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FACTORS RELATED TO NUTRITIONAL STATUS OF SCHOOL CHILDREN AT STATE ELEMENTARY SCHOOL 8 BATU

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ABSTRACT

Nutritional problems in primary school-aged children are influenced by various factors, including diet, economic level, parental education, and school environment. Children who do not get a balanced nutritional intake are more prone to stunting, wasting, and obesity which can have an impact on the quality of human resources in the future. The 2022 SSGI results show a national decrease in stunting from 24.4% (2021) to 21.6% (2022). Meanwhile, wasting increased from 7.1% to 7.7%. This study uses a quantitative approach with a cross-sectional study method that analyzes data at one specific time. The research location was SDN 8 Batu, Leppangeng Village, Pitu Riase District, Sidendreng Rappang Regency. The population of this study were all 53 students of SDN 8 Batu and the entire population was sampled using the total sampling method. The results showed a relationship between diet (P=0.048) with nutritional status, while physical activity (P=0.573), economy (P=0.273) and school environment (P=0.505) did not have a significant relationship with nutritional status.

Keywords: *School children; physical activity; School environment; Diet; Socio-economic; Nutritional status.*

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INTRODUCTION

Nutritional status describes the condition of the body determined by the balance between the need and intake of nutrients needed to carry out metabolic functions. The nutritional needs of each individual vary depending on factors such as activity level, gender, and body weight. According to the World Health Organization (WHO), nutritional status reflects a person's health condition which is influenced by how well the body consumes and utilizes nutrients and energy (WHO, The Double Burden of Malnutrition, 2020). Elementary school-aged children are included in the group that is vulnerable to nutritional disorders. This can be caused by the low economic level of the family and the lack of parental knowledge regarding the nutritional needs of children, which leads to an imbalance in nutritional intake. School children who do not get enough food or energy intake are at greater risk of experiencing abnormal nutritional status compared to those who receive adequate intake.(1)

United Nations Children's Fund(UNICEF) revealed that Indonesia ranks fifth in the world in terms of the number of children with stunted growth, with an estimated 7.7 million toddlers experiencing this condition. Children, as part of the next generation, have an important role in determining the direction and progress of the nation in the future. Therefore, the quality of Indonesian children greatly influences the quality of human resources (HR) in the future. Fulfillment of nutritional needs for school-age children needs to be carried out optimally, both in terms of the amount and type of nutrients. This is important because school-age children are a group that is vulnerable to nutritional problems. In general, nutritional disorders in children are caused by an imbalance between the amount of nutrients consumed and those used by the body, either due to excess or deficiency, as well as due to the selection of inappropriate food ingredients(2)

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Indonesia is one of the countries in Asia that still faces a significant problem of malnutrition. From the results of the 2022 SSGI study, the proportion of children with overweight nutritional status in 2022 was 4.5%, smaller than in 2021, which was 3.8%. However, there was an increase in the proportion of wasting from 7.1% in 2021 to 7.7% in 2022 and underweight from 17.0% in 2021 to 17.1% in 2022. Based on data from the Indonesian Nutrition Status Survey (SSGI), the prevalence of stunting in toddlers in South Sulawesi Province showed that the results of the 2022 Indonesian Nutrition Status Study (SSGI) recorded a stunting prevalence of 27.2%, still higher than the national average of 21.6%. In 2023, the prevalence of stunting increased slightly to 27.4%, higher than the national average of 21.5%.(3)

Based on data from the Sidenreng Rappang District Health Office in 2019, the results of the prevalence of thinness and weight in children aged 6-14 years, boys were classified as thin as much as 11.6%, overweight as much as 1.3% and girls were classified as thin as much as 14.7% and overweight as much as 1.1%, the results of data from the Pangkajene Health Center, Sidenreng Rappang Regency, there was a prevalence of child nutritional status of 17.7%, thin with a prevalence of 7.91% and 4.5% very thin(4)

SD Negeri 8 Batu is a school located in Leppangeng Village, Pitu Riase District. Facilities and infrastructure are lacking, even the parking lot is not available, toilets are poorly maintained and there is no prayer room. There is no school canteen, let alone a UKS room, student council room, and other supporting rooms. Likewise, there are no facilities for student sports, no sports field and no sports equipment. The school may have tried its best, but due to limitations and long distances, everything that has been planned cannot be realized. The awareness of the school community to develop the school should be a top priority to build a school culture based on awareness. Therefore, this study aimed to analyze the association between dietary patterns, physical activity, family economy, school environment, and the nutritional status of students at SDN 8 Batu.

METHODS

This research is quantitative in natureby methodCross-sectional study or cross-sectional research is a research method used to analyze data from a population or sample at a certain point in time. This study uses primary and secondary data. Data collection techniques used include distributing questionnaires and documentation. The data analysis technique used to test the hypothesis is chi-square, also known as chi-square is a type of non-parametric comparative test used to analyze two variables with a nominal scale, this analysis is used to determine the relationship between diet, physical activity, economy, and school environment with the nutritional status of elementary school children at SDN 8 Batu. This study was conducted in April 2025, at SDN 8 Batu, Galung, Leppangeng Village. The study population was all elementary school students at SDN 8 Batu with a total of 53 students with 22 female students and 31 male students. The selection of respondents was carried out by total sampling. The number of samples in this study was all elementary school students at SDN 8 Batu, totaling 53 students.

RESULTS

Overview of Research Location

This research was conducted from February to April 2025, which was implemented at SDN 8 Batu. SDN 8 Batu, located at Jl. Galung No.1, Leppangeng Village, Pitu Riase District, Sidrap Regency, South Sulawesi Province, is a public elementary school that has been established since 1986. This school has a land area of 4,550 square meters, which is large enough to support teaching and learning activities and various extracurricular activities.

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Respondent Characteristics

Based on the inclusion and exclusion criteria, demographic data of respondents were collected and described in the table below. The data consisted of 53 respondents regarding: Age, class, and gender.

Table 1
Distribution of respondent characteristics based on age, class, and gender of children in SDN 8 Batu

Characteristics	N	%
Age		
7 Years	7	13.2%
8 Years	9	17.0%
9 Years	8	15.1%
10 years	9	17.0%
11 years old	8	15.1%
12 years old	11	20.8%
13 years old	1	1.9%
Class		
Class 1	7	13.2%
Class 2	9	17.0%
Class 3	8	15.1%
Grade 4	9	17.0%
Grade 5	7	13.2%
Grade 6	13	24.5%
Gender		
Woman	22	41.5%
Man	31	58.5%

Source: Primary data, 2025

Based on age, 12 years is the largest group with 11 respondents (20.8%). The age groups of 8 years and 10 years each have 9 respondents (17.0%), while the ages of 9 years and 11 years each have 8 respondents (15.1%). For the age of 7 years, there were 7 respondents (13.2%). Meanwhile, the age of 13 years is the age group with the fewest number of respondents, which is only 1 person (1.9%).

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Based on class, the majority of respondents came from class 6 (24.5%). This shows that the majority of respondents are at the end of elementary education, who usually have more experience interacting with health services in the school environment and outside of school. Respondents from other classes such as class 2 and class 4 (17.0% each) and classes 3, 1, and 5 are also proportionally quite even, although the number is smaller. Based on gender, respondents are dominated by men (58.5%), while women are 41.5%. This difference can illustrate that men are slightly more likely to be included in the research sample.

Bivariate Analysis

Table 2

Results of Relationship Analysis Indicators of nutritional status with diet, physical activity, economy, and school environment

Variabel		Nutritional Status						
		Normal		Abnormal		Total		P Value
		N	%	N	%	N	%	
Dietary Habit	Balanced	10	43,5	13	56.6	53	100	0.048
	Not Balanced	21	70.0	9	30.0			
Economy	Enough	13	68,4	6	31,6	53	100	0.273
	Not Enough	18	52,9	16	47.1			
Physical Activity	Enough	9	52,9	8	47,1	53	100	0.573
	Not Enough	22	61,1	14	38,9			
School Environment	Good	30	58,8	21	41,2	53	100	0.505
	Not Enough	1	50,0	1	50,0			

Sumber : Data Primer, 2025

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Table 2 shows that only dietary variables have a significant relationship with children's nutritional status (p = 0.048). Of the 23 children with a balanced diet, 10 children (43.5%) had normal nutritional status and 13 children (56.6%) had abnormal nutritional status. Meanwhile, of the 30 children with unbalanced dietary habits, 21 children (70%) had normal nutritional status and 9 children (30%) had abnormal nutritional status. For economic variables, out of 19 children who came from families with sufficient economy, 13 children (68.4%) had normal nutritional status and 6 children (31.6%) were abnormal, while out of 34 children with poor economy, there were 18 children (52.9%) who had normal nutritional status and 16 children (47.1%) were abnormal (p = 0.273). In the physical activity variable, out of 17 children whose physical activity was sufficient, there were 9 children (52.9%) with normal nutritional status and 8 children (47.1%) were abnormal. Meanwhile, out of 36 children with insufficient physical activity, 22 children (61.1%) had normal nutritional status and 14 children (38.9%) had abnormal nutritional status (p = 0.573). For the school environment variable, out of 51 children who were in a good school environment, 30 children (58.8%) had normal nutritional status and 21 children (41.2%) were abnormal. Of the 2 children in poor school environments, 1 child (50%) had normal nutritional status and 1 child (50%) had abnormal nutritional status (p = 0.505). Thus, only eating habits were significantly associated with s.

DISCUSSION

The Relationship Between Diet Patterns and Nutritional Status of Elementary School Children at SDN 8 Batu

BeBased on research conducted by researchers on the relationship between diet and nutritional status at SDN 8 Batu school, the results obtained students have a balanced diet but have an abnormal nutritional status. This is caused by parental knowledge of

nutritional status, especially in rural areas, so that the food provided does not meet the needs of the child's nutritional status, although the diet looks balanced, the nutritional intake received by the child is not in accordance with the needs of his body, most children prefer to consume instant food, packaged drinks and many do not like to eat vegetables. Low family income limits the ability to provide nutritious food, nutritious foods such as eggs and fish are essential for children's growth and health because they contain high-quality protein, vitamins, and minerals, but in rural areas fish and eggs are considered expensive and not routinely affordable. Although in the village there are many vegetable and fruit crops available, the lack of parental knowledge about nutritional status means that they do not utilize agricultural products optimally to meet children's nutritional need. (5)

Students with an unbalanced diet but have normal nutritional status. Although the frequency or variety of children's meals is less than ideal, it can be attempted with intake of calories and main nutrients such as rice or cassava as carbohydrates, eggs as protein and vitamins, and spinach as minerals that are consumed to meet the needs of their bodies, for example, children only eat twice a day but the portions and nutritional content meet basic needs. Parental knowledge in choosing and processing food is very important for children's nutritional status, parents who have an understanding of their children's nutritional status will provide balanced nutritious food. Parental knowledge regulates regular eating patterns, for example, making provisions for children so that children do not eat unhealthy snacks at school.

This finding is in line with research conducted at SDN 129 Palembang which identified a relationship between eating patterns and nutritional status. A balanced nutritious diet that meets the needs by choosing quality food ingredients will result in good nutritional status. Food intake that is more than the body's needs can cause obesity and other diseases. Meanwhile, if food intake is less than the body's needs, it can cause

malnutrition and be very susceptible to disease. Research shows that balanced nutrition education activities will have a major impact on children's health in the future and improving school children's nutrition is a strategic step that has a direct impact related to achieving quality human resources. (6)

Economic Relationship with Nutritional Status of School Childrenat SDN 8 Batu

Based on research conducted by researchers on the relationship between economics and nutritional status at SDN 8 Batu, the results obtained were students who had sufficient economics but had abnormal nutritional status. Lack of parental knowledge about nutritional status so that they could not choose and process nutritious food even though they could buy enough food ingredients, instead they often bought instant food and unhealthy snacks for children. Lack of consumption of vegetables and fruits so that vitamin and mineral intake is not sufficient, which can interfere with the metabolism process and absorption of other nutrients.

Students have low economic status but have normal nutritional status. Parents' knowledge and awareness of the importance of providing nutritious food from local sources such as fruits and vegetables, by utilizing local food ingredients such as spinach leaves, cassava leaves, bananas and papaya, these foods contain vitamins, minerals and protein. Providing food regularly even in economic limitations such as, corn rice, cassava according to the child's eating ability, vegetables in sufficient portions.

This finding is in line with research conducted in Bailang Village, Bunaken District, Manado City, which identified that there was no significant relationship between family income and the nutritional status of elementary school-aged children based on BMI, with a P value = 0.211, although there was a relationship with parental education. This study shows that even though students have sufficient economic resources, family economic factors do not always determine parenting patterns, nutritional knowledge, and children's eating habits which have a greater influence on nutritional status. (7)

The Relationship Between Physical Activity and Nutritional Status of School Childrenat SDN 8 Batu

Based on research conducted by researchers on the relationship between physical activity and nutritional status at SDN 8 Batu school, the results obtained were students who had sufficient physical activity but had abnormal nutritional status. Most children are active and do physical activities but do not consume enough protein, vitamins, and minerals which play an important role in muscle formation, the immune system and body metabolism. Unbalanced eating habits, some children rarely consume fruits and vegetables, cause the body to lack vitamins and minerals which are important for endurance, in addition, the habit of consuming instant food also worsens the condition and cannot replace the function of vegetables and fruits in meeting children's nutritional needs.

Students have less physical activity but have normal nutritional status. Most children consume food from agricultural products such as rice, fruits and vegetables so that nutritional intake is still sufficient even though physical activity is limited, regular eating patterns with three main meals, bringing supplies from home to avoid unhealthy snacks and instant foods. In addition, the role of people in preparing balanced meals is also an important factor in maintaining children's nutritional status even though the level of physical activity is limited. Although not doing structured sports, some children walk to school, do other outdoor activities and help their parents garden. (8)

This finding is in line with the research of conducted at SDN 12 Dauh Puri which identified that there was no relationship between physical activity and children's nutritional status with a P value = 0.520 which means that even though most children have moderate levels of activity, this does not directly affect their nutritional status. The physical activity carried out is moderate for a long time to have a real impact on nutritional status, unbalanced or low-quality food intake can cover up the benefits of

physical activity, so that children continue to experience malnutrition or excess nutrition. (9)

The Relationship between School Environment and Nutritional Status of School Children at SDN 8 Batu

Based on research conducted by researchers on the relationship between school environment and nutritional status at SDN 8 Batu school, the results obtained were that students considered the school environment good but did not have good nutritional status. Schools do play an important role in providing education and forming healthy living habits, but their effectiveness depends on support from home. Instant foods generally contain preservatives but are low in the nutritional content needed for growth and development, children tend to choose foods that are attractive in taste but low in nutritional value such as colored drinks, candy and fried foods. (10)

Students rated the school environment as poor but had normal nutritional status. Although the school environment does not support some children to get good intake from home, parents who have knowledge about nutrition are better able to provide balanced meals. Bringing supplies to avoid unhealthy snacks and instant foods at school, especially in schools that do not provide a nutritious food menu, bringing supplies from home can also be more economical than buying snacks at school. (11)

This finding is in line with the research of which was conducted at SD Inpres Toddopuli I Makassar which identified that there was no relationship between the school environment and nutritional status with a P value = 0.330. This is caused by the uniform and neutral color of the classroom walls so that it does not have a striking enough influence on the learning conditions of students. The relatively similar density of classrooms between classes makes students tend to get used to these conditions and do not feel a direct impact on their concentration (12).

CONCLUSION AND RECOMENDATION

Diet has a significant relationship with students' nutritional status (p = 0.048). Students with a balanced diet tend to have better nutritional status, although this is also strongly influenced by parents' knowledge and habits in preparing healthy food. In contrast, physical activity (p = 0.573), economic conditions (p = 0.273), and school environment (p = 0.505) did not show a significant relationship, which means that children with sufficient economic status or a good school environment do not necessarily have a normal nutritional status if not accompanied by proper eating habits. It is recommended that schools improve nutrition education programs that actively involve teachers and parents, such as through routine counseling and the habit of bringing healthy lunches to school. Parents are expected to pay more attention to the quality of food consumed by children every day, reduce instant food, and ensure children have breakfast before going to school. In addition, health centers and health workers need to conduct more frequent monitoring and nutrition counseling in schools, so that the knowledge of parents and students regarding the importance of balanced nutrition can increase. For future researchers, it is recommended to increase the number of samples and include other variables such as media influence, eating habits at home, and children's psychological conditions that may also play a role in nutritional status.

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