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The Relationship between Snacking Habits and Food Consumption with Children's Nutritional Status at Inpres 08 Mamboro Elementary School

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ABSTRACT

Introduction: School-age children play a strategic role as an investment for the nation's progress, considering they are the future generation. Optimal growth and development in school-age children heavily rely on the provision of nutrition and nutrient intake. Snacking habits and food consumption play a crucial role in determining children's nutritional status, as imbalanced food intake can lead to nutritional problems such as malnutrition or obesity.

Objective: This study aims to investigate the relationship between snacking habits and food consumption with children's nutritional status.

Method: This research employs a quantitative approach with a cross-sectional research design. The population in this study consists of sixth-grade students at Elementary School Inpres 08 Mamboro with a sample size of 48 respondents. Data were collected using a questionnaire covering variables such as snacking habits, food consumption, and children's nutritional status.

Result: Analysis indicates that the majority of respondents have poor snacking habits (64.6%) and inadequate food consumption (58.3%). Chi-square test results demonstrate a significant relationship between snacking habits and children's nutritional status ($\rho = 0.004$) and between food consumption and children's nutritional status at Elementary School Inpres 08 Mamboro ($\rho = 0.000$).

Conclusion: Poor snacking habits and food consumption can negatively impact children's nutritional status, while good food consumption can help maintain optimal nutritional status. Therefore, efforts are needed to enhance understanding and practice of healthy eating habits among school-age children to support their growth and development.

Keywords: Snacking Habits; Food Consumption; Nutritional Status

INTRODUCTION

School-age children have a strategic role as an investment for the progress of the nation, considering that they will be the next generation of the nation. Optimal growth and development in school-age children is highly dependent on the provision of nutrition and nutrient intake, which cannot always be implemented perfectly. The nutritional status of elementary school children during the school period generally reflects wide variations. Some children have good nutritional status, while others face nutritional problems such as undernutrition or obesity (1).

Based on Riskesdas data in 2018, the prevalence of nutritional status of children aged 5-12 years (IMT/U) in the very thin category was 2.4%, thin 6.8%, fat 10.8%, and obese 9.2%. The prevalence of nutritional status of children aged 5-12 years (IMT/U) in Central Sulawesi Province in the very thin category was 2.6%, thin 9.5%, fat 6.6%, and obese 3.9%. Central Sulawesi is the ninth province with nutritional status problems with the highest category of very thin, in the thin category Central Sulawesi is ranked fifth, in the fat category is ranked 23rd and in the obesity category is ranked 32nd nutritional problems from several provinces in Indonesia (2).

Based on Riskesdas data in 2018, the prevalence of nutritional status of children aged 5-12 years in Palu City in the very thin category was 2.53%, thin 12.15%, fat 10.79%, and obesity 7.22%. Palu City is ranked sixth with the problem of very thin nutritional status, in the problem of the thin category is ranked second, the fat category is ranked first, and in the problem of the obesity category is ranked first (2).

The prevalence of nutritional problems in primary school-aged children is still significant. The most common nutritional problems among primary school children in Palu City are undernutrition and obesity. One of the factors that can cause malnutrition is an unbalanced diet or lack of adequate intake of nutrients from daily food. Obesity is caused by unhealthy food consumption, such as consuming foods that are high in fat and sugar (3).

Based on research by Julinar and Lubis (2021) with the results of statistical tests, the value P = 0.039 (P <0.05) was obtained that there was a relationship between snacking habits and the nutritional status of students of SD Negeri 55 Banda Aceh City in 2021. This happens because students do not know the dangers of choosing unhealthy snacks so they consume snacks with unhealthy content, students buy only based on savory flavors, and students like to buy ready-made snacks so that they influence unhealthy snacking habits (4).

The nutritional status of elementary school children is significantly influenced by their snacking habits. Primary school children's snacking habits can have a direct impact on their nutritional status through their food intake, as one of the factors that influence nutritional status is food. Snacks that are often bought outside the home (at school), such as snacks or sugary drinks, tend to contain high sugar, salt, and saturated fat. This will have a direct impact on children's nutritional status so that when children consume unhealthy snacks excessively it can cause obesity in children and if children do not get enough food intake, such as lack of calories or essential nutrients, then their growth and development can be hampered, causing malnutrition in children (5).

Based on the research of Abdullah, N., & Rantung, F. (2019) with the results of the linear regression statistical test obtained a p value = 0.025 which means the p value <0.05. This shows that there is a significant relationship between food consumption patterns and the nutritional status of elementary school children in Sambi Rampas District, Banggai Regency (6).

Poor food consumption can affect the nutritional status of primary school children. If children's food consumption is dominated by processed foods that are low in nutrients and foods high in saturated fat and low in fiber, then they are at risk of being undernourished and overweight or obese (7).

Elementary school is an important environment in shaping healthy eating habits in children. However, there are still many indiscriminate snacking habits in schools because students do not know how to choose good and healthy snacks, including in Palu City itself, one of which is SD Inpres 08 Mamboro. Students of SD Inpres 08 Mamboro have a habit of snacking during breaks, some prefer snacks rather than eating lunch from home. The main reason students choose to snack at school is because the snacks available in the canteen are considered attractive, delicious, and have different menu variations every day. Unfortunately, at the age of 11 and 12, most students do not yet understand how to choose healthy food, so they choose food based on taste without paying attention to nutritional value, which can increase the risk of obesity and undernutrition.

Based on the above background, researchers are interested in conducting research on the relationship between snacking habits and food consumption with the nutritional status of children at SD Inpres 08 Mamboro.

METHOD

This research is a type of quantitative research using a cross sectional approach. The research was conducted at SD Inpres 08 Mamboro, North Palu District, Palu City, Central Sulawesi, from November to December 2023. The population in this study were 6th grade students with a sample of 48 respondents taken using the total population method.

Data collection was done by using primary data and secondary data. Primary data were obtained from students using FFQ questionnaires to collect information about students' snacking and eating habits and anthropometric

measurements of body weight and height. While secondary data was obtained through recording and reporting from SD Inpres 08 Mamboro.

Data were analyzed through univariate analysis to see the frequency distribution of each variable, as well as bivariate analysis to see the relationship between the independent and dependent variables. The chi-square test was used with a 95% confidence level and a significance level of 0.05 to determine if there was a significant relationship between the variables.

RESULTS
Characteristics Respondent

Table 1. Characteristics Respondent Based on Age

Age (yr)	Frequency (f)	Percentage (%)
11	27	56.25%
12	21	43.75%
Total	48	100%

Primary data sources, 2023

Table 1 shows that out of 48 respondents, the age of 11 years is more than the age of 12 years. The age of 11 years is 27 people (56.25%) and the age of 12 years is only 21 people (43.75%).

Table 2. Characteristics Respondent by Gender

Gender	Frequency (f)	Percentage (%)
Man	27	56.25%
Woman	21	43.75%
Total	48	100%

Primary data sources, 2023

Table 2 shows that of the 48 respondents based on gender, there were more men than women. There were 27 men (56.25%) and only 21 women (43.75%).

Analysis Univariate

Table 3. Amount Respondent Based on Habit Snacking

Snacking Habit	Frequency (f)	Percentage (%)
Not good	31	64.6%
Good	17	35.4%
Total	48	100%

Primary data sources, 2023

Table 3 shows that of the 48 respondents based on snacking habits, 31 respondents (64.6%) had poor snacking habits while 17 respondents (35.4%) were good.

Based on the results of the univariate test, it is found that respondents have a tendency to snack poorly with junk food snacks, these foods are delicious and practical, but contain a lot of bad fats and added sugar which are not good for body health. In addition, there is a tendency for respondents to snack on sweet foods, sweet foods can make you happy and satisfied, but consuming too much will cause overweight or obesity.

Then, there are some respondents who have good snacking habits, they often choose low-calorie foods as an alternative to snacks. This is good because these foods contain nutrients that are better for the body.

Table 4. Amount Respondent Based on Consumption Food

Consumption Food	Frequency (f)	Percentage (%)
Not good	28	41.7%
Good	20	58.3%
Total	48	100%

Primary data sources, 2023

Table 4 shows that of the 48 respondents based on food consumption, 28 respondents (41.7%) were poor while 20 respondents (58.3%) were good.

Based on the results of the univariate test, it was found that respondents tended to have poor food consumption. Many of them still consume less macro and micronutrients, this poor food consumption can make them more easily malnourished because one of the macro and micronutrient intake is not fulfilled. However, there are still some respondents who have good food consumption, they apply a healthy diet in their daily lives which can help them meet the needs of macro and micronutrients needed by the body to maintain health.

Table 5. Amount Respondent Based on Nutritional Status

Nutritional status	Frequency (f)	Percentage (%)
Not normal	19	39.6%
Normal	29	60.4%
Total	48	100%

Primary data sources, 2023

Table 5 shows that of the 48 respondents based on the nutritional status of children, 19 respondents (39.6%) had abnormal nutritional status while 19 respondents (60.4%) had normal nutritional status.

Based on the results of the univariate test, it can be seen that most respondents have normal nutritional status. However, there are also some respondents who have abnormal status. This is due to the relationship between snacking habits and food consumption with the nutritional status of elementary school children. Respondents who have a habit of snacking on less nutritious foods or junk food that is high in fat and sugar tend to have a higher risk of nutritional problems. In addition, unbalanced eating habits, such as consuming excessive amounts of sugary foods, can also contribute to the nutritional problem of obesity.

Analysis Bivariate

Table 6. Connection Snacking Habit with Nutritional Status

Snacking Habit	Nutritional Status						P Value
	Normal		abnormal		Total		
	f	%	f	%	F	%	
Poor	14	45,2%	17	54,8%	31	100,0%	
Good	15	88,2%	2	11,8%	17	100,0%	0,004
	29	60,4%	19	39,6%	48	100,0%	

Primary data sources, 2023

Table 6 shows that out of 48 respondents who have poor snacking habits with abnormal nutritional status, there are 17 people (54.8%) and normal nutritional status as many as 14 people (45.2%) while those who have good snacking habits with abnormal nutritional status are 2 people (11.8%) and normal nutritional status is 15 people (88, 2%).

Based on the Chi-Square test, the value of ρ = 0.004 (ρ Value ≤ 0.05), meaning that there is a relationship between snacking habits and the nutritional status of children at SD Inpres 08 Mamboro. This is because students who have poor snacking habits tend to choose low nutrition or junk food, which results in inadequate nutritional intake. However, some of them still maintain nutritional intake at home by consuming healthy foods such as vegetables and fruits. On the other hand, students who have good snacking habits but abnormal nutritional status occur due to an

unbalanced diet and lack of physical activity. Whereas students with good snacking habits and normal nutritional status tend to choose snacks that provide adequate nutrition for their bodies.

Table 7. Connection Food Consumption with Nutritional Status

Food Consumption	Nutritional Status						P Value
	Normal		Not Normal		Total		
	f	%	f	%	F	%	
Not Good	11	39,3%	17	60,7%	28	100,0%	
Good	18	90,0%	2	10,0%	20	100,0%	0,000
Total	29	60,4%	19	39,6%	48	100,0%	

Primary data sources, 2023

Table 7 Based on the results showed that of the 48 respondents whose food consumption was not good with abnormal nutritional status, 17 people (60.7%) and normal as many as 11 people (39.3%) while those whose food consumption was good with abnormal nutritional status were 2 people (10.0%) and normal as many as 18 people (90.0%).

Based on the Chi-Square test, the value of $\rho = 0.00$ (ρ Value ≤ 0.05), meaning that there is a relationship between food consumption and the nutritional status of children at SD Inpres 08 Mamboro. This is because students whose food consumption is not good tend to consume junk food, causing nutritional problems. However, those whose nutritional status remains normal occurs because they still consume limited amounts of nutritious foods and are active in exercising. On the other hand, students whose food consumption is good but whose nutritional status is abnormal occurs due to lack of physical activity and an unbalanced diet. Meanwhile, students with good food consumption and normal nutritional status tend to eat healthy and nutritious foods and maintain a regular diet.

DISCUSSION
Snacking Habit

Based on the results of univariate analysis, it shows that out of 48 respondents based on snacking habits, 31 respondents (64.6%) have poor snacking habits while 17 respondents (35.4%) have good snacking habits.

Bivariate analysis using the Chi-square test shows, where the value of $\rho = 0.004$ (ρ Value ≤ 0.05), meaning that there is a relationship between snacking habits and the nutritional status of children at SD Inpres 08 Mamboro. This is because most students tend to choose low-nutrient foods such as junk food, which can cause a lack of essential nutrients in the body. In addition, the nutritional quality of foods that are often sold around the school or in the canteen is inadequate, so children who often consume them can experience vitamin, mineral and fiber deficiencies which can affect the nutritional status of children in the school.

This is in line with research conducted by Julinar and Lubis (2021) at SD Negeri 55 Banda Aceh City with the results of statistical tests obtained a value of P = 0.039 (P <0.05), meaning that there is a relationship between snacking habits and the nutritional status of students at SD Negeri 55 Banda Aceh City[4]. This is because students tend to consume foods that are low in nutrients, which in turn can affect their nutritional status. In addition, environmental factors around the school, such as the availability of unhealthy foods, can affect students' snacking habits and ultimately affect their nutritional status.

Snacks for school children have a significant role in contributing to food intake while at school due to the high activity while at school, and the introduction of various types of snacks will foster food diversity since childhood (8).

The contribution of snacks is quite large to nutrient intake in all age groups including school children, and if consumed excessively will affect the onset of nutritional problems, because the number of snacks consumed by children will result in an increase in total energy intake so that it will contribute nutrients to a person's nutritional status. The tendency of school children to experience nutritional problems can be caused by improper snack consumption habits, children often snack carelessly without thinking about the nutritional content contained in the food they consume (9).

According to Brown et al (2019) poor snacking habits such as excessive consumption of snacks with high fat and calorie content can cause obesity in children[10]. Children who are obese are at risk of health problems such as diabetes and disorders of the digestive system. In addition, nutritional deficiencies can also cause children to be less energetic and have difficulty concentrating in the school environment. This can have a negative impact on their

learning performance. Therefore, it is important to teach children how to choose healthy snacks.

Healthy snacks are foods that contain essential nutrients needed by children in their growth and development which generally contain macro and micronutrients. When primary school children eat healthy snacks, there are important positive impacts on their growth and development. Healthy snacks that contain essential nutrients such as vitamins, minerals, and fiber can help improve children's concentration and memory. They will be more focused in learning and activities at school, Healthy snacks containing complex carbohydrates, protein, and healthy fats can provide long-lasting energy and increase children's stamina, and healthy snacks containing calcium and vitamin D, such as milk and dairy products, can help strengthen bones and prevent the risk of calcium deficiency in children, and healthy snacks containing vitamin C and antioxidants can strengthen children's immune system. This helps protect them from diseases and infections (11).

Therefore it is important for children to understand how to choose good and correct snacks, namely by getting used to children bringing snacks from home, choosing snacks in good condition, buying snacks in a clean place, choosing snacks in a closed condition, avoiding snacks with flashy colors, pungent flavors and aromas, paying attention to the quality of snacks, observing snack labels including the name of processed food, list of ingredients used, expire date / expiry information, production code, nutritional information, and if wet food pay attention to the physicality of the food (smell and color) (12).

Food Consumption

Based on the results of univariate analysis, it shows that out of 48 respondents based on food consumption, as many as 28 respondents (58.3%) were not good while good food consumption was 20 respondents (41.7%).

Bivariate analysis using the Chi-square test shows, where the value of $\rho = 0.000$ (ρ Value ≤ 0.05), meaning that there is a relationship between food consumption and the nutritional status of children at SD Inpres 08 Mamboro. This is because children who consume low quality or less nutritious foods tend to have inadequate nutritional intake which can cause nutritional problems in children, while children with a good diet tend to consume a variety of foods that contain the nutrients needed for their bodies will also have an impact on the nutritional status of the child.

This is in line with research conducted by Abdullah, N., & Rantung, F (2019) from the results of the linear regression statistical test obtained a p value = 0.025 which means the p value <0.05. This shows that there is a significant relationship between food consumption patterns and the nutritional status of elementary school children in Sambi Rampas District, Banggai Regency6. Elementary school students are very vulnerable to influences from the environment because students do not fully understand good and bad eating habits so they tend to consume poor food. They often consume foods that contain a lot of saturated fat, sugar, and salt, while their intake of fiber, vitamins, and minerals that are important for their growth and development is less fulfilling.

If children's food consumption is not considered, for example, they consume less protein, carbohydrates, fats, vitamins and minerals every day, this will have an impact on children's health and will also cause nutritional problems in children. One of the factors that affect nutritional status in children is food intake. The amount and quality of food consumed can affect the nutritional status of children. Lack of nutritious and unbalanced food intake can cause malnutrition, while excessive food intake can cause obesity (14).

Parents have an important role in shaping children's eating habits. When children reach school age, eating habits will change due to several factors, namely environmental influences, peers, social life and activities carried out outside the home. A lot of poor eating consumption in children is obtained from many factors such as environmental factors and friends at school which ultimately affect poor eating consumption (15).

School children's food consumption needs attention since they are still growing, so the nutritional balance must be maintained in order to stay healthy. At school and at home, children should be given healthy and nutritious food to fulfill their nutritional needs. Meeting the nutritional needs of primary school children is essential to support their growth and development. Children at this age need a balanced intake of nutrients, including carbohydrates, protein, healthy fats, vitamins and minerals. One effective way to ensure children get adequate nutrition is to implement regular eating rules, such as breakfast, lunch and dinner (16).

Children who have good eating habits by paying attention to regular morning, afternoon and evening meals will experience a positive impact on their health. Regular morning meals provide enough energy to start daily activities, regular lunches maintain blood sugar stability and prevent excessive hunger, and regular evening meals help maintain good sleep patterns. These impacts include improved concentration, sufficient energy, and restful sleep (17).

CONCLUSION

Based on the results of research at SD Inpres 08 Mamboro, it can be concluded that there is a significant relationship between snacking habits and food consumption with children's nutritional status. This is supported by the significance value (ρ Value) which is lower than the set threshold (≤ 0.05), namely $\rho = 0.004$ for snacking habits

and ρ = 0.00 for food consumption. This means that snacking habits and food consumption have a significant influence on the nutritional status of children at SD Inpres 08 Mamboro. This finding shows the important role of healthy food consumption and control of snacking habits in maintaining the health and nutritional status of children in the school.

SUGGESTION

Based on the findings revealed in the study at SD Inpres 08 Mamboro, it is suggested that the results of this study can be utilized as a useful reference source for researchers and academics in the health sector. The implications of this study can also be used as a reference in designing appropriate education and interventions related to the diet of school-age children. Thus, it is hoped that efforts to prevent nutritional problems can be improved through a more targeted and effective approach, so that the health of children at SD Inpres 08 Mamboro and the surrounding community can be better maintained.

REFERENCES

1. Noviani, K., Afifah, E., & Astiti, D. 2019. Snacking Habits and Dietary Patterns and Their Relationship with the Nutrition Stages of School-Age Children at Sonosewu Elementary School in Bantul Yogyakarta. Indonesian Journal of Nutrition and Dietetics, 4(2), 97-104.
2. Basic Health Research (Riskesdas) 2018. Basic Health Research Results 2018. Jakarrta: Ministry of Health Research and Development Agency of the Republic of Indonesia.
3. Widari , S., Bachtiar, N., & Primayesa , E. 2021. Determining Factors of Stunting: Analysis Comparison of the Millennium Development Goals (MDGs) and Sustainable Development Goals (Elementary School Gs) in Indonesia. Journal Batanghari University Jambi Science , 21(3), 1338-1346.
4. Julinar, J., & Lubis, SY 2021. Relationship Snacking Habit with the Nutritional Status of Students at State Elementary School 55 Banda Aceh City. Journal of Research Science, 11(2), 303-314.
5. Riamah , R., & Erlita , D. 2020. The relationship between eating patterns and Nutritional Status in Children Aged 3-5 Years . Encyclopedia of Journals, 2(2).
6. Abdullah, N., & Rantung, F. 2019. Relationship between Food Consumption Patterns and Nutritional Status of Elementary School Children in Sambi Rampas Subdistrict, Banggai Regency. Journal of Child Nutrition and Health, 14(1), 42-50.
7. Harpina , H., & Andres, J. 2022. The Relationship Between Diet and Nutritional Status of Children with Performance Learn Student Class VII of SMP Negeri 3 Ternate, South Ternate City. Journal Scientific Vehicles Education, 8(23), 779-786.
8. Wiriastuti , MAW 2019. Relationship between Knowledge Levels Habit Snacks and Consumption Levels Food Snacks with the Nutritional Status of Children at State Elementary School 29 Dangin Puri Denpasar (Doctoral dissertation, Poltekkes Denpasar).
9. Rachmawati , R. 2020. Contribution of Food Nutrients Snacks To Intake Energy A Day in Indonesia (Consumption Survey Data Analysis Food Individual 2014) Food Away from Home (Fafh) Contribution of Nutrition to Daily Total Energy Intake in Indonesia. The Journal of Nutrition and Food Research, 43(1), 29-40.
10. Brown A, et al. 2019. Snacking quality is associated with secondary school academic achievement and wellbeing: a cross-sectional study. The British Journal of Nutrition, 122(10), 1141-1150.
11. Johnson S, et al. 2021. Associations between snacking habits, obesity, and academic performance among primary school children. Journal Of Chlid Health Care, 25(1), 18-30.
12. Ministry of Health . 2023. Tips for Choosing Safe Snacks . Jakarta : Ministry Health Directorate General .
13. Aprilia, W., Budiman, B., & Baculu, E. P. H. 2018. The Relationship Between Eating and Parenting Patterns and the Nutritional Status of Children Under Five in the Working Area of the Mepanga Health Center, Parigi Moutong Regency. Collaborative Journal of Science, 1(1).
14. Ramlah, U. 2021. Disruption health in children age early consequence lack nutrition and effort prevention . Ana'Bulava : Journal of Children's Education, 2(2), 12-25.
15. Hasrul , H., Hamzah, H., & Hafid, A. 2020. Influence habit Eat on nutritional status child Elementary School . Journal Muhammadiyah Nursing , 5(2).
16. Setyawati , VAV, & Hartini , E. 2018. Basic textbook knowledge nutrition health public . Deepublish
17. Sudargo , T., Wahyuningtyas , R., Prameswari , AA, Aulia , B., Aristasari , T., & Putri, SR (2022). Eating Culture in Health Perspective . UGM PRESS.