Determinant of Nutritional Status Children

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Abstract: *Based on the results of Nutritional Status Monitoring (PSG) in South Tapanuli known nutritional status based on BB / U = 10.95% poor, 18.9% less, 62.7% good and 7.5% more.* Based on the results of Nutritional Status Monitoring (PSG) in South Tapanuli known nutritional status based on BB / U = 10.95% poor, 18.9% less, 62.7% good and 7.5% more. Based PB / U = 32.3% is very short, 17.9% short, normal 41.3, and 8.5% higher. Based W / H = 6.9% very Skinny, 8.5% underweight, 64.5% normal, 20.0% fat. This study aims to be analyzed the determinants of nutritional status of infants in Sipirok District, conducted on May 2017 to September 2017, with the type of survey research with cross sectional study design. The collection of data by questionnaire and observation sheet. Data were analyzed using Chi-square tests at 95% confidance (α =0,05). The results obtained by the value of p = (0, 003; 0,000; 0.003; 0.021; 0.009; 0.003; 0.039) <0.05 means that there is a significant relationship between knowledge of maternal nutrition, mother's occupation, family income, number of children, history of infectious diseases, nutritional intake, and maintain the nutritional status of infants. The Head of Puskesmas (public center) Sipirok South Tapanuli, to conduct surveillance activities and the development of integrated health and should be more often socialized. *Encourages mothers to brought infants to routine IHC and pay attention to the cleanliness of the baby to avoid infectious diseases.*

1 INTRODUCTION

The aim of health development towards Healthy Indonesia 2025 is to increase awareness, willingness and ability to live healthy for everyone so that the highest degree of public health can be realized, through the creation of the people, nation and State of Indonesia, which is characterized by its population living with behavior and in the environment healthy has the ability to reach quality health services, fairly and equally, and the highest degree of health in all regions of the Republic of Indonesia (Kemenkes RI), 2017).

Nutrition is one of the most important factors for the health of an individual or society, because nutrition has a direct effect on growth, development, reproduction, and both physically and mentally. Nutrient deficiency will have very big impact on growth and development, especially children under five. In infants who are severely malnourished (poor) will be able to reduce the Intelligence Question (IQ) and cause death. Chronic malnutrition from the fetus to infancy can cause stunted (Sarah E. C., Michael K.

G., 2017. According to UNICEF - WHO - The World Bank Joint Child Malnutrition Estimates in 2012, an estimated 165 million children under the age of five worldwide stunted decreased compared with as many as 253 million in 1990. The nutritional status of children under five was measured by age, body weight (BB) and height (TB). Age, weight and TB variables are presented in the form of three anthropometric indicators, namely: body weight according to age (BW / U), height by age (TB / U), and weight by height (BW / TB).

According to RISKESDAS 2018, there were 19.6% of malnourished children under five consisting of 5.7% of underfives with malnutrition and 13.9% underweight. 4.5% of children under five with over nutrition. When compared with the national prevalence rate 2007 (18.4%) and 2010 (17.9%), the prevalence of malnutrition in infants 2013 was increase. Underfives of malnutrition in 2010 consisted of 13.0% of under-fives with malnutrition status and 4.9% of under-nutrition status. The changes are mainly in the prevalence of malnutrition, from 5.4% in 2007, 4.9% in 2010, and 5.7% in 2013. To achieved the MDG target in 2015, which is 15.5%,

the prevalence of malnutrition-less nationally should be reduced by 4.1% in the period 2013 to 2015. The prevalence of underfives nutritional status based on weight / U North Sumatra, namely: poor nutrition = 8.3%, malnutrition = 14.1%, good nutrition = 72.8% and more nutrition = 4.8%, Kementerian Kesehatan RI. (2016).

Other nutritional status indicators, namely height by age (TB / U) give an indication of chronic nutritional problems as a result of a long-standing condition. For example: poverty, unhealthy behavior, and poor parenting / feeding from the time the child is born which results in the child becoming short. Nutritional status indicators based on the BB / TB index give an indication of acute nutritional problems as a result of events that occur in a short time. For example: there is an epidemic of disease and lack of food (starvation) which causes the child become thin. BB / TB and BMI / U indicators can be used to identify thin and fat. The problems with thinness and fat at an early age can result in the risk of various degenerative diseases in adulthood Kementerian Kesehatan RI. (2016), there were 37.2% of children under five with below normal height which consisted of 18.0% short toddlers and 19.2% of short toddlers. Compared to 2010, there was an increase in the percentage of short and very short toddlers in 2013 from 35.6% to 37.2%. 2013 the prevalence of short showed a decrease, from 18.8% in 2007 and 18.5% in 2010. Short prevalence increased from 18.0% in 2007 to 19.2% in 2013. Prevalence of underfive nutritional status based on TB / U North Sumatra, namely: very short = 22.7%, short = 19.8%, and normal = 57.5%, Kementerian Kesehatan RI (2016).

Another anthropometric indicator to assess the nutritional status of children under five is body weight according to height (BB / TB). In 2013 there were 12.1% underfive wasting (6.8) consisting of 6.8% underfive and 5.3% very thin. This figure decreased compared to 2010 with a percentage of 13.3%. The prevalence of thin nationally in 2013 was still quite high at 5.3%, a decrease compared to 2010 (6.0%) and 2007 (6.2%). Likewise, the thin prevalence of 6.8 percent also showed a decrease of 7.3 percent (in 2010) and 7.4% (in 2007). Prevalence of underfive nutritional status based on TB / BB in North Sumatra, namely: very thin = 12.8%, thin = 72.2%, normal = 7.4% and fat = 7.5%, Kementerian Kesehatan RI (2016).

Other factors that influence the nutritional status of children include family economic factors that affect diet and nutritional adequacy of children; socio-cultural factors that put the interests of pregnant women and nursing mothers after the interests of the father as head of the family, and the child; generally low educational factors so that the impact on the mother's limited knowledge about healthy lifestyles and the importance of nutrients for health and nutritional status of children.

According to Hardiansyah (2017), one of the factors that can influence PEM is that mothers who receive permanent work must leave their toddlers from morning to evening, toddlers are forced to be left at home so that they get sick and do not get attention, and feeding is not done properly.

In the period from 2007 to 2012, South Tapanuli Regency was one of the biggest contributors to the prevalence of malnutrition children under five in Indonesia. From the results of Nutrition Status Monitoring (PSG) in 2012 it was found that the nutritional status of children under five based on BB / U = 10.95% was poor, 18.9% was lacking, 62.7% was good and 7.5% was more. Based on PB / U = 32.3% it is very short, 17.9% is short, 41.3 is normal, and 8.5% is high. Based on body weight / TB = 6.9% very thin, 8.5% thin, 64.5% normal, 20.0% fat.

Based on the impact caused by malnutrition status and malnutrition status in South Tapanuli Regency must be intervened appropriately and focus on the main or dominant causative factors. The purpose of this study was to determine the influence of determinants (maternal nutritional knowledge, mother's occupation, family income, number of children, history of infectious diseases, nutrient intake, and parenting patterns) on nutritional status of children under five in Sipirok, South Tapanuli Regency in 2017.

2 RESEARCH METHODS

Research design is a survey with the design of the implementation of this study with cross-sectional study or cross section, which was conducted on May 2017 to September 2017. The population of this study were all mothers of children under five (aged 1-5 years) in the District of Sipirok South Tapanuli Regency is 2,433 people. Technique Sampling in this study as research respondents with a sample technique was proportional allocation. The number of samples was 181 people. The data collection method is carried out by weighing and asking the age of children under five, observation sheet of nutrition fulfillment using 24-hour recall method. Classification of the adequacy level of nutritional intake of infants, including: energy, fat, vitamins and minerals, categorized as: 1) Good: 100% RDA; 2) Medium: 80 - 90% RDA; 3) Less: 70 - 80% RDA;

and 4) Deficit: <70% RDA. Whereas data collection for independent variables on mother's nutritional knowledge, mother's occupation, family income, number of children, history of infectious diseases, and patterns of parenting was done by giving a set of written questions or questionnaires to mothers of toddlers. In writing questions or statements on a questionnaire according to Uma Sekaran (1992) in Sugiyono (2017) must pay attention to the principles of writing, measurement, and physical appearance. A set of written questions or questionnaires are presented in such a way that mothers of children under five in Sipirok Subdistrict, South Tapanuli Regency as respondents only give a check mark (√) in the appropriate column or place called a closed questionnaire, Arikunto, S. (2017).

The Data analysis used univariate analysis and bivariate analysis. Univariate analysis aims to determine the percentage description of each variable both independent and dependent. While the bivariate analysis was carried out to find out the correlation between the independent variable and the dependent variable, which will be tested with the Chi-square statistical test, at a 95% degree of confidence that is $\alpha = 0.05$ with the provisions that if the value of $p < 0.05$, then there is an influence meaningful between the two variables, Sastroasmoro, Ismael, (2016).

Interpretation of the correlation coefficient or the strength of the relationship of each independent variable with the dependent variable, is: if 0.00 - 0.199 means very low; if 0.20 - 0.399 means low; if 0.40 - 0.599 means medium; 0.60 - 0.799 means strong; and 0.80 - 1,000 means very strong Sastroasmoro, Ismael, (2016). Next, a multivariate analysis was performed to find out which independent variable was the most dominant influence on the nutritional status of children under five in Sipirok Subdistrict, South Tapanuli Regency, using multiple logistic regression tests. The stages of the multivariate analysis process are as follows: 1) Inserting candidate variables in the multivariate analysis process of multiple logistic regression by selecting an independent variable that has a value of $p < 0.25$; 2) Analyze all independent variables included in the modeling by issuing independent variables that have a value of p 5 0.05 so that the initial model is obtained with a determinant variable that has a value of $p < 0.05$; and 3) Multivariate test results that have $p < 0.05$ are the final model of determining variables that affect the nutritional status of children under five in Sipirok Subdistrict, South Tapanuli Regency.

3 RESULTS AND DISCUSSION

The results of the study was based on the characteristics of the disease children under five years at the Sipirok Health Center in South Tapanuli Regency, the most diarrhea were 90 people or 49.7% of 181 respondents. Based on the sex of children under five in the Sipirok Health Center in South Tapanuli Regency, the majority were 105 women or 58.0%. Based on the level of parental education of children under five in Sipirok Health Center, South Tapanuli Regency, the highest number were 92 people in high schools or 50.8%. The results of research conducted on 58 respondents, it appears that there was a correlation between maternal nutritional knowledge with nutritional status in infants in Sipirok Subdistrict, South Tapanuli Regency, with a value of $p = 0, 003 < 0.05$ (Table. 1)

Table 1. The Correlation of Maternal Nutrition Knowledge to Nutrition Status in News at South Sipirok District of Tapanuli District

Variabel	Status Gizi							Nilai *p*
	Sangat Kurang		Kurang		Normal		Total	
Asupan Gizi	n	%	n	%	n	%	n	%	
Kurang	16	9,9	17	9,4	32	17,7	65	37,0	0,003
Sedang	12	6,6	41	22,7	30	20,4	83	49,7	
Baik	5	2,2	7	3,9	21	7,9	33	13,3	

The level of knowledge of a person influences attitudes and behaviors in food selection which will ultimately affect the nutritional state of the individual concerned Scaglioni, De Cosmi, Ciappolino, (2018). Mother is a person who plays an important role in determining the consumption of food in the family, especially in children under five. Mother's knowledge influences family food consumption patterns. Lack of maternal knowledge about nutrition causes reduced food diversity. The Families will buy more goods because the influence of habits, advertising, and the environment. In addition, nutritional disorders are also caused by the lack of ability of mothers to apply information about nutrition in daily life Aritonang, Siregar, Nasution, (2016). Mother's knowledge is one of the factors that influence toddlers nutrition and is most easily intervened and measured. The intervention can be in the form of counseling to increase the mother's knowledge about toddlers nutrition, especially regarding signs of illness in children, feeding schedule for toddlers, kinds of nutritious food, balanced types of food and the benefits of food for toddlers.

Beyond medical aspects, nutritional problems can be caused by poverty, socio-culture, lack of knowledge and understanding, food procurement and distribution, and natural disasters Sarah E. C., Michael K. G., (2017). The problem of nutrition was caused poverty is an indicator of the family's economic level and the measure used is the poverty line. The nutritional problem because of the socio-cultural indicator was the stability of the family with a measure of the frequency of marriage - divorce - reconciliation, children born in unstable family environments will be very vulnerable to malnutrition. Also demographic indicators which include the composition and pattern of population activities. Nutrition problems due to lack of knowledge and skills in the field of cooking, children's consumption, diversity of ingredients, and diversity of dishes that affect mental health, such as boredom. Nutrition problems due to food procurement and distribution, food supply indicators (food supply) which are usually taken into account in the form of a food balance, are translated into nutritional value and compared with the average value of population sufficiency. The results of this study are consistent with the results of Puspasari and Andriani, research in 2017 in Tambak Wedi Health Center, Kenjeran District, Surabaya City namely there is a correlation between the level of maternal nutritional knowledge and toddler eating patterns with the nutritional status of toddlers.

The results of this study are consistent with the results of Puspasari and Andriani, research in 2017 in Tambak Wedi Health Center, Kenjeran District, Surabaya City namely there was a correlation between the level of maternal nutritional knowledge and toddler eating patterns with the nutritional status of toddlers. The results of this study doesn't line with the research of Haqiqih, Nuzrina, Bahar (2018), with the title of the correlation of the level of family income, education and knowledge with nutritional status in toddlers in Parit Baru Village, Kubu Raya Regency with the result that there was no significant correlation between maternal knowledge and nutritional status in toddlers (p = 0.473). The results of research conducted on 58 respondents, it appears that there was a correlation between the work of mothers with nutritional status in infants in Sipirok Subdistrict, South Tapanuli Regency, with a value of p = 0,000> 0.05.

Mother does not have much time to prepare food and cause less attention and affection, so can affect both nutritional status, parenting, and development in infants. Conversely, a mother who is not working can take good care of her child and express her love,

Setiyaningrum, (2017). The results of this study are in line with the results of the 2005 Cindar Bumi study on the influence of working mothers on the nutritional status of children under five in Mangunjiwan, Demak Regency in 2005, like working mothers will influence the feeding patterns of their toddlers. There was a positive relationship between the level of energy consumption with the nutritional status of children under five.

The results of this study are not in line with the results of Adelina, Widajanti, Nugraheni, research in 2018, in Duren Health Center, Semarang Regency is not related to the nutritional status of toddlers in farm laborers' families. Likewise the results of the Pratasis, Malonda, Kapantow research, 2018 in Ongkaw Village, Kecamatan Sinonsa yang, Minahasa Selatan District with a cross sectional design that found there was no significant correlation between maternal work and the nutritional status of children with a value of p = 0.419.

Relationship of Family Income with Nutrition Status in Toddlers in Sipirok Subdistrict, South Tapanuli Regency, the results of research conducted on 58 respondents, it appears that there was a correlation between family income and nutritional status of children under five in Sipirok Subdistrict, South Tapanuli Regency, with a value of p = 0.003 <0.05.

According to Kemenkes, 2017 in the Value of Children's nutritional status, stated that family income would affect the purchasing power of families so that it would affect health status. The ability of families to purchase foodstuffs, among others, depends on the size of the family's income, the price of the food itself, and the level of land and yard resource management. Families limited income will most likely be less able to meet their food needs in accordance with the nutrients needed by the body.

The results of this study are in line with the results of the Hidayah, Kasman, Mayasari, 2018, namely that there was a There is a significant difference between the nutritional status of the high income group and the nutritional status of the low opinion group. High income for families is a big fulfillment of nutrients to families in toddlers in everyday life. The high income needed will increase the purchasing power of the food that will be paid for and is suitable for nutrients. Ordinary Low Income no longer pays attention to food spent by considering nutritional value, but material value is more a consideration. But do not close about low-income families can spend food that has good nutritional value.

The results of this study are not in line with the results of research Alamsyah, Mexitalia, Margawati,

et all, 2017, there was no relationship between high and low income with the nutritional status of toddlers. Also the results of this study are not in line with the research of Haqiqih, Nuzrina, Bahar 2018, with the title of the relationship of family income level, education and knowledge with nutritional status in toddlers in Parit Baru Village, Kubu Raya Regency with the result that there was no significant relationship between the level of family income and nutritional status at toddlers (p = 0.299). One of the causes of the low nutritional status of children under five starting at the age of 6 months is the start of supplementary supplementary feeding at that age, so the quality of food consumed by infants is very dependent on their parents. One of the influencing factors is the socio-economic condition of parents, with limited economic conditions usually the fulfillment of nutrition in infants is neglected. In this study it was found that family expenditure was not related to the nutritional status of children under five.

Hodder, R. K., Stacey, F. G., O'Brien, K. M., et all, 2018 states that nutrition / food and nutritional status are both influenced and caused by individual household income. Nutritional status is also influenced by the amount and type of food consumed, as well as maternal knowledge that is still low on health and nutrition.

The results of research conducted on 58 respondents, it appears that there was a correlation between the number of children with nutritional status in children under five in Sipirok Subdistrict, South Tapanuli Regency, with a value of p = 0.021 <0.05. According to Bengoa, which is a quote from Gerritsen, S., Dean, B., Morton, S. M. B., & Wall, C. R., 2017., malnutrition is an ecological problem as a result of multiple overlapping. According to Gerritsen, S., Dean, B., Morton, S. M. B., & Wall, C. R., 2017., ecological factors related to the causes of nutritional problems were divided into 6 (six) groups, namely the state of infection, food consumption, cultural, socio-economic influences, food production, and health and education. For family conditions starting from the size or number of family members, the relationship and birth distance fall into a group of socioeconomic factors (Aritonang, Siregar, Nasution, 2016).

The results of this study are also in line with the results of the research of Nuriah, 2017, in Cilacap Regency, that the number of family members is related to the nutritional status of toddlers in farm laborers' families. The results of this study are supported by the research of Mutika, Syamsul, 2018, on the Analysis of Problems with Malnutrition in Toddlers in the Teupah Selatan Health Center in

Simeuleu Regency. In the study, it was found that there was an influence of the number of children on the Toddler Nutrition Status in the Work Area of Payung Sekaki Health Center, Pekanbaru.

The results of research conducted on 58 respondents, it appears that there was a correlation between the history of infectious diseases with nutritional status in infants in Sipirok Subdistrict, South Tapanuli Regency, with a p value = 0.009 <0.05. According to Andadari, Mahmudiono, (2017), the factors that cause malnutrition or that affect a person's nutritional status directly are children's food and infectious diseases that children may suffer from. The emergence of malnutrition is not only due to lack of food, but also because of disease. Children who get good enough food, but are often attacked by diarrhea or fever, can eventually suffer from malnutrition. Likewise in children who eat not good enough, then their immune system will weaken. In such circumstances susceptible to infection that can reduce appetite, and ultimately can suffer from malnutrition. In fact both food and infectious diseases together are causes of malnutrition. Infectious diseases greatly affect the nutritional status of children under five. Children who get enough food, but are often attacked by infectious diseases can eventually be weakened so that the body is so easily attacked by infectious diseases Andadari, Mahmudiono, (2017). The results of this study are in line with the results of Nengsi, Risma, research, 2017 about the Relationship of Infectious Diseases and Nutritional Status of Toddlers in the Work Area of Anreapi Health Center, Polewali Mandar District, with the result that there is a correlation between infectious diseases and nutritional status in toddlers in the Anreapi Health Center working area with a value of p = 0.027 <0 .5

The results of research conducted on 58 respondents, it appears that there is a relationship between nutritional intake and nutritional status in infants in Sipirok Subdistrict, South Tapanuli Regency, with a p value = 0.003 <0.05. Food intake is a direct cause of the nutritional status of children under five (Matwiejczyk, L., Mehta, K., Scott, J., et all, 2018). Research Aidid, Sulaiman and Syafruddin S. 2017, on the Effects of Providing Healthy Food Patterns on the Nutritional Status of Children of Bunga Asya Kindergarten Students, found that the application of healthy eating provisions for young children is a very wise action, in addition to meeting nutritional needs, food provision is a way avoid snacks that are not necessarily healthy. The rise of the use of hazardous chemicals in snacks, such as dyes, flavorings to preservatives need to be aware of. One

way to avoid unhealthy snacks by providing children with healthy food.

The results of this study are consistent with the opinion of the Ministry of KEMENKES RI, 2017 that, intake of consumption affects the nutritional status of a person. Good nutritional status can be achieved if the body gets enough nutrients to be used efficiently, so as to enable physical growth, brain development, to achieve optimal health levels. A study conducted among indigenous children revealed that daily energy and protein intake were below the RDI (Recommended Daily Intake) and were significantly associated with malnutrition (Rajoo Y, Ambu S, Lim Y.A.L et al. 2017). The results of this study are not in line with the results of the 2016 Adani, Pangestuti, Rahfiludin research at Lusendra Children's Daycare Park in Semarang There is no relationship between carbohydrate intake, protein intake and fat intake in Day Care with the nutritional status of infants and toddlers (W / A, H / A, W / H). There is no relationship between total carbohydrate intake, total protein intake and total fat intake with the nutritional status of infants and toddlers (W / A, H / A, W / H).

There is no relationship between carbohydrate intake and nutritional status due to statistical test results of p value of 0.642. The results of research conducted on 58 respondents, it appears that there is a relationship between parenting patterns and nutritional status in toddlers in Sipirok Subdistrict, South Tapanuli Regency, with a value of p = 0.039 <0.05.

According to Luque, V., Escribano, J., Closa-Monasterolo, R., et all, 2018 parenting patterns are the ability of families to provide time, attention and support for toddlers to grow and develop as well as physically, mentally and socially. Patterns of parenting in the form of attitudes and other parenting practices in proximity to children, caring, how to feed and love. Based on this understanding parenting is basically a practice carried out by older adults towards infants associated with meeting the needs of food / nutrition, basic care (including immunization, treatment if sick), a proper home or place, personal hygiene, environmental sanitation, clothing, physical fitness Setiyaningrum, (2017). The role of parenting children on nutritional status is very important. In the UNICEF, 2019 inadequate care patterns are an indirect cause of malnutrition. In this study it was found that nutritional status is not influenced by parenting. This is supported by Muslim research, 2008 that the pattern of feeding children depends on eating habits, socio-economic conditions, understanding and awareness about nutrition, and local food supply. According to Carson, V., Lee, E.

Y., Hewitt, L., et all, 2017 parenting is a practice of households that are required by the availability of food and health care for the affordability of life, growth, and development. The pattern of psychosocial care for children in the form of the attitude of the mother's treatment in terms of its closeness to the child, providing food, caring, maintaining health and hygiene, and giving love.

This is consistent with what was stated by Savoie-Roskos, M. R., Wengreen, H., & Durward, C., 2017, that the purpose of feeding children is to meet the needs of sufficient nutrients in survival, recovery of health that is sick, for activity, growth and development. With preparation and feeding, children are also educated so that they can receive, like, choose good food and determine the amount of food that is adequate and of good quality.

In Dariush Mozaffarian, 2018, it was stated that children experience malnutrition due to lack of food at the household level, ways of providing food that is not good, and because children do not want to eat. Children can refuse if the food served does not meet their tastes. Therefore, parents must be democratic to serve food that is the child's favorite. The results of this study are in line with the results of Gerritsen, S., 2016, there is a tendency for parenting with nutritional status. The better parenting for toddlers, the proportion of good nutrition in toddlers will also be even greater. In other words, if the pattern of care for children under five in the family is getting better of course the level of consumption of toddler food will also be better and will ultimately affect the nutritional status of children

4 CONCLUSIONS

The results of the study concluded that the factors significantly related to the nutritional status of children under five in Sipirok Subdistrict, South Tapanuli Regency were nutrition knowledge, work, family income, number of children, nutrient intake, parenting patterns, number of children. The knowledge variable had an influence of 3,298 times (95% Cl 1,626; 4,222) on nutritional status of children under five in Sipirok Subdistrict, South Tapanuli Regency. The results of this study indicate the accident of malnutrition is higher. Therefore, the incidence of malnutrition in this region needs to receive serious attention from all elements of society, government and health workers.

The results of this study hope to provide the information to all elements of society including health workers able to improve good nutrition programs for

the community. We have to giving education and socialization to the community regarding nutrition in infants and changes the family behavior to nutrition conscious families.

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