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KNOWLEDGE, EATING HABITS, AND NUTRITIONAL STATUS IN ADOLESCENTS

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Abstract. Adolescence is a transitional period that requires optimal nutritional intake to support growth and development. Knowledge and eating habits are key factors influencing nutritional status in adolescents. This study aims to identify the relationship between knowledge and eating habits with nutritional status among adolescents at SMA Al-Washliyah in Medan City and SMA Yayasan Bandung. The study employed a cross-sectional design and was conducted from June to August 2023. A total of 114 respondents were selected using cluster sampling. Data were analyzed using the chi-square test and logistic regression. The results showed a significant relationship between knowledge and eating habits with the nutritional status of adolescents. Based on these findings, it is concluded that improving knowledge and adopting appropriate eating habits are crucial to support optimal nutritional status in adolescents.

Keywords: Adolescence; Knowledge; Eating Habits.

INTRODUCTION

Adolescence is an important phase in the human life cycle. This phase is marked by significant changes in physical, psychological, and social terms. In this phase, adolescents need a drastic increase in nutrients because in this phase there is a rapid growth and development process. Unfortunately, many adolescents have difficulty adopting healthy eating habits, which has the potential to negatively affect their nutritional status. Various factors can influence adolescents' eating patterns, one of which is their knowledge of nutrition(Hantira et al., 2023).

The nutritional status of adolescents is one of the important markers used by the Indonesian government as an indicator in assessing the quality of health and development of the young generation in Indonesia. According to the 2023 Indonesian Health Survey, the prevalence of overweight in adolescents aged 13-15 years reached 12% and obesity was 4.1%, while in adolescents aged 16-18 years the prevalence rate of overweight reached 8.8% while obesity was 3.3%. This phenomenon is closely related to changes in diet and lifestyle, including consumption of high-calorie and low-nutrient foods, and lack of physical activity. On the other hand, around 17.5% of adolescents in the 13-15 age range were reported to be malnourished or stunted and 20.1% in the 16-18 age range, this was caused by various supporting factors such as: limited access to nutritious food, economic problems, and lack of education regarding the importance of balanced nutrition (Kementerian Kesehatan Indonesia, 2023).

Nutritional knowledge in adolescents is one of the important factors that can influence eating habits and nutritional status of adolescents. Adolescence is one of the important phases in adolescent growth and development where physical growth, cognitive

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development, and behavioral changes occur significantly. At this stage, the need for nutrients increases substantially, but adolescents often lack a good understanding of the importance of balanced nutrition to support optimal growth. Adolescents who have low nutritional knowledge tend to have poor eating habits, such as frequently consuming fast food and processed foods, which contribute to an increased risk of health problems in the future (Maslakhah & Prameswari, 2022).

Adolescents have different eating habits. Many of them have unhealthy eating habits, such as often consuming random foods or foods that are high in fat. Most adolescents only prioritize feeling full and delicious without considering the health aspects. These eating habits are influenced by several factors, including the surrounding environment, such as the presence of restaurants and fast food that encourage adolescents to try. In addition, peers can also influence unhealthy eating habits, for example by inviting friends to eat at restaurants or new places (Hafiza, 2020).

Unhealthy eating habits during adolescence can lead to long-term health problems, including obesity and other diet-related diseases. Research (Koca & Arkan, 2021), shows that adolescents with good nutritional knowledge tend to adopt healthier eating patterns, which have a positive impact on their nutritional status. Research (Olatona et al., 2023), shows that although nutritional knowledge among adolescents is not always directly related to their nutritional status, good knowledge can influence healthier food choices. Research (Roshita et al., 2021), says that in addition to knowledge factors, the environment also plays a significant role in shaping eating habits in adolescents. Influences from peers, family, and social media can influence their food preferences and eating behaviors.

Therefore, this study aims to explore the relationship between knowledge of nutritional knowledge, eating habits, and nutritional status in adolescents.

METHOD

The research design used was a cross-sectional study. The study was conducted from June to August 2023. The research location was at SMAS Al-Washliyah 1 Medan City and SMA Yayasan Bandung Deli Serdang Regency. The selection of the research location was carried out purposively with considerations to represent urban and rural areas, the characteristics and conditions of the same schools and the absence of similar research in both places. The population in this study were students of grades X-XII aged 14-18 years of SMAS Al-Washliyah 1 Medan City and SMA Yayasan Bandung Deli Serdang Regency. The total research subjects were 114 respondents from each school with the respondent selection technique using cluster sampling. The primary data collected were respondent characteristics (gender, age, and pocket money), nutritional knowledge, eating habits, and nutritional status.

Nutrition knowledge was obtained from a questionnaire that had been validated by experts. A total of 16 knowledge questions related to the benefits of breakfast, sources of nutrients, the benefits of drinking water, and the effects of smoking. The nutritional knowledge questionnaire has true and false answers. The total score obtained was then categorized into two categories, true (1), and false (0). Good knowledge (≥ mean) and poor knowledge (<mean).

Eating habits using a validated formula, namely the AFCH Adolescent Food Habits Checklist (AFHC) formula. AFHC consists of 23 statements designed to measure healthy eating habits specifically in adolescents. The AFHC questionnaire has yes and no answer

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options. The total score is obtained, then categorization of healthy eating habits (≥ mean) and unhealthy (<mean) is carried out (Johnson et al., 2002).

Anthropometric data for assessing nutritional status were obtained by directly measuring body weight using a digital scale with an accuracy of 0.1 kg and measuring height using a microtoise with an accuracy of 0.1 cm. Analysis of nutritional status by determining the z-score of body mass index according to age (BMI / U) using Antrho Plus WHO. Nutritional status is categorized into two categories, namely normal nutritional status (-2 SD to +1 SD), and abnormal nutritional status (<-2SD to >+1 SD) (Kementerian Kesehatan RepubIik Indonesia (Kemenkes RI), 2020).

Data analysis using univariate analysis is to see the frequency of respondent characteristics, nutritional knowledge, eating habits, and nutritional status. Bivariate analysis to see the relationship of variables (nutrition knowledge and eating habits) with nutritional status) through the chi-square test. Multivariate analysis using logistic regression analysis (Dahlan, 2014).

RESULTS AND DISCUSSION

Respondent characteristics seen in this study are gender, age, and daily pocket money. Table 1 illustrates the distribution of respondents with a total of 114 male adolescents, 59 children (51.8%). Meanwhile, there were 55 females (48.2%). The age of adolescents participating in this study varied between 14 and 18 years. The largest age group was in the 15-year group with 34 adolescents (29.8%). The smallest age group was 14 years, 7 adolescents (6.1%). Daily pocket money for adolescents in this study showed a percentage of pocket money <10,000, namely 65 adolescents (57%) and >10,000, namely 49 (43%).

Table 1: Distribution of Subjects Based on Adolescent Characteristics

Category	N	%
Gender		
Male	59	51.8
Female	55	48.2
Age (Years)		
14	7	6.1
15	34	29.8
16	31	27.2
17	31	27.2
18	11	9.6
Min ± Max	14 ± 18	
Average ± SD	16 ± 1.1	
Daily pocket money		
≥ 10000	49	43
< 10000	65	57
Min ± Max	5000 ± 40000	
Average ± SD	11673.32 ± 6171.94	
Nutritional status (IMT/A)		
Malnutrition	9	7.9
Good/normal nutrition	81	71.1
Over nutrition	14	12.3
Obesity	10	8.8

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From this data, the gender distribution is quite balanced between male and female, and most subjects are aged 15 to 17 years. The daily pocket money of respondents is not much different from the pocket money value <10000 and >10000. Adolescent food preferences are greatly influenced by socioeconomic status and the pocket money given by their parents. Adolescents who have enough pocket money tend to enjoy a variety of foods, including fast food and snacks, while those with limited pocket money often choose cheaper and less nutritious options (Putri et al., 2017).

Table 2: Distribution of knowledge, eating habits, and nutritional status

Category	N	%
Nutritional knowledge		
Good (≥ 73,97)	49	43
Poor (<73,97)	65	57
Min ± Max	13.33 ± 100	
Average ± SD	73.97 ± 11.89	
Eating habits		
Healthy (≥ 12.75)	76	66.7
Unhealthy (<12.75)	38	33.3
Min ± Max	1.74 ± 22	
Average ± SD	12.75 ± 4.07	
Nutritional status (BMI/A)		
Undernourished	9	7.9
Good/normal nourishment	81	71.1
Overnourished	14	12.3
Obesity	10	8.8

Table 2 shows a picture of the distribution of nutritional knowledge, eating habits, and nutritional status in a population. Although the majority of respondents have poor nutritional knowledge (57%), this does not always correlate with their eating habits. Most respondents actually show healthy eating habits (66.7%).

The results of this study indicate that even though the level of nutritional knowledge is low, daily habits in eating patterns still tend to support healthy eating patterns. This can be caused by other factors such as social environment, family influence, or guidance from health professionals (Contento, 2016).

In addition, most respondents have a good or normal nutritional category (71.1%). Only a small portion of the population experiences nutritional problems, such as malnutrition, overnutrition, or obesity.

Table 3: Relationship between Nutrition Knowledge and Eating Habits with Nutritional Status in Adolescents

variable	Nutritional status		p-value
	Normal n (%)	Abnormal n (%)	
Nutritional knowledge			
Good	29 (59.2)	20 (40.8)	0.015
Poor	52 (80)	13 (20)	
Eating habits			

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variable	Nutritional status		p-value
	Normal n (%)	Abnormal n (%)	
Healthy	63 (82.9)	13 (17.1)	0.000
Un-Healhy	18 (47.4)	20 (52.6)	

This study shows that there is a significant relationship between nutritional knowledge and eating habits with nutritional status in adolescents. As many as 29 (59.2%) adolescents with good knowledge showed normal nutritional status. Healthy eating habits with normal nutritional status were 63 (82.9) adolescents. Good nutritional knowledge and healthy eating habits are related to normal nutritional status.

Good nutritional knowledge means that someone has an understanding related to a balanced diet. A person who has good nutritional knowledge tends to make healthier food choices, such as consuming fiber foods, reducing sugar and saturated fat intake, and maintaining a balance of nutrients. This will contribute to normal nutritional status. Normal nutritional status indicates that the body gets enough nutrients and according to its needs (Salsabilla, 2017).

Adolescents' eating habits tend to be unhealthy foods such as fast food and highly processed foods. Adolescents who consume insufficient vegetables (less than three servings per day) are also more likely to consume fast food (Man et al., 2021).These eating habits will increase abnormal nutritional status (overnutrition and obesity).

The results of logistic regression analysis showed that nutritional knowledge and eating habits were significantly related to nutritional status ($p<0.05$) with OR values of 0.347 and 5.542 respectively. The direction of the relationship between these variables was different.

Table 4: Results of logistic tests on the relationship between nutritional knowledge and eating habits with nutritional status

Variable	B	p	OR	Confidence level 95%	
				Lower limit	Upper limit
Nutritional knowledge	-1.058	0.021	0.347	0.141	0.855
Eating habits	1.712	0.000	5.542	2.244	13.687
Constant	0.387	0.329	1.473		

The results of the logistic regression analysis showed that nutritional knowledge and eating habits were significantly related to nutritional status ($p<0.05$) with OR values of 0.347 and 5.542 respectively. The direction of the relationship between these variables is different. The nutritional knowledge variable has a negative relationship with nutritional status. This means that the higher a person's knowledge of nutrition, the less likely they are to have an abnormal nutritional status. People who have a better understanding of nutrition tend to make healthier eating choices, so they are more likely to have a normal nutritional status. The results of (Lestari et al., 2022) literature review showed that there was a significant relationship between nutritional knowledge and the nutritional status of adolescents because a person's level of nutritional knowledge is related to attitudes and behavior in choosing the food they consume.

The relationship between eating habits and nutritional status shows a positive relationship, so this proves that the more often a person consumes unhealthy foods, the lower their chances of having a normal nutritional status, and the greater the likelihood of having an abnormal nutritional status. A person who consumes unhealthy foods more often is 5.54 times more likely to have an abnormal nutritional status than those who consume healthy foods more often. Other research results also show that there is a relationship between eating habits and nutritional status in adolescents (Utami et al., 2024).The results of (Pantaleon, 2019) study stated that there is a relationship between eating habits and nutritional status (p = 0.001), from the results of the study it was stated that a person's nutritional status is basically determined by nutritional consumption and the body's ability to metabolize these nutrients.

Adolescents need to pay attention to healthy eating habits such as consuming more fruit, vegetables, reducing consumption of fast food and others as recommended to avoid problems with abnormal nutritional status.

CONCLUSION

This study shows that most adolescents have poor nutritional knowledge (57%), and healthy eating habits (66.7%). Most adolescents have good or normal nutritional categories (71.1%). Only a small portion of the population experiences nutritional problems, such as malnutrition, overnutrition, or obesity. There is a significant relationship between nutritional knowledge and eating habits with nutritional status. Knowledge is likely to influence eating habits, so that when eating habits are good it will result in normal nutritional status.

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