THE RELATIONSHIP BETWEEN PHYSICAL ACTIVITY AND EATING PATTERNS WITH NUTRITIONAL STATUS OF ADOLESCENT GIRLS

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ABSTRAK: HUBUNGAN AKTIVITAS FISIK DAN POLA MAKAN DENGAN STATUS GIZI REMAJA PUTRI

Latar Belakang: Prevalensi masalah status gizi pada remaja putri masih tinggi di Indonesia. Tingginya masalah status gizi disebabkan kebiasaan makan aktivitas fisik yang berdampak terhadap penurunan imunitas dan produktivitas. Remaja memiliki perilaku konsumsi pangan yang tidak sesuai dengan kebutuhan.

Tujuan: Penelitian ini bertujuan untuk mengetahui hubungan pola makan dan aktivitas fisik dengan status gizi remaja putri.

Metode: Metode yang digunakan dalam penelitian ini adalah kuantitatif dengan pendekatan *cross sectional*. Sampel dalam penelitian ini berjumlah 117 responden. Instrumen pengukuran pola makan menggunakan kuesioner semi FFQ, aktivitas fisik menggunakan kuesioner PAQ-A, dan status gizi diukur berdasarkan IMT perumur. Karakteristik responden yaitu pola makan, akivitas fisik, dan status gizi dianalisis secara univariat dan disajikan dalam tabel distribusi frekuensi, sedangkan analisis bivariat menggunakan uji Chi Square.

Hasil: Hasil penelitian menujukkan sebagian besar remaja putri mempunyai pola makan yang tidak sesuai dengan PGS, yaitu sebanyak 84 (72%) remaja putri, memiliki aktivitas yang aktif sebesar 72 (62%), dan sebagian besar berstatus gizi normal sebanyak 90 (77%) remaja putri. Analisis bivariat hubungan antara pola makan dan aktivitas fisik dengan status gizi menunjukkan nilai p< 0,05 yang berarti terdapat hubungan yang signifikan antara pola makan dan aktivitas fisik dengan status gizi remaja.

Kesimpulan: Berdasarkan hasil penelitian dapat disimpulkan pola makan dan aktivitas fisik berhubungan dengan status gizi.

Saran: Diharapkan semua remaja putri untuk mengatur pola makan dan aktif melakukan aktivitas fisik untuk memperbaiki status gizi.

Kata Kunci : Aktivitas Fisik; Pola Makan; Remaja; Status Gizi

ABSTRACT

Background: The prevalence of nutritional status problems among teenage girls is still high in Indonesia. The high nutritional status problems are caused by eating habits and physical activity that affect immunity and productivity. Teenagers have food consumption behaviors that do not align with their needs.

Purpose: This research aims to determine the relationship between eating patterns and physical activity with the nutritional status of adolescent girls.

Methods: The method used in this study is quantitative with a cross-sectional approach. The sample in this study consisted of 117 respondents. The measurement instrument for dietary patterns used a semi-FFQ questionnaire, physical activity was assessed using the PAQ-A questionnaire, and nutritional status was measured based on BMI for age. The characteristics of the respondents, namely dietary patterns, physical activity, and nutritional status, were analyzed univariately and presented in frequency distribution tables, while the bivariate analysis used the Chi Square test

Results: The research results show that the majority of adolescent girls have eating patterns that do not conform to the PGS, with 84 (72%) adolescent girls having an active lifestyle of 72 (62%), and most having a normal nutritional status amounting to 90 (77%) adolescent girls. The bivariate analysis of the relationship between eating patterns and physical activity with nutritional status shows a p-value < 0.05, indicating a significant relationship between eating patterns and physical activity with the nutritional status of adolescents.

Conclusion: Based on the research findings, it can be concluded that diet and physical activity are related to nutritional status.

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Suggestions: It is hoped that all adolescent girls will manage their diet and actively engage in physical activities to improve their nutritional status.

Keywords: Physical Activity; Eating Patterns; Adolescents; Nutritional Status

INTRODUCTION

Adolescent are a high-risk group (Handayani, 2022). The prevalence of nutritional status problems among adolescents aged 16-18 years based on BMI is still high in Indonesia, with 1.7% being severely underweight and 6.6% underweight. According to weight/height, adolescents experiencing severe stunting is 3.6% and stunting is 20.1% (Kemenkes RI, 2023). In terms of anemia status, the percentage of anemia among adolescents is 48.9%.(Nasruddin et al., 2021). Research in West Lombok Regency shows that 7.2% of adolescents experience malnutrition, 21.8% experience insufficient nutrition, and the incidence of anemia is 41.4%.(Handayani, 2024) and in the city of Mataram, 69.4% were found to have mild anemia, 29% moderate anemia, and 1.6% severe anemia (Oktaviana et al., 2020).

The high prevalence of nutritional status issues is caused by eating habits and lifestyle. Adolescents have food consumption behaviors that do not align with their needs. Generally, adolescents consume food to satisfy their taste without considering its nutritional content. A lack of knowledge about nutrition also affects their food choices. (Kementeri Kesehatan RI, 2022)(Handayani et al., 2024)(Mulianingsih et al., 2021). Physiologically, it is also influenced by the levels of leptin in the blood (Sari & Pramono, 2015).

The issue of nutritional status in teenagers affects their immunity and productivity, increases the risk of anemia, heightens risks during pregnancy which negatively impacts fetal growth and development, and poses potential complications for pregnancy and childbirth. Babies born are also at risk of experiencing stunting. (Kementeri Kesehatan RI, 2022)(Alwi et al., 2022)(Handayani et al., 2023). The percentage of stunting incidents in Indonesia is 21.6%, still high compared to the target of 14% for the year 2024. (Kemenkes RI, 2022). Therefore, adolescents become targets in the acceleration of stunting reduction (Perpres, 2021).

The government has taken significant steps regarding adolescents in addressing nutritional issues, namely providing Iron Supplement Tablets (TTD) to teenage girls through the nutrition action program in schools, conducting physical activities, and promoting the consumption of balanced nutritious food (Kemenkes RI, n.d.)(Lestari, 2023).

The administration of TTD to adolescent girls is carried out through the UKS/M in educational institutions (junior high school and senior high school or equivalent) by setting a specific day for taking TTD together. The dose given is one tablet every week throughout the year. The coverage of TTD administration to adolescent girls in Indonesia in 2022 was 50.0%. The highest coverage of TTD administration to adolescent girls was achieved by Bali Province (95.1%), while the lowest percentage was in West Papua Province (2.5%), with NTB at 40.0%(Kementeri Kesehatan RI, 2022).

Considering the high prevalence of nutritional status issues and the impact caused by the nutritional status problems of adolescents, the researchers are interested in conducting a study titled "The Relationship Between Eating Patterns and Physical Activity at As-Sunnah Islamic High School in East Lombok, West Nusa Tenggara ".

RESEARCH METHODS

The method used in this research is quantitative with a cross-sectional approach. This research was conducted at As-Sunnah High School in East Lombok Regency, West Nusa Tenggara in April 2025.

The population in this study consists of all female adolescents in Islamic High School As-sunnah, totaling 291 respondents. This study uses the random sampling method with simple random sampling technique. The sample in this study consists of 117 respondents. Respondents in this study must meet the inclusion and exclusion criteria. The inclusion criteria in this study were willing to be respondents, adolescent girls aged 13 – 18 years, and not in school when the study was conducted. The exclusion criteria in this study were not willing to be arespondent, male gender, and suffering from severe illness.

The variables in this study are dietary patterns and physical activity as independent variables and nutritional status as a dependent variable. The measurement instrument for dietary patterns uses a modified semi-quantitative food frequency questionnaire (FFQ) according to the circumstances and conditions. This questionnaire employs an instrument that recalls frequently consumed foods. The measurement results are categorized as follows: 0 = Dietary pattern does not

conform to PGS (Balanced Nutrition Guidelines); 1 = Dietary pattern conforms to PGS, which means staple foods 3-8 servings/day, side dishes 2-3 servings/day, vegetables 3-5 servings/day, and fruits 2-3 servings/day.

Measurement of physical activity using data collection instruments in the form of the Physical Activity Questionnaire for Adolescents (PAQ-A) with several modifications to suit the conditions and habits in Indonesia. This physical activity questionnaire uses an instrument that recalls activities performed in the previous week. Categories based on Physical Activity Level (PAL) values: Active: PAL ≥ 1.70; Inactive: PAL < 1.70 (Very light or Light) (Moderate or Heavy).

Nutritional status variables are measured based on body weight and height directly using measuring instruments that have been calibrated beforehand. The instrument used to measure body weight is a digital weighing scale with an accuracy of 0.1 kg, and height measurement is done using a microtoise. The data from the measurements of body weight and height are then used to determine BMI based on the age of the respondents.

Nutritional status determination is carried out by referring to the category table and the nutritional status thresholds for children based on the BMI/U index for children aged 5-18 years according to the Regulation of the Minister of Health of the Republic of Indonesia Number 2 of 2020 concerning Child Anthropometric Standards. After obtaining the frequency distribution data of the nutritional status of respondents, the nutritional status categories are established using the BMI/U index for children aged 5-18 years based on Permenkes RI Number 2 of 2020, which are normal z-score -2 SD to +1 SD; Abnormal: Z-score < -2 SD or > +1 SD (Kemenkes RI, 2020).

Respondent characteristics such as dietary patterns, physical activity, and nutritional status were analyzed univariately and presented in a frequency distribution table. After univariate analysis, the data were analyzed bivariately using the Chi Square test.

RESEARCH RESULTS

Based on the data, results were obtained regarding the distribution of eating patterns, physical activity, and nutritional status. These data can be seen in the following tables:

Table 1
Frequency Distribution of Adolescent Girls Based on Eating Patterns, Physical Activity, and Nutritional Status

Respondent Description		n	%
Eating Pattern	Not in accordance with the PGS	84	72
	In accordance with the PGS	33	28
Physical Activity	Active	72	62
	Inactive	45	38
Nutritional Status	Normal	90	77
	Not Normal	27	23

Based on the table above, most teenage girls have a diet that does not conform to PGS, with 84 (72%) teenage girls having active activity level of 72 (62%), and the majority are in normal nutritional status with 90 (77%) teenage girls.

Table 2
The Relationship Between Eating Patterns and Nutritional Status of Adolescent Girls

Respondent Description		Nutritional Status				p
		Normal		Not Normal		
		n	%	n	%	
Eating Pattern	Not in accordance with the PGS	60	51	12	10	0,037
	In accordance with the PGS	30	26	15	13	

Based on table 2, 77% of adolescents have normal nutritional status, where 51% are adolescents with inappropriate eating patterns, while 26% have appropriate eating patterns. Meanwhile, 23% of adolescents have abnormal nutritional status, 10% come from adolescents with

inappropriate eating patterns and 13% come from adolescents with appropriate PGS eating patterns. The Chi Square test results show a p value of 0.024 (p < 0.05), thus Ha is accepted and Ho is rejected, which means there is a significant relationship between eating patterns and adolescents' nutritional status. This indicates that adolescents with appropriate eating patterns tend to have normal nutritional status, while those with inappropriate eating patterns are at greater risk of experiencing abnormal nutritional status.

Table 3
The Relationship Between Physical Activity and Nutritional Status of Adolescent Girls

Respondent Description		Nutritional Status				p
		Normal		Not Normal		
		n	%	n	%	
Respondent	Active	60	51	24	21	0,024
Description	Inactive	30	26	3	3	

Based on Table 3, 77% of adolescents have normal nutritional status, where 51% of active female adolescents engage in physical activity and 26% are from inactive adolescents. Meanwhile, 23% of adolescents have abnormal nutritional status, with 21% being adolescents who are physically active and 3% from adolescents who are physically inactive. The Chi Square test results show a p-value of 0.037 (p < 0.05), indicating that the alternative hypothesis (Ha) is accepted and the null hypothesis (Ho) is rejected, which means there is a significant relationship between physical activity and the nutritional status of adolescents. This indicates that adolescents who are physically active tend to have normal nutritional status compared to those who are inactive.

DISCUSSION

Nutritional status is the condition of the body as a result of food consumption and the use of nutrients, where nutrients are essential for the body as a source of energy, growth and maintenance of body tissues, as well as regulating bodily processes (Arni Isnaini Arfah et al., 2021).

The results of the Chi Square test between dietary patterns and nutritional status show a p-value of 0.024 (p< 0.05), thus Ha is accepted and Ho is rejected, which means there is a significant relationship between dietary patterns and the nutritional status of adolescents. This indicates that adolescents with appropriate dietary patterns tend to have normal nutritional status, while those with inappropriate dietary patterns are at a higher risk of having abnormal nutritional status. This study is in line with another study conducted at SMK IT An-Naba in Bogor City in 2019, which showed a relationship between dietary patterns and nutritional status (Nurholilah et al., 2019).

An imbalance in diet leads to a deficiency or excess of nutrients entering the body. This is compounded by children's habits of preferring snacks and being able to choose the snacks they like. Most children consume types of snacks that are high in fat and energy (Utomo et al., 2012). A sufficiently high energy intake will be stored as fat by the body. This high energy and fat intake will cause an increase in a child's weight. Some studies mention that there is a relationship between energy intake and the occurrence of obesity. This is consistent with research that states there is a relationship between energy intake and the occurrence of obesity (Wulandari et al., 2016).

The results of the Chi Square test on the relationship between physical activity and nutritional status showed a p-value of 0.037 (p < 0.05), which means that the alternative hypothesis (Ha) is accepted and the null hypothesis (Ho) is rejected, indicating a significant relationship between physical activity and the nutritional status of adolescents. This shows that adolescents with active physical activity tend to have normal nutritional status compared to those who are inactive. This study is in line with another study at State High School 7 Bandar Lampung in 2024 which showed a relationship between physical activity and nutritional status (Pradinda et al., 2024).

Physical activity is any body movement that increases energy expenditure. Regular physical activity brings great benefits for health (Rachmi et al., 2019). Physical activity does not always have to be in the form of sports. Various activities such as playing are also included in physical activity. Teenagers are also encouraged to reduce sedentary activities, which are activities outside of sleep time that expend very little energy/calories. For example, lying/sitting while watching TV or sitting in front of the computer. The World Health

Organization recommends that children aged 5-17 engage in physical activity for 60 minutes per day (which can be accumulated). It is also recommended that these physical activities include aerobic activities such as brisk walking, running, cycling, jumping rope, and swimming, at least 3 times a week (Handayani, 2022).

CONCLUSION

The bivariate analysis of the relationship between eating patterns and physical activity with nutritional status shows a p-value < 0.05, indicating a significant relationship between eating patterns and physical activity with the nutritional status of adolescents.

SUGGESTION

As a follow-up effort to this study, it is recommended that researchers conduct research on the effect of the iron tablet supplementation program on the hemoglobin levels of adolescent girls.

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