Table of contents available atIOCScience

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THE RELATIONSHIP BETWEEN CONSUMPTION PATTERNS AND NUTRITIONAL STATUS IN ELEMENTARY SCHOOL-AGED CHILDREN IN THE COASTAL AREA OF SIBOLGA CITY IN 2021

Meiyati Simatupang[1], Herlina[2], Hemro Simamora[3]

[123]S1 Public Health, STIKes Nauli Husada Sibolga, Jl. Kader Manik No.2, Sibolga, North Sumatra, 22533, Indonesia

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ABSTRACT

Children of primary school age in coastal areas are among the groups at high risk of experiencing nutritional status problems. Children need adequate nutrients because they are still in their infancy. Adequate diet and consumption of nutrients are very influential for the optimal process of growth, development, and health of children. The purpose of this study was to analyze the relationship between consumption patterns and nutritional status in elementary school-age children in the coastal area of Sibolga City. The study design used a cross sectional design. The sampling technique uses the Multistage Random Sampling technique (n=259). The results of the study There was an association between dietary consumption patterns and the nutritional status of school-age children with a significance value of 0.000. The conclusion is that there is a meaningful relationship between the diet and the nutritional status of the students. Advice for the health department is expected to create health education programs in schools. Advice for puskesmas is expected to be able to hold regular measurements of student nutritional status, conduct health checks. For the nursing profession, it is expected to be able to provide education and counseling to parents and students related to the prevention of nutritional status problems in students.

E-mail:
meiyatis1965@gmail.com

1. Introduction

Childhood the growth and development process is relatively stable compared to infancy or adolescence which is experiencing rapid growth. Annual weight gain averages about 7 pounds (3-3.5 kg) and height gain each year averages about 2.5 inches (6 cm) (Brown, 2005). Although at this time the child's physical growth is relatively stable, the child's appetite and food consumption tend to increase (Brown, 2005). School-age children need adequate nutrition because they are still in their infancy, need a lot of energy for activities, increase the body's resistance to infections and for growth in adolescence. (Williams, 2000). Adequate consumption of food and nutrients has an important role for school-age children to ensure optimal growth, development, and health of children (Brown, 2005). The optimal child growth and development process depends on providing good and correct quality and quantity of nutrition. In this period of growth and development, the provision of nutrients or food intake to children cannot always be carried out perfectly (Judarwanto, 2006).

Children are an investment in human resources that require special attention to the adequacy of their nutrition from birth, even from the womb. Nutrients from food are the main source to meet the nutritional needs of children in the process of optimal growth and development so that they can achieve complete health both physical, mental, and social health (Chaerunnisa, 2008). School-age children have the characteristics of doing a lot of physical activity so that at this time children need high energy to support their activities. Energy in the body can arise due to the burning of

carbohydrates, proteins and fats. The adequacy of such energy is obtained from the consumption of foods that have high nutritional value. A healthy diet is needed for children to get balanced nutrition. The nutritional balance obtained through a healthy diet will have a positive effect on children's health and growth and development (Anggraini, 2003).

The child's feeding behavior and food choices at school age are strongly influenced by parents. Parents are responsible for the situation when eating at home, the type and amount of food served and the time of the child's meal. Parents should also provide guidance and advice so that children can choose good and healthy food choices when they eat outside the home (Brown, 2005). Parents' understanding of the importance of a healthy lifestyle for children is the main thing that must be considered, because children's consumption patterns imitate the consumption patterns of their parents. Good consumption patterns in children will also have a good impact on their nutritional status (Ardhiani, 2007).

Nutritional status is the state of the body as a result of food consumption and the use of nutrients. Nutritional status is divided into three categories, namely more nutritional status, normal nutrition, and malnutrition (Almatsier, 2005). Assessment of nutritional status in children can be done in several ways, namely by means of food surveys, biochemical examinations, clinical examinations, and anthropometric examinations (Arisman, 2009). The simplest assessment of nutritional status is by anthropometric examination. An anthropometric index is a measurement of several parameters. Anthropometric index can be the ratio of measurements to one or more measurements, or that is associated with age and nutritional level. One example of an anthropometric index is the Body Mass Index (BMI) or it can also be called the Body Mass Index (BMI) (Supariasa, 2001). Body Mass Index (BMI) is a simple measurement index by calculating body weight (kg) divided by height (meters) squared or BB (kg)/TB $(m)^2$ (Supariasa, 2001).

The results of Riskesdas (2013) showed that the national prevalence of thin school-age children (according to BMI/U) was 11.2% consisting of 4.0% very thin and 7.2% thin. The prevalence of obese school-age children was 18.8%, consisting of 10.8% fat and 8.8% severely obese. The prevalence of overweight nutrition in school-age children (6-12 years) in East Java Province in 2013 was 12.4% (Ministry of Health, 2013). Children of primary school age (6-12 years) with a good nutritional status of 70% and 11.2% for primary school children with malnutrition status (Riskesdas, 2013).

There are two factors that affect nutritional status, namely direct factors and indirect factors. Direct factors include food intake and infections. Indirect factors that affect nutritional status are three factors, namely food security in the family, childcare patterns and the right environment including access to health services (Riyadi, 2001). Other indirect factors that can affect nutritional status are income level, knowledge about nutrition and education (Suhardjo, 2003).

The observation results found that the lives of people in the coastal area of Sibolga City mostly earn income from the fishery sector. A total of 5,813 thousand residents in Sibolga City work in fisheries, agriculture, and plantations. People work as fishermen because of the geographical location that makes it easier for them to carry out the work. Coastal communities in Sibolga City generally have certain lifestyles and behaviors and characteristics, for example related to their social, economic, ecological and cultural circumstances. The socioeconomic status of coastal communities is classified below the poverty line due to their low income levels. People have low incomes due to factors of insufficient knowledge about the potential of coastal resources, either how to utilize or consevate them (BPS Sibolga City, 2015). Based on interviews with several fishermen, their average income every day is thirty thousand to forty thousand rupiah. Low incomes of coastal communities will affect household consumption patterns, especially in children because families cannot afford to provide food that is in accordance with balanced nutritional needs. Coastal communities in meeting their daily food needs are more likely to take advantage of the results of ponds such as fish, shrimp and crabs (BPS Sibolga City, 2015).

Based on the results of interviews with 5 parents of elementary school students in Beringin City in the coastal area of Sibolga City, it was found that the types of food that children consume every day are rice as a source of carbohydrates, fish and eggs as a source of animal protein, tofu and tempeh as a source of vegetable protein, banana fruit as a source of vitamins and rarely consuming vegetables. Parents serve meals to children 3 times a day, namely in the morning before going to school, during the day after school and at night, but there are still children who do not want to eat breakfast in the morning. They prefer to buy snacks at their school. The arrangement of the food

Table of contents available atIOCScience

Midwifery Science

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served consists of rice, side dishes and vegetables. The portion given usually depends on the wishes of the child and usually the child is willing to eat if there are no vegetables.

2. Research Methods

2.1 Research Type and Design

The research design used in this study is correlational analytical observation with a "cross sectional" approach. Cross-sectional study is a study to study the dynamics of correlation between risk factors and effects through approach, observation, or data collection at the same time at one time, namely the point time approach (Notoatmodjo, 2010). The design of this study was used to determine the relationship between consumption patterns and nutritional status in elementary school-age children in the coastal area of Sibolga City.

The research was conducted in elementary schools located in South Sibolga District and Sibolga District, Sibolga City. The study was conducted for 1 month, namely on June 19, 2021, to July 19, 2021.

2.2 Research Place And Time

The research was conducted in elementary schools located in South Sibolga District and Sibolga District, Sibolga City. The study was conducted for 1 month, namely on June 19, 2021, to July 19, 2021.

2.3 Population And Sampel

The population in this study is all parents and all school-aged children in grade 1 to grade 5 which are found in some elementary schools in South Sibolga District and Sibolga Kota District because these two sub-districts are located in the coastal area of Sibolga City. Grade 6 did not participate in the study because they were more prepared and focused for the national exam. The population in this study was randomly selected in 2 sub-districts in Sibolga City, namely South Sibolga District and Sibolga City District. The number of elementary schools in the 2 sub-districts is 38 schools. Researchers randomly selected 3 elementary schools in each sub-district using the shuffling method so that there were 6 elementary schools selected. The population in this study was 734 students. The research samples used were some parents of school-age children and some of the school-age children in grade 1 to grade 5 elementary schools in South Sibolga District and Sibolga Kota District. The sample size in the study was 259 students. The sampling technique in this study uses probability sampling with multistage random sampling technique which is sampling carried out by means of at least 2 techniques or several stages.

2.4 Analysis Techniques

Researchers collected data by asking respondents to fill out a questionnaire sheet of consumption patterns filled out by the parents of the students, then measuring the height and weight of the students to find out the student's BMI. After data management is carried out, data analysis is carried out. Data analysis of this study uses quantitative data. The collected data were then analyzed with univariate analysis and bivariate analysis. Univariate analysis to describe the characteristics of respondents. Bivariate analysis uses a correlation test used to test the relationship between consumption patterns and nutritional status in school-age children, namely the Pearson Correlation test. The data is processed using SPSS for windows software version 23.0.

3. Result And Discussion

3.1 Result

TABLE 1
FREQUENCY DISTRIBUTION OF RESPONDENT CHARACTERISTICS

Characteristics of Respondents	Amount	Persentase
Gender		
Male	95	36,7%
Female	164	63,3%

Characteristics of Respondents	Amount	Persentase
Age		
6 age	3	1,16%
7 age	48	18,5%
8 age	44	16,9%
9 age	60	23,1%
10 age	45	17,3%
11 age	44	16,9%
12 age	15	5,8%
Class		
Class 1	51	19,7%
Class 2	51	19,7%
Class 3	54	20,8%
Class 4	50	19,3%
Class 5	53	20,5%

Table 1 above shows that of the 259 respondents studied, most of them were female, namely 164 students (63.3%). The characteristics of respondents based on age, all respondents included in school-age children, namely the age of 6-12 years as many as 259 children. The characteristics of respondents based on class, it can be seen that of the 259 respondents studied, most of them were grade 3 students, namely 54 students (20.8%) and the least respondents were grade 4 students, namely 50 students (19.3%).

TABLE 2
FREQUENCY DISTRIBUTION OF PARENTAL CHARACTERISTICS OF RESPONDENTS

Parental Characteristics Respondent	Father		Mother	
	Amount	%	Amount	%
Age				
Young Adults (20-40 years)	151	58,3%	156	60,2%
Middle Adult (41-65 years old)	106	40,9%	103	39,8%
Late	2	0,8%	0	0%
Education				
SD	126	48,7%	149	57,5%
JUNIOR HIGH SCHOOL	54	20,8%	46	17,8%
SENIOR HIGH SCHOOL	66	25,5%	52	20,1%
D3	4	1,5%	7	2,7%
S1	7	2,7%	5	1,9%
Work				
Fisherman	80	30,9%	-	-
Self-employed	36	13,9%	-	-
Private employees	72	27,8%	35	13,5%
civil servant	6	2,3%	9	3,5%
Driver/Becak Driver	21	8,1%	-	-
Trader	15	5,8%	30	11,6%
Farmer/Gardener	4	1,5%	-	-
Security	3	1,2%	-	-
Parking attendants	3	1,2%	-	-
Builder/Furniture	17	6,6%	-	-
Housewife	-	-	183	70,6%
Seamstress	-	-	1	0,4%
Nanny	-	-	1	0,4%
Income				
Rp. 500.000 < Income < Rp.2.067.612)	163	62,9%	235	90,7%
> UMR (Rp. 2.067.612)	94	36,2%	24	9,3%

Table 2 above shows that the parents (fathers) of respondents are mostly at the stage of young adult growth and development, namely aged 20-40 years as many as 151 respondents (58.3%). Parents (mothers) of respondents were mostly also at the growth and development stage of young adults, namely 20-40 years old as many as 156 (60.2%). The last educational characteristics of the respondents' parents can be seen that the parents (fathers) of the respondents were mostly elementary school (SD) graduates, namely 126 respondents (48.7%), and the least undergraduate graduates (S1) as many as 7 respondents (2.7%). The characteristics of parental work can be seen that most of the parents (fathers) of respondents have a livelihood as fishermen, namely as many as

Table of contents available atIOCScience

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80 respondents (30.9%), while the parents (mothers) of respondents mostly become housewives, totaling 183 respondents (70.6%).

The characteristics of parental income can be seen that most of the parents' income includes less than the UMR of Sibolga City. Sibolga City Regional Minimum Wage reached Rp. 2,067,612 in 2018. The data above shows that of the 259 respondents with the level of income of fathers < UMR as many as 163 respondents (62.9%), while the income level of fathers > UMR as many as 94 respondents (36.2%). The respondent's mother had an income of < UMR as many as 235 respondents (90.7%), while 24 respondents (9.3%) with the income level of the mother > UMR.

TABLE 3
DISTRIBUTION OF RESPONDENTS' FOODSTUFFS

Food material	Jumlah	Persentase
Carbohydrate		
Rice	259	100%
Noodles	178	69%
Bread	142	55%
Corn	53	20,5%
Cassava	34	13%
Cob Animal Protein		
Chicken	186	71,8%
Egg	93	36%
Meat	78	30,1%
Tofu Tempe	47	18%
Tempe Vegetable Protein		
Know	235	90,8%
Peanuts Soy Beans	154	59%
Vegetables	46	17,8%
	17	6,6%
Vegetables		
Spinach	174	67,2%
Carrots	174	67,2%
Water	102	39,4%
spinach	89	34,7%
Mustard	76	29,3%
Fruit		
Papaya	230	88,8%
Watermelon	185	71,4%
Banana	89	34,7%
Apple	68	26,3%
Orange	32	12,4%
Mango	16	6,2%

The results of the study were obtained for the type of carbohydrate that is often consumed is rice, the type of animal protein food that is often consumed is cob fish, for the type of vegetable protein that is often consumed is tempeh. The group of vegetables that are often consumed by respondents are spinach and string beans, and for the type of fruit that is often consumed is bananas.

TABLE 4
RESPONDENTS' FEEDING FREQUENCY DATA

No.	Feeding Frequency	Number of Respondents	Persentase
1.	2x/day	23	8,9%
2.	3x/day	236	91,1%
	Total Responden	259	100%

Table 4 shows that respondents mostly had a frequency of eating three meals a day, namely 236 (91.1%) respondents and 23 (8.9%) respondents ate with a frequency of two meals twice a day.

TABLE 5
OVERVIEW OF RESPONDENTS' CONSUMPTION PATTERNS

No.	Consumption Pattern Score	Number of Respondents	Persentase
1.	0 – 96 (less)	18	7%
2.	96-115 good/enough)	219	84,5%
3.	116-140 (more)	22	8,5%
	Total Responden	259	100%

Table 5 shows that of the 259 respondents, most of them had good consumption patterns because they had an answer score of 96-115, which was 219 respondents (84.5%).

TABLE 6
NUTRITIONAL STATUS OF RESPONDENTS

Nutritional Status Based on Average BMI	Male		Female			
	Amount	%	Amount	%	Total	%
13.0 (thin)	8	8,4%	10	6%	18	7%
15.3-18.00 (normal)	79	83,2%	150	91,5%	229	88,4%
18.5 (fat)	8	8,4%	4	2,5%	12	4,6%
Total	95	100%	164	100%	259	100%

Table 6 shows that of the 95 male students, most of them, 79 respondents (83.2%) had a normal BMI status. Female respondents with a total of 164 students, as many as 150 respondents (91.5%) had a normal BMI status. The results showed that the majority of respondents had a normal BMI status with a percentage of 88.4%. However, there are still respondents who have less BMI status of 7% and bmi status of more than normal as much as 4.6%.

TABLE 7
THE RELATIONSHIP BETWEEN EATING PATTERNS AND NUTRITIONAL STATUS IN SCHOOL-AGE CHILDREN IN THE COASTAL AREA OF SIBOLGA CITY

	Pearson Correlation		
	Total (n)	Nilai korelasi	*P value*
Comsumption Pattern Nutritional status	259	,803	0,000

The results of the Pearson Correlation Test obtained a significance value or p value of 0.000 which shows that there is a relationship between eating patterns and student nutritional status. Pearson's correlation value of 0.803 indicates that the correlation strength (r) is strong, because the strong correlation strength criterion is found in the range of 0.61 to 0.80.

3.2 Discussion

The results of research that has been carried out in 6 elementary schools in the coastal area of Sibolga City show that out of 259 respondents, there are 22 respondents (8.5%) who have more consumption patterns, 219 respondents (84.5%) have good or sufficient consumption patterns, and 18 respondents (7%) have less consumption patterns. The diet of school-age children in coastal areas may be different from the consumption patterns of children in other regions. These differences in consumption patterns can be influenced by several factors. One of the factors that influence consumption patterns is parental factors and the living environment. Parental factors include age, education, employment and income.

Work is an important factor in influencing the nutritional status of a child, because work will determine how much income the parents earn. The income factor determines the quality and quantity of dishes. The higher the income, the better the quality and quantity of food obtained, such as buying fruits, vegetables and various types of food (Simatupang, 2008). The type of work is closely related to income which is an important factor in determining the quality and quantity of food to be consumed (Suhardjo, 1989).

The results of the study were obtained by several parents providing reasons for the choice of type of food. The choice of the type of food is influenced by the ease of obtaining food and affordable prices. Sibolga City is a city with a fairly large coastal area. The coastal communities in Sibolga City mostly make a living as fishermen, this is because the environment where they live is a coastal area that allows people to work as fishermen. Coastal communities in Sibolga City tend to consume only marine products that cause nutritional imbalances.

The consumption patterns of school-age children in coastal areas are also influenced by factors of food availability in their neighborhoods. The statement was obtained from a questionnaire filled out by the parents of the students. People in an area will usually use their natural products to meet all needs. Food needs between people in one area and another also have various differences (Margareta, 2014), including people living in the coastal areas of Sibolga City.

Table of contents available atIOCScience

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The results showed that the arrangement of food consumed every day in school-age children in coastal areas consisted of staple foods, side dishes, and vegetables. The data was obtained from a questionnaire on the diet of students. The main staple food is that rice is consumed three times a day, namely breakfast, lunch and dinner.

The results of the study obtained a diet filled by students' parents consisting of several types of food including staple foods such as rice, corn, cassava, noodles. Types of animal side dishes and vegetable side dishes include meat, chicken, cob fish, eggs, salted fish, tofu and tempeh. Some of these foods are classified based on the content contained in these foods which include carbohydrates, proteins, fats, vitamins and minerals.

The results of the study found that the type of staple food that is most often consumed is rice as a source of carbohydrates, namely as many as 259 (100%) respondents, for the type of animal side dishes that are most often consumed are sea fish as animal protein such as cob fish, which is 186 respondents (71.8%). The type of vegetable side dish that is most often consumed is tempeh as a vegetable protein, which is 235 respondents (90.8%). The most commonly consumed vegetable group was long beans and spinach, which was 174 respondents (67.2%), for the most frequently consumed fruit group were bananas, which was 230 respondents (88.8%).

The results of the study obtained data from 18 respondents (7%) consisting of 8 male students and 10 female students had thin nutritional status, 229 respondents (88.4%) consisting of 79 male students and 150 female students had normal nutritional status, and as many as 12 respondents (4.6%) consisting of 8 male students and 4 female students had fat nutritional status. The results of this study are similar to the research conducted by Wulan (2015), on the Relationship between Body Image, Consumption Patterns and Physical Activity with The Nutritional Status of Students of SMAN 63 Jakarta which showed that of the 85 students, most of them had normal nutritional status as many as 50 students (58.8%), as many as 15 (17.6%) students had thin nutritional status, and as many as 20 students had fat nutritional status (23.5%).

The results of the analysis showed that most respondents had normal nutritional status, but there were still respondents who had a nutritional status of thin and fat. Factors that may affect the nutritional status of these students are caused by poor eating patterns, physical activity factors, rest factors, and parental factors.

Based on Table 5, a significance value of 0.000 was obtained which means that there is a meaningful relationship between consumption patterns and nutritional status because the significance value of 0.000 < 0.05. The relationship between consumption patterns and nutritional status shows that the better the consumption pattern, the more likely it is to have a normal nutritional status.

Respondents as many as 219 students who had good consumption patterns, all of them had normal nutritional status. Of the 22 respondents who had a high consumption pattern, 10 respondents had normal nutritional status and 12 respondents had fat nutritional status. There were 18 students who had poor consumption patterns, all of whom had skinny nutritional status.

4. Conclusion

The results of a study conducted on the relationship between consumption patterns and nutritional status in school-age children in the coastal area of Sibolga City, the following conclusions were obtained: Student consumption patterns showed that there were 22 respondents (8.5%) who had more consumption patterns, 219 respondents (84.5%) had good or sufficient consumption patterns and 18 respondents (7%) had less consumption patterns, The nutritional status of students 18 respondents (7%) consisting of 8 male students and 10 female students had thin nutritional status, 229 respondents (88.4%) consisting of 79 male students and 150 female students had normal nutritional status, and as many as 12 respondents (4.6%) consisting of 8 male students and 4 female students had obese nutritional status. This result shows that most respondents have normal nutritional status, there is a relationship between consumption patterns and nutritional status in school-age children in the coastal area of Sibolga City.

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