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RELATIONSHIP BETWEEN BREAKFAST HABITS AND NUTRITIONAL STATUS OF SCHOOL-AGE CHILDREN

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ABSTRACT

Introduction: The nutritional status of school-age children is still a problem and a global concern, the incidence of malnutrition in the world reaches 149.2 million children. One of the influencing factors is breakfast habits. The importance of a healthy breakfast can meet 15-30% of the recommended daily nutritional needs. This study aims to analyze the relationship between breakfast habits and the nutritional status of school-age children.

Methods: This type of research is a correlational analytical study with a cross-sectional approach. A total of 90 elementary school students were recruited by total sampling. Data collection was carried out using a breakfast habit questionnaire filled out by respondents and nutritional status was determined based on body weight and height measurements. Data analysis was carried out to determine the frequency distribution and percentage of each variable studied. The statistical analysis used was the Spearman rho test (p value <0.5).

Results: The results showed that most students had poor breakfast habits (66.7%) and poor nutritional status (60%). The results of the relationship test showed that there was a relationship between breakfast habits and nutritional status (p = 0.000).

Conclusion: Breakfast habits related to the nutritional status of elementary school students, it is expected that parents can improve their parenting patterns and knowledge of the importance of breakfast for children properly and balanced nutritional intake so that nutritional status is in the good category.

Keywords: *School-age children, breakfast habits, nutritional status*

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INTRODUCTION

The nutritional status of school-age children is still a problem that has attracted a lot of attention from the world, especially the problem of double burden of malnutrition, namely the problem of malnutrition and overnutrition (Purba et al., 2024). One of the influencing factors is breakfast habits, children with malnutrition show a lack of balanced breakfast intake, while children with overnutrition who are not used to having breakfast at noon will be tempted to buy foods that are high in fat and high in sugar (Yu & Yang, 2019). The importance of a healthy breakfast can contribute 15-30% of the recommended daily nutritional needs (Khan et al., 2022). However, in fact, there are still many school-age children who are not used to having breakfast. A study stated that 7 out of 10 school students admitted that they did not like breakfast because they were lazy and preferred to eat at noon (IHBOUR et al., 2022). Fulfilled nutritional needs in school children can play an important role in supporting their growth and development (Purba et al., 2024), but the current phenomenon is that school-age children are still lacking in breakfast habits.

The World Health Organization (WHO) stated that the incidence of malnutrition in the world reached 149.2 million children and 340 million people were obese (Kalsum & Sitanggang, 2020). According to Basic Health Research of Indonesia data, the prevalence of Body Mass Index against age in children aged 5-12 years showed 9.2% in the thin category and 2.4% very thin, then for the prevalence of obesity 10.8% and obesity 9.2%. The nutritional status of children aged 5-12 years in East Java

Province showed 2.2% in the very thin category and 5.8% thin, as well as the prevalence of obesity showing 13.2% fat and 11.1% obese. Previous research in an elementary school in Surabaya showed 56.8% thin, 32.10% normal, and 11.10% obese (Almulla et al., 2023; Alqahtani et al., 2020).

Based on initial data collection by conducting interviews with the Principal of Muhammadiyah 21 Elementary School in Surabaya, the results showed that 9 out of 10 students did not have breakfast when going to school. The habit of having breakfast is still often ignored by the Indonesian people, The quality of breakfast for the Indonesian population is still low because there are still many children who are not used to having breakfast. The number of children who do not eat breakfast in school age varies from 17% to 59% (Abebe et al., 2022). Basically, breakfast will provide an important contribution to several nutrients needed by the body such as protein, fat, vitamins, and minerals. If you are not used to having breakfast continuously, it will result in decreased body weight and endurance, malnutrition and iron anemia (Jabri et al., 2021; Peña-Jorquera et al., 2021).

Unbalanced nutrition, both deficiencies and excess nutrition, will reduce the quality of human resources. Children's nutritional problems cause children's IQ to be 10-15 points lower and their height to be 8 cm shorter compared to normal children. The short-term impacts caused by nutritional problems are disrupted growth, brain development, intelligence, and metabolism in the body. While the long-term impacts of low nutrition are decreased cognitive abilities, learning achievement, decreased immunity so that children are susceptible to disease. While nutrition increases the risk of illness and death, impaired physical and psychological functions which have an impact on decreasing quality of life (Deger et al., 2021; Jeong, 2019).

The transition phase of children to early adolescence according to the Ministry of Health, 2019 is the age of 10-13 years. In this phase, children need more nutrition to enter a new phase in their lives. Boys do a lot of physical activity so they need more energy. While girls usually start menstruating so they need more protein and iron. So far, the government has intervened to address the nutrition of school-age children through the Ministry of Education and Culture in 2016 by launching the School Children's Nutrition Program or called ProGAS. The form of implementation of this program is by providing breakfast to students with the aim of increasing nutritional intake and breakfast habits. In reality, ProGAS is still not fully effective in improving nutritional problems because its implementation is not evenly distributed throughout Indonesia. The purpose of this study is to analyze the Relationship between Breakfast Habits and the Nutritional Status of School-Age Children.

METHODS

The design in this study is correlational analytic with a cross-sectional approach which relates the independent variable, namely breakfast habits and the dependent variable, namely nutritional status. The target population in this study were elementary school students with a school age of 90 students. The accessible population is in accordance with the criteria of age 10-11 years, in good health, willing to be respondents with parental consent, able to communicate well and present at the time of data collection as many as 90 students. The sample size of the study was 90 students recruited based on total sampling.

The variables of this study are nutritional status and breakfast habits. Nutritional status is the physical condition of children measured anthropometrically with a weight index based on age and height based on age. Nutritional status is measured based on weight per height measured with a manual meter scale CDC 2000 growth curve. The final interpretation of the nutritional status of elementary school children is Obesity: >120% Overweight: 110-120%, Good nutrition: 90-110%, Adequate nutrition: 70-90% and Undernutrition: <70%. While breakfast habits are the frequency of eating in the morning before doing activities assessed using a breakfast habits questionnaire. The final score for the breakfast habits questionnaire is 0-50% indicating Poor breakfast habits, 51-75% indicating Adequate breakfast habits and 76-100% indicating Good breakfast habits.

Data analysis used in this study is bivariate analysis. The previous data analysis process must first know the interpretation of the breakfast habit score and nutritional status in total, then cross tabulation is carried out to determine the relationship between breakfast habits and the nutritional status of school-age children using the Spearman rho correlation test. This study has obtained a certificate of ethical feasibility from the Health Research Ethics Commission of the Faculty of Nursing, Airlangga University, Surabaya with the number 2038-KEPK by observing the ethical principles of beneficence, anonymity, and confidentiality and respecting human dignity.

RESULTS

Table 1 shows that school-age children are between the ages of 10 and 11 years with the most being girls (62.2%). The breakfast habits of school children show less (66.7%) and the nutritional status based on weight and height measurements is mostly less (60.0%). Table 2 shows that the largest percentage is at the level of less breakfast habits with less nutritional status of 50 students (55.6%). Based on table 4.6, it shows that from data analysis using the Spearman rho correlation test, a significant value of 0.000 is known by setting a significant degree of $p < 0.05$. The magnitude of the correlation coefficient between breakfast habits and nutritional status is 0.587 and has a positive value. This means that the relationship between breakfast habits and nutritional status is a strong unidirectional correlation.

Table 1. Characteristics of Research Respondents in School Age Children (n=90)

Respondent's Characteristics	n	%
Age		
10 years	81	90.0
11 years	9	10.0
Gender		
Male	34	37.8
Female	56	62.2
Breakfast Habits		
Good	11	12.2
Enough	19	21.1
Less	60	66.7
Nutritional Status		
Obesity	10	11.1
Overweight	4	4.4
Normal	12	13.4
Sufficient	10	11.1
Less	54	60.0

Table 2. Relationship between breakfast habits and nutritional status of elementary school children (n=90)

Breakfast Habits	Nutritional status											
	Less		Enough		Normal		*Overweight*		Obesity		Total	
	f	%	f	%	F	%	f	%	f	%	f	%
Less	50	55,6	1	1,1	2	2,2	1	1,1	6	6,7	60	66,7
Enough	3	3,3	8	8,9	4	4,4	1	1,1	3	3,3	19	21,1
Good	1	1,1	0	0,0	7	7,8	2	2,2	1	1,1	11	12,2
Total	54	60	9	10,0	16	14,4	4	4,4	10	11,1	90	100
P= 0,000, X^2 = 0.587												

DISCUSSION

Most students in the category of inadequate breakfast habits are 60 students (66.7%), while students with sufficient breakfast habits are 19 students (21.1%) and good breakfast habits are only 11 students (12.2%). Breakfast habits are still often ignored by Indonesian people, this is in line with research that states 7 out of 10 school-age children admit that they do not like breakfast before going to school, they prefer to eat at noon. In accordance with statement number 4, as many as 60 respondents answered that breakfast is not important to them. The number of not having breakfast in school-age children varies from 17-59%.

Previous research also stated that elementary school students in grades 4 and 5 do not have the habit of having breakfast before going to school (52.8%) on the grounds that their parents as farmers leave early for the fields and do not have time to prepare breakfast. In fact, breakfast habits can provide many benefits for children's bodies to be able to go through the day optimally, especially for school-age children who are in the golden period or golden period of growth (Rahmatillah & Mulyono, 2019; Sun et al., 2020). For girls aged 10-11 years is a period that is prone to anemia if they do not have good breakfast habits because at that age girls are preparing sufficient nutrition for menstruation. Children who are accustomed to eating breakfast can contribute 15-30% of daily nutrition to the body. Children who do not have breakfast habits will cause malnutrition and the risk of malnutrition. The nutrients obtained from breakfast are needed by the body to think, work, and carry out activities optimally after waking up in the morning (Annan et al., 2020; Damara & Muniroh, 2021).

Factors that influence breakfast consumption are parental income, parental supervision, and parental occupation (Rahmatillah & Mulyono, 2019; Sun et al., 2020). Parental supervision can influence children's breakfast habits, which will directly affect the child's nutritional status. The higher the parental supervision of breakfast habits, the better the child's nutritional status will tend to be. The mother's occupation can also influence breakfast habits in the morning (Peni et al., 2020; Soheilipour et al., 2019).

Mothers who do not work tend to have more time to prepare breakfast compared to working mothers. The nutritional status of most students is in the underweight category (60%). This is in line with previous research with the results of the study showing that most students who have good habits (91.9%), normal nutritional status (72.9%). Students who have poor nutritional status have physical and cognitive development that is not in accordance with the development that should be. Poor nutritional status in school-age children can be caused by several factors, including infection, breakfast habits, age, gender, and nutritional parenting patterns. This also happened to respondents in this study who had poor nutritional status due to the lack of nutritional parenting patterns and supervision from parents towards their children so that the children did not have breakfast habits (Abebe et al., 2022; Alqahtani et al., 2020).

Providing education to parents regarding the fulfillment of balanced nutrition through good breakfast habits for children, as well as health education in schools by teachers regarding balanced nutrition of four healthy and five perfect for students. Good food parenting patterns in terms of the type, quantity and schedule of food given to children are also an indication of success in achieving normal body weight. Breakfast habits, boredom and dislike of the food menu provided by parents cause loss of appetite and decreased willingness of children to eat so that nutritional intake needs cannot be met properly (Deger et al., 2021; Jeong, 2019).

The relationship between breakfast habits and nutritional status in school-age children shows that poor breakfast habits will affect body weight and height so that it will affect nutritional status. This is in line with previous research showing a relationship between breakfast habits and nutritional status (Damara & Muniroh, 2021; Rahmatillah & Mulyono, 2019). Lack of breakfast habits is also influenced by parenting patterns which result in poor nutritional status. If parents do not have good parenting patterns and do not have knowledge about the importance of breakfast for the body, it will cause children not to have breakfast habits. With the condition of poor breakfast habits, the nutritional content that enters the body will also decrease (Abebe et al., 2022; Liu et al., 2021).

In addition to breakfast habits, other factors that cause underweight are age, gender, child activity and parental knowledge background. This is in line with research Gender can be a benchmark for the size of an individual's nutritional needs. Where the nutritional needs of boys are different from girls. Boys have a lot of physical activity so they need more energy than girls. While girls at the age of 10-11 years have started menstruating so they need more protein and iron (Aslan Ceylan et al., 2022; Peña-Jorquera et al., 2021).

With good breakfast habits, it will also produce good nutritional status. A body that has good nutritional status will be healthy and fit, a person's physical fitness will also be well maintained. There are 6 respondents (6.7%) in the category of poor nutritional status with obese nutritional status. This is the impact of the lack of breakfast habits. If you do not have a breakfast habit, you will feel hungrier during the day and night. Because you do not eat breakfast, consumption will increase during the day and night, excessive food consumption at night will result in increased glucose stored as glycogen. Activity at night is low so that glycogen is stored in the form of fat. This will cause obesity. In this study, the risk of obesity was 2.8 times greater in children who did not have a breakfast habit compared to those who had a breakfast habit (Jabri et al., 2021; Jeong, 2019).

According to researchers, this is the impact of the lack of breakfast habits where when you do not eat breakfast, you will be tempted to eat foods that contain a lot of fat and sugar during the day and night, therefore causing obesity. In this study, there were also results that 2.2% of children were in the category of poor breakfast habits and good nutritional status. This can happen because each person's body adapts differently, this respondent did not have breakfast but during the day and night he fulfilled his daily nutritional needs including the nutrition that must be met at breakfast so that his nutritional status is good even though the child did not have breakfast (Deger et al., 2021; Sun et al., 2020). But this is also not good, because the body cannot always adapt and catch up on its nutritional deficiencies. So according to researchers, keep eating according to the hours and balanced nutrition. Then, the results that showed poor nutritional status but good breakfast habits were 1.1%, this happened because when consuming breakfast they did not pay attention to the intake in it (Bassa et al., 2023).

A good breakfast menu must contain balanced carbohydrates, protein, fat and minerals. If you only have breakfast but do not pay attention to the nutrition in the food consumed, it will not have a good impact on the child's nutritional status. According to researchers, the nutritional balance obtained from the menu greatly affects the nutritional status for carrying out physical activities, maintaining ideal body weight and preventing nutritional problems (Alqahtani et al., 2020). A good breakfast is a breakfast that contains a source of energy (carbohydrates) which can be obtained from rice; sweet potatoes and; potatoes, then a source of building substances (protein) obtained from eggs; fish; chicken and nuts and finally a source of regulatory substances (vitamins and minerals) found in vegetables and fruit.

The limitation of this study is that the researcher examined the frequency of breakfast and observed nutritional status only once during the study. Breakfast information in this study was not observed directly so it did not have a high level of accuracy, because the answers depended heavily on the honesty of the respondents and the respondents in this study were school-age children. This study used a questionnaire that had shortcomings in the indicators to determine the quality of a good breakfast. There are variables that influence but are not examined in this study, so it is necessary to identify other variables that are related to this study.

CONCLUSION

Breakfast habits of school-age children are mostly in the category of poor breakfast habits. The nutritional status of children is mostly in the underweight category. There is a relationship between breakfast habits and nutritional status in school-age children, so that breakfast habits will be directly proportional to the nutritional status of school children. With this research, it is expected that parents can improve their parenting patterns and increase knowledge about the importance of good breakfast for children and balanced nutritional intake so that nutritional status is in the normal or good category. Interventions carried out by parents include providing breakfast for children before going to school or by bringing children's supplies to school. The supplies brought must also contain balanced nutrients (carbohydrates, protein, vitamins and minerals).

Teachers as the school are advised to provide health education by putting up posters about the benefits and importance of breakfast, growth and development of school-age children, and monitoring food and drinks in the canteen. Interventions that can be carried out by the school include requiring students to bring supplies from school and have breakfast together before starting teaching and learning activities. And also providing school catering for students who do not have time to bring supplies.

The percentage of problems with malnutrition in children reaches 60%, which is classified as a high percentage, there is great hope for Health Institutions to solve the problem of underweight in children so that it does not have a bad effect on the cognitive condition and daily activities of children.

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