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Factors Related to the Nutritional Status of Children in Area Served by the Pattingalloang Health Center, Makassar

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Abstract: Malnutrition and under nourishment remain major problems in the health sector, especially in many developing countries. Based on estimates by the WHO, approximately 54% of under-five mortality cases are due to the poor nutritional status of these children. In 2013, approximately 2.66% of all children were malnourished. This research aimed to identify the factors related to the nutritional status of children under five, focusing on the knowledge and attitudes of mothers and on family income. This research is an observational, analytical, cross-sectional study. The population includes all children residing in the area served by the Pattingalloang Health Center, with one-half of all the children who visited the Pattingalloang Health Center, as many as 52 people, sampled by accidental sampling. The study findings show that there are relationship among the knowledge of mothers ($p = 0.002$), the attitudes of mothers ($p = 0.000$), the family's income ($p = 0.000$) and the nutritional status of these children. In conclusion, there is a relationship among mothers' knowledge and attitudes, family income and children's nutritional status. It is recommended that parents be more active in seeking information about how to care for their children and provide balanced, nutritious foods from health workers in the health integrated service and health centers, as well as from the mass media.

Key words: Knowledge, attitudes, income, nutritional status

INTRODUCTION

Malnutrition and under nourishment remain major problems in the health sector, particularly in some developing countries. According to the United Nations Children's Fund (UNICEF), undernourishment and malnutrition have caused more than 1/3 of the 9.2 million deaths in children under 5 years old in the world. UNICEF also reported that there was a significant decrease in the number of deaths among children globally in 2007, but the difference between rich and poor countries, especially in Africa and Southeast Asia, remained large (UNICEF, 2007).

Indonesia must continue to fight a wide range of infectious diseases and malnutrition. Under-nourishment and malnutrition in any form, including protein-energy malnutrition, increase the risk of various diseases and of death and it is a primary cause of deaths among children under age 5 each year in developing countries. The dangers of malnutrition include marasmus, cretinism, irreversible brain damage due to iodine deficiency, blindness, increased risk for infectious diseases and death due to vitamin A deficiency (UNICEF, 2007).

Based to the estimation of world health organization (WHO), approximately 54% cause of babies and children under five deaths are due to the poor nutrition of the children. The risk of death for malnourished children is 13 times greater than for normal children (World Bank, 2006). The prevalence of malnutrition and under-nourishment in children under five in Indonesia is still

high. The prevalence of children's nutritional status is based on three indices: W/A, H/A and W/H. It is clear that the prevalence of malnutrition and under-nourishment increased from 2007 to 2013. The prevalence of very short children decreased to 0.8% in 2007, but the prevalence of short children rose by 1.2% in 2007. The prevalence of very thin children decreased to 0.9% in 2007, while the prevalence of thin children decreased to 0.6%. The prevalence of obesity among children decreased to 2.1% in 2010, where it was decreasing to 0.3% in 2007 (Riset Kesehatan, 2013).

Malnutrition has many effects on the development of children. The short-term impacts of malnutrition on child development include apathy, speech disorders and other developmental disorders. The long-term impacts include lower intelligence quotient (IQ) scores, decreased cognitive development, decreased sensory integration, attention deficit disorder, disturbance reduction in confidence and of course, decreased academic performance.

Malnutrition and under nourishment is still a threat in Makassar. In 2012, 2013 and 2014 in the region in which the Pattingalloang Health Center is located, Ujung Tanah District, of 1.603 children under five years old, 98 were suffering from undernourishment and 2 were suffering from malnutrition (Riset Kesehatan, 2013).

Based on the description above, there searchers examined the factors related to the nutritional status of children near the Pattingalloang Health Center.

MATERIALS AND METHODS

Research sites: This research was conducted at the Pattingalloang Heath Center Makassar using a sample chosen by accidental sampling.

Research design: This is an observational, analytical, cross-sectional study to determine the relationship among the health knowledge, attitude toward food and socioeconomic characteristics of mothers, as well as the intake of various foods and the nutritional status of children under age five.

Population and sample: The study population is all children under age five in the area served by the Pattingalloang Heath Center Makassar. The sample is composed of one-half of the children under age five who visited the Pattingalloang Health Center in Makassar, or 52 children.

Data collection: The data were collected by direct interview using a research instrument in the form of a questionnaire to obtain data on the knowledge, attitudes and socioeconomic conditions of the mothers. The nutritional status of the children was assessed by weight (obtained using a scale), age and height (using a *microtoise*). The data of number of children under five suffering from malnutrition was obtained from the office of Nutritional Health Centre of Pattingalong Makassar.

Data analysis: The data were analyzed by invariant and bivariate using SPSS Software. In this study, chi-squared tests were used to determine the relationships between the dependent variable and the independent variables.

RESULTS

The findings of this study show that there were 34 children under five with normal nutritional status (65.4%) and 18 children under five with abnormal nutritional status (34.6%) Table 1.

A comparison of normal nutritional status and abnormal nutritional status by knowledge can be seen in Table 2, which shows that of the 28 respondents lacking knowledge, 15 (53.6%) have children with abnormal nutritional status and 13 respondents (46.4%) have children with normal nutritional status. Meanwhile, of the 24 respondents with sufficient knowledge, 3 (12.5%) have children with abnormal nutritional status and 21 respondents (87.5%) have children with normal nutritional status. The results of the statistical analysis indicated a p-value of 0.002 (<0.05), which means that the hypothesis is accepted. There is a relationship between the knowledge of mothers and the nutritional status of their children.

A comparison of normal nutritional status and abnormal nutritional status by attitude is provided in Table 3. It shows that of the 20 respondents with negative

Table 1: Distribution of the nutritional status of children under five in the area served by the Pattingalloang Health Center Makassar (2014)

Nutritional status	n	Percentage
Abnormal	18	34.6
Normal	34	65.4
Total	52	100.0

attitudes, 18 (90.0%) have children with abnormal nutritional status and 2 respondents (10.0%) have children with normal nutritional status. Meanwhile, of the 32 respondents with positive attitudes, all 32 (100%) have children with normal nutritional status. The results of statistical analysis indicated a p-value of 0.000 (<0.05), which means that the hypothesis is accepted. There is a relationship between the attitudes of mothers and the nutritional status of their children.

In addition, the comparison of normal nutritional status and abnormal nutritional status by family income can be seen in Table 4. It indicates that of the respondents with negative attitudes, 18 (90.0%) have children with abnormal nutritional status and 2 respondents (10.0%) have children with normal nutritional status.

The results of the statistical analysis indicate a p-value of 0.000 (<0.05), which means that the hypothesis is accepted. There is a relationship between family income and the nutritional status of children.

DISCUSSION

Relationship between the knowledge of the mothers and the nutritional status of children: Knowledge is the result of knowing something. This happens after someone senses a particular object. Knowledge is a very important domain of action. The findings of this research show that of 28 respondents categorized as having a lack of knowledge, 15 (53.6%) have children under five with abnormal nutritional status and 13 respondents (46.4%) have children with normal nutritional status. Meanwhile, of 24 respondents categorized as knowledgeable enough, 3 (12.5%) have children with abnormal nutritional status and 21 respondents (87.5%) have children with normal nutritional status. The results of statistical analysis indicated a p-value of 0.002 (<0.05), which means that the hypothesis is accepted. There is a relationship between the knowledge of mothers and the nutritional status of children under five.

Education can influence an individual's learning process. The higher the level of education, the easier it will be to receive information and vice versa. The more information you input, the more knowledge is gained, including information about health. The higher an individual's education, the higher their knowledge will be. However, a less educated person does not mean less knowledge relate to health (Widayatun, 2004).

The formal education of mothers affects the level of their knowledge and increases her ability to absorb practical

Table 2: Relationship between the Knowledge of mothers and the nutritional status of children in the area served by the Pattingaloang Health Center Makassar (2014)

	Nutritional status						(p)
	Abnormal		Normal		Total		
Knowledge	n	%	n	%	n	%	
Not sufficient	15	53.6	13	46.4	28	100.0	(0.002)
Sufficient	3	12.5	21	87.5	24	100.0	
Total	18	34.6	34	65.4	52	100.0	

Table 3: Relationship between the Attitude of Mothers and the Nutritional Status of Children in the Area Served by the Pattingaloang Health Center Makassar (2015)

	Nutritional status						(p)
	Abnormal		Normal		Total		
Attitude	n	%	n	%	n	%	
Negative	18	90.0	2	10.0	20	100.0	(0.000)
Positive	0	0	32	100.0	32	100.0	
Total	18	34.6	34	65.4	52	100.0	

Table 4: Relationship between Family Income and the Nutritional Status of Children in the Area Served by the Pattingaloang Health Center Makassar (2015)

	Nutritional status						(p)
	Abnormal		Normal		Total		
Family income	n	%	n	%	n	%	
Insufficient	17	54.8	14	45.2	31	100.0	(0.000)
Sufficient	1	4.8	20	95.2	21	100.0	
Total	18	34.6	34	65.4	52	100.0	

knowledge in both formal and informal environments, especially through the mass media, so that they can manage, present and share information as it is needed. Most of the less knowledgeable housewives pay little attention to their children's diseases, as the field survey showed that many mothers talked only to their neighbors and did not have time for their children (Simanjuntak, 2007).

Knowledge about nutrition is often influenced by the level of education, which impacts her role in preparing family meals, as well as in parenting and nursing children. This affects to their knowledge. The findings show that the level of the respondents' knowledge about nutrition remain slow. These mothers' lack of nutritional knowledge will influence the foods selected and served to the family, especially to children under five and can thus affect the eating patterns of children.

Recent research by Purwanti (2014) reported bivariate analysis results showing that there is a correlation between the knowledge of mothers and the nutritional status of their children ($p < 0.000$). A similar study was conducted by Susanti, Indriati and Utomoon the relationship between mothers' knowledge about nutrition and the nutritional status of children from 1 to 3 years old. The 98 respondents from the Rojosari Health Center also showed a significant relationship ($p = 0.004$) (Susanti *et al.*, 2013).

Relationship between the attitudes of mothers and the nutritional status of children: An attitude is a feeling of support or partiality (favorable) or a feeling of not

supporting or not being partial (unfavorable) to an object. Attitude is evaluative and provides a submitted and formed value related to an object. Table 2 shows that of 20 respondents with negative attitudes, 18 (90.0%) have children with abnormal nutritional status and 2 respondents (10.0%) have children with normal nutritional status. Meanwhile, of the 32 respondents with a positive attitude, all 32 (100%) have children with normal nutritional status. The results of the statistical analysis indicated a p-value of 0.00 (< 0.05), which means that the hypothesis is accepted. There is a relationship between the attitude of a mother and the nutritional status of her children under five.

This result is in line with the findings of a study conducted by Sitti Munthofiah in (2008), which showed statistically significant relationship between mothers' attitudes toward health problems and parenting and good nutritional status ($p = 0.000$, OR = 4.83). Mothers who have good attitudes towards health are five times more likely to have children with good nutritional status than those who have not good attitudes towards health (Sitti Munthofiah, 2008).

Mothers' attitudes regarding the provision of food to their children is a determinant of providing appropriate foods for their children. Appropriate foods are given to children so that they can meet their nutritional needs. Attitudes obtained from social interactions and the environment can easily affect a mother's behavior in providing food at home. According to research conducted by Hafrida (2004) eating habits taught by the mother will affect children's eating patterns when the child can decide

which foods to consume. Data for Indonesia showed that 13% of children under age five experiences slow development due to a lack of income that decreases the ability to buy food for the whole family (The Ministry of Health, 2010). However, a study conducted by Liu *et al.* (2010) showed that the economic status of a family is less influential on the development of the children (31.5%). The economic status of the family will affect the mother's attitude in providing appropriate food for the family, especially for children (Liu *et al.*, 2010).

Relationship between family income and the nutritional status of children: According to studies by Suhardjo (2003), in daily life, income is closely related to the salary, wages and other income received by a person after performing work in a specified period. Table 4 shows that of the 31 respondents with less income, 17 (54.8%) have children with abnormal nutritional status and 14 respondents (45.2%) have children with normal nutritional status. Of the 21 respondents with sufficient income, 1 (4.8%) has children with abnormal nutritional status and 20 respondents (95.2%) have children with normal nutritional status. The results of the statistical analysis indicated a p-value of 0.000 (<0.05), which means that the hypothesis is accepted. There is a relationship between family income and the nutritional status of children under five.

In this study, the majority of husbands or heads of household work as fishermen and laborers who earn low incomes. This shows that family income affects the nutritional status of children under five. If a family has an income that is sufficient to meet the nutritional needs of its members, then it is guaranteed that children's nutritional needs will be met and vice versa (Mallongi *et al.*, 2015).

Generally, if income rises, the amount and types of food consumed tend to improve as well. However, the quality of food does not always improve when production are applied. The crops replace the food production of the household. Then, the income earned from trading plants or other efforts increases there venue earmarked for food purchases of high nutritional quality.

Conclusions and suggestions: It can be concluded that there is a relationship between the knowledge and attitudes of mothers, as well as family income and the nutritional status of children in the area served by the Pattingaloang Health Center Makassar. It is recommended that parents actively seek information about how to care for their children and about the provision of balanced, nutritious foods from health

workers in the health integrated service, health centers, as well as from the mass media or other information sources, so that their knowledge about nutrition can be improved.

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