

The Relationship Between Body Image, Eating Behavior, and Physical Activity on the Nutritional Status of Adolescents Among Medical Students

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Abstract

Introduction: Adolescence is a crucial period of physical and psychological development, often accompanied by dissatisfaction with body image. Many adolescents struggle to accept their body shape, which can influence eating behavior and physical activity, ultimately affecting nutritional status. **Objective:** This study aimed to determine the relationship between body image, eating behavior, and physical activity on the nutritional status of adolescents.

Method: A cross-sectional study was conducted among 115 medical students from the Faculty of Medicine, Christian University of Indonesia, Class of 2018. Data were collected through online questionnaires, including the Body Shape Questionnaire-34, Eating Attitude Test-26, and International Physical Activity Questionnaire. The data were analyzed using the chi-square test. Result and **Discussion:** The analysis showed that eating behavior had the most significant influence on nutritional status, with a p-value of 0.035. This finding indicates that irregular eating patterns and excessive dietary control may contribute to imbalanced nutrition among adolescents.

Conclusion: There is a significant relationship between eating behavior and nutritional status among adolescents. Promoting healthy eating habits and positive body perception is essential to maintain optimal nutritional health during adolescence.

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Introduction

Adolescence is a transitional stage of human development characterized by rapid physical, psychological, and social changes that typically occur between the ages of 12 and 23 years (World Health Organization [WHO], 2023). During this period, adolescents experience significant body changes, which may affect their self-perception and confidence. However, many adolescents struggle to accept their body shape and often experience dissatisfaction with their physical appearance. This dissatisfaction is closely linked to body image, a psychological construct describing one's perception and attitude toward their body (Grogan, 2021); (Saragih et al., 2022)

Body image concerns are particularly prevalent among female adolescents, who tend to evaluate their appearance based on emotional and social standards rather than functional performance (Cash & Smolak, 2011). In Indonesia, research indicates that adolescent girls often experience pressure from peers and social media, resulting in negative body image and disordered eating behaviours (Jannah, Minarni, & Saudi, 2023); (Kartika, Negara, & Wulandari, 2021). Social and cultural stereotypes regarding the "ideal body shape" have been shown to increase body dissatisfaction among teenage girls, leading to reduced self-esteem and unhealthy weight-control behaviours (Jones & Crawford, 2006) (Wulandari, Syuryadi, & Ernalina, 2023). Male adolescents, in contrast, often strive for a more muscular physique and report higher satisfaction with their bodies (Tiggemann & Slater, 2017). Social comparison within peer groups also plays a crucial role — adolescents often adjust their behaviour to align with group norms and social acceptance (Perloff, 2014); (Resha & Izzaty, 2025)

Such psychological pressures can influence dietary patterns and lifestyle habits. Adolescents who are dissatisfied with their body image may restrict food intake excessively or view eating as a threat to achieving their ideal body (Neumark-Sztainer, Wall, Story, & Standish, 2012). Studies in Indonesia confirm that negative body image is associated with irregular dietary behaviour, low dietary diversity, and increased risk of undernutrition or obesity (ILHAM, 2024). These behaviours can lead to malnutrition, eating disorders, or other health risks. On the other hand, regular physical activity is known to improve both body image and nutritional balance, yet many adolescents prioritise dietary restriction over exercise (Homan & Tylka, 2014); (Manoppo & Lang, 2022). A study among Indonesian university students revealed a significant correlation between body image, eating patterns, and nutritional status (Al-Hana & Intansari, 2025)

Although numerous studies have examined the relationship between body image and eating behaviour, limited research has investigated the combined influence of body image, eating behaviour, and physical activity on the nutritional status of university students in Indonesia, particularly among medical students who face academic stress and social appearance expectations. Understanding these relationships is crucial for promoting adolescent health and preventing long-term nutritional problems. Therefore, this study aims to analyse the relationship between body image, eating behaviour, and physical activity with the nutritional status of adolescents, focusing on medical students from the Faculty of Medicine, Christian University of Indonesia, Class of 2018. The findings are expected to contribute to public health promotion by identifying key behavioural and psychological factors influencing adolescent nutrition (Eprillia, 2022); (Buciminalda & Kumaidi, 2022)

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Method

This study used an analytical observational design with a cross-sectional approach to examine the relationship between body image, eating behavior, and physical activity on adolescent nutritional status. The research was conducted at the Faculty of Medicine, Christian University of Indonesia (UKI) in April 2022, involving 115 medical students from the 2018 cohort. Participants were selected using a simple random sampling method based on the Slovin formula with a 5% margin of error.

Data were collected through validated online questionnaires, including the Body Shape Questionnaire (BSQ-34), Eating Attitude Test (EAT-26), and International Physical Activity Questionnaire (IPAQ). The dependent variable was nutritional status, while the independent variables were body image, eating behavior, and physical activity. Data processing involved editing, coding, tabulating, and cleaning to ensure accuracy and consistency.

All data were analyzed using SPSS version 26.0 with univariate, bivariate, and multivariate analyses. The chi-square test and logistic regression were applied at a 95% confidence level to identify relationships among variables. Validity testing was conducted using Pearson correlation, and reliability was assessed using Cronbach's Alpha, confirming that all instruments were valid and reliable for measuring factors influencing adolescent nutritional status.

Result and Discussion

1. Result

Table 1

Respondents' Characteristics (Univariate Analysis)

Variable	Category	Frequency (n)	Percentage (%)
Age (years)	19	1	0.9
	20	4	3.5
	21	51	44.3
	22	53	46.1
	23	6	5.2
Gender	Male	29	25.2
	Female	86	74.8
Body Weight (kg)	30–50	28	24.3
	51–70	69	60.0
	71–90	11	9.6
	91–110	7	6.1
Height (cm)	145–155	24	20.9
	156–165	66	57.4
	166–175	21	18.3
	176–195	4	3.5
Body Image	Positive	78	67.8
	Negative	37	32.2
Eating Behavior	Non-risky	83	72.2
	Risky	32	27.8
Physical Activity	Low	36	31.3
	Moderate	40	34.8
	High	39	33.9
Nutritional Status	Underweight (severe + mild)	19	16.5
	Normal	66	57.4
	Overweight/Obese	30	26.1

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Most respondents were female students (74.8%), aged 21–22 years, with normal nutritional status (57.4%). The majority exhibited positive body image and non-risky eating behavior, while physical activity levels were evenly distributed across categories.

Table 2
Relationship Between Independent Variables and Nutritional Status (Bivariate Analysis)

Independent Variable	Nutritional Status – Poor n (%)	Nutritional Status – Normal n (%)	OR (95% CI)	p-value	Interpretation
Body Image	Negative: 21 (18.3%)	Positive: 29 (25.2%)	2.218 (1.000–4.917)	0.069	Not significant
Eating Behavior	Risky: 19 (16.5%)	Non-risky: 31 (26.9%)	2.452 (1.065–5.645)	0.038	Significant
Physical Activity	Low–Moderate: 34 (29.6%)	High: 16 (13.9%)	1.164 (0.532–2.544)	0.843	Not significant

There was a statistically significant association between eating behavior and nutritional status ($p < 0.05$). Students with risky eating behaviors were 2.45 times more likely to have poor nutritional status than those with normal eating habits.

Table 3
Logistic Regression Results (Multivariate Analysis)

Variable	β	OR	95% CI	p-value	Conclusion
Eating Behavior	0.897	2.452	1.065–5.645	0.035	Significant predictor
Constant	-1.276	0.279	–	–	–

Logistic regression confirmed eating behavior as the dominant predictor of nutritional status ($p = 0.035$). Students with risky eating behavior were 2.45 times more likely to experience poor nutrition than those with healthy eating patterns.

2. Discussion

This study found that most medical students of the Faculty of Medicine, Christian University of Indonesia, Class of 2018, had positive body image, non-risky eating behavior, moderate physical activity, and normal nutritional status. These findings reflect good health awareness among students due to their medical background.

There was no significant relationship between body image and nutritional status ($p = 0.069$), differing from Putri (2020), who found a strong correlation in adolescents. This may be due to students' better understanding of nutrition, allowing them to maintain proper diet despite dissatisfaction with body shape.

Conversely, eating behavior showed a significant relationship with nutritional status ($p = 0.038$; OR = 2.452). Respondents with risky eating habits were more than twice as likely to experience poor nutritional outcomes. This supports findings by Widiyanti et al. (2020), emphasizing that food intake patterns directly affect nutrient adequacy and body composition. The multivariate test confirmed eating behavior as the most dominant factor ($p = 0.035$).

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Meanwhile, physical activity showed no significant effect ($p = 0.843$), consistent with Candrawati (2021), indicating that balanced nutrition can maintain good status even with low activity levels. Overall, eating behavior remains the key determinant of adolescent nutritional status, highlighting the importance of promoting healthy dietary habits and nutrition awareness among students.

Conclusion

Based on the findings of this study conducted among medical students of the Faculty of Medicine, Christian University of Indonesia, Class of 2018, it can be concluded that there was no significant relationship between body image and nutritional status ($p = 0.069$), indicating that students with negative body perception were still able to maintain normal nutrition through adequate dietary awareness. Conversely, a significant association was found between eating behavior and nutritional status ($p = 0.038$; OR = 2.452; 95% CI = 1.065–5.645), demonstrating that respondents with risky eating habits were 2.45 times more likely to have poor nutritional outcomes. Meanwhile, physical activity showed no significant correlation with nutritional status ($p = 0.843$). These results confirm that eating behavior is the dominant factor influencing adolescent nutritional health among university students.

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