percentage (57%), it means that awareness of the importance of small family has begun to happen in two tribes because the greater of the a family the lesser gained the parents attention to children and it will affect the formation of the child's behavior [9].

There is a significant relationship between a size family with a nutritional status children below 2 years based on indicators BB / U on the Tolaki tribe family ($p = 0.007$), its means more family members will get worse nutritional status of children, it is likely to have an impact on growth and development children. The food needs will be easier if that should be fed were little amounts because the food is only available for a small family [10].

The parents's occupation and income

All parents in the tolaki tribe family work where the majority of fathers were farmed. The work associated with revenues that can affect behavior, where the better job of parents usually living habits and norms prevailing in the family life will get better and it boost indirectly nutritional status of children below 2 years [11].

The percentage of starchy staple foodstuffs in household food consumption diminishing with increasing incomes and tend to turn to more expensive energy food which full of animal food [12].

The real nutritional problem is not only related to food and health issues, it remains also associated with socio-economic problems were parents' education and family income. The family food consumption both in the type and number affected by family income [13].

The lower income is an obstacle that can cause households can not afford to buy groceries in the amount needed and desired quality, in which lower incomes cause to low purchasing power [14,15].

Education

The level of one's education will affect the mindset, outlook, the good and bad attitude and actions related to the demands of life. The higher of education level will be more extensive and better insight into the patterns of thought, one of it, they are better behave in order to fulfill the nutritional health of themselves and others, especially mothers and children themselves.

Statistical test results obtained there are relationship between education level with the nutritional status of children ($P = 0.037$), education is one of the capital base to support the development of qualified human resources, especially in child care and nutritional status of children [16].

The food consumption

24-hour food recall results obtained from the nutrient intake of children below 2 years based Nutrition Adequacy Score (AKG), the majority of food intake of children below 2 years were 53.5% with a normal nutritional status, but with increased age of the child below 2 years then the lower the intake of food children over the age of 12 months, this is in accordance with the results of this study are low energy intake at the age of 12-17 months at a family of Tolaki tribe which reach 74.53% from AKG as well as with the intake of protein.

Protein is a nutrient that has a primary function as a builder substance required by growth. Another function of the protein is a defective cell replacement substance as an ingredient of hormones and enzymes [17]. Low protein intake in children aged 12-17 months was caused children have started consuming the same food as adults, it means the child must adapt to the adults food [18].

Nutritional status of children below two years

The researchers also found some children who lack the nutritional status in all indicators due to various factors such as the less consumption of foods so children with malnutrition status, will not grow and develop properly due to nutritional status also affects the child's intelligence [19].

The direct cause of malnutrition is a lack of nutrition and infectious diseases companion, the root problem is the level of high poverty where economic difficulties, can be helped if the mother has enough knowledge about nutrition [20].

5. Conclusion

Factors related to nutritional status in children below two years in Tolaki tribes were size of family, the father education level, energy consumption and consumption of protein.

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