

The Relationship Between Emotional Eating and the Nutritional Status of Medical Undergraduate Students at Universitas Prima Indonesia

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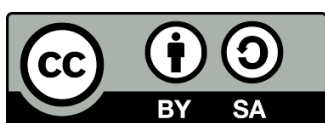
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Abstract

Medical students experience substantial academic demands that may trigger emotional eating, an eating behavior influenced by emotional states rather than physiological hunger. Persistent emotional eating may contribute to excessive calorie intake and negatively affect nutritional status. This study aimed to describe emotional eating levels, assess nutritional status based on Body Mass Index (BMI), and analyze the association between emotional eating and nutritional status among undergraduate medical students at Prima Indonesia University. A quantitative cross-sectional study was conducted among 218 undergraduate medical students selected from a population of 480 using the Slovin formula and proportional random sampling. Emotional eating was assessed using the 13-item Dutch Eating Behavior Questionnaire (DEBQ), while nutritional status was determined based on BMI classification according to the Indonesian Ministry of Health guidelines. Data were analyzed using descriptive statistics and the chi-square test with a significance level of $p < 0.05$. Most respondents were female (69.3%). High emotional eating was reported by 54.1% of students, followed by moderate (29.4%) and low (16.5%) levels. Although the largest single BMI category was normal weight (33.0%), 62.9% of respondents were classified as overweight or obese. The proportion of students with high emotional eating increased across higher BMI categories, from 55.3% among overweight students to 66.7% among students with class II obesity. The chi-square test showed a significant association between emotional eating and nutritional status ($p = 0.016$). Emotional eating was significantly associated with nutritional status among undergraduate medical students.



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INTRODUCTION

Nutritional status refers to the condition of the body resulting from the utilization of nutrients obtained from consumed food. Nutritional status is commonly classified based on the Body Mass Index-for-Age (BMI-for-Age) indicator, including conditions of undernutrition and overnutrition (Permana et al., 2024). Undernutrition and overnutrition are important public health concerns because Indonesia is currently facing a double burden of malnutrition (Hanandita & Tampubolon, 2015; Maehara et al., 2019). This condition is characterized by the coexistence of malnutrition, including underweight, and overnutrition, including overweight and obesity, across different age groups, from childhood and adolescence to adulthood. Both conditions may increase the risk of various health problems (Angesti & Manikam, 2020).

In 2022, malnutrition remained a global public health challenge (NCD Risk Factor Collaboration, 2024). Approximately 390 million adults aged 18 years and older were underweight, while approximately 2.5 billion adults were overweight, including 890 million

individuals with obesity. Furthermore, among children and adolescents aged 5–19 years, approximately 390 million were overweight, with 160 million classified as obese (WHO & Organization, 2024). According to the 2023 Indonesian Health Survey (SKI), the nutritional status of the adult population (≥ 18 years) indicated that the prevalence of overweight was 14.4%, while obesity reached 23.4%, resulting in a combined prevalence of overnutrition of 37.8% (Kementerian Kesehatan Republik Indonesia, 2023). Meanwhile, undernutrition remained a concern, with a prevalence of moderate-to-severe food insecurity of 4.4% (Kementerian Kesehatan Republik Indonesia, 2023; Mahmudiono et al., 2018). These findings illustrate the persistence of the double burden of malnutrition in Indonesia (Rachmah et al., 2021).

For university students, maintaining optimal nutritional status is important because it contributes to physical health and academic performance. This issue is particularly relevant among medical students, who frequently experience academic stress due to intensive activities, including lectures, practicums, skills laboratories, block examinations, and final examinations. The academic demands experienced by medical students are often greater due to the complexity of their curriculum (Angie, 2025). Persistent academic stress may affect students' emotional conditions and influence their dietary behaviors. Dietary patterns are among the factors that contribute to nutritional status, and one form of unhealthy eating behavior is emotional eating (Permana et al., 2024).

Emotional eating refers to the tendency to consume food as a response to emotional states rather than physiological hunger, particularly when individuals experience negative emotions or psychological distress (Abadi et al., 2025). Emotional eating may manifest through increased food intake or restrictive eating patterns. Stress can encourage individuals to consume energy-dense foods, including fast food, which, when practiced over an extended period, may contribute to weight gain and obesity. Changes in body weight are closely related to nutritional status and may influence students' overall health and academic functioning.

Based on previous research, a gap remains regarding the relationship between emotional eating and nutritional status among medical students in Indonesia, particularly at Prima Indonesia University. Although several studies have examined emotional eating among general student populations (Permana et al., 2024; Abadi et al., 2025), limited research has focused specifically on medical students who experience unique academic pressures. This gap is important because medical students may be vulnerable to stress-related eating behaviors due to demanding academic environments. Therefore, this study was conducted to provide empirical evidence regarding emotional eating levels and their association with nutritional status in this population. The novelty of this research lies in its focus on medical students at a private university in Medan, a setting that has received limited attention in previous studies. The findings are expected to contribute to nutritional science and provide practical recommendations for student health intervention programs.

This study aimed to determine the relationship between emotional eating and nutritional status among Bachelor of Medicine students at Prima Indonesia University by identifying emotional eating levels (Aguilar-Galarza et al., 2026; Işık & Cengiz, 2021), assessing nutritional status based on Body Mass Index (BMI) (Jiménez-Limas et al., 2022), and analyzing the association between the two variables (Arslan et al., 2022). This research was expected to contribute to the development of nutritional science, particularly regarding emotional eating

among medical students, while providing empirical evidence that can support the development of student health intervention programs (Hill et al., 2022; Konttinen, 2020). Furthermore, the findings may enhance understanding of the relationship between emotional eating and nutritional status and serve as a scientific reference for future studies on similar topics (Dakanalis et al., 2023).

METHOD

Types of Research

This study employed a quantitative observational analytical design with a cross-sectional approach to examine the relationship between emotional eating and nutritional status among undergraduate medical students. The research was conducted at Universitas Prima Indonesia, Medan City, North Sumatra, from February until completion of the study period.

Population and sample

The population in this study is all students of the Bachelor of Medicine Program of Universitas Prima Indonesia which totals 480 students. Samples were selected as a representation of the population to obtain data more efficiently while still describing the characteristics of the population being studied. The number of samples was determined using the Slovin formula with a margin of error of 5%, so that 218 respondents were obtained. Furthermore, the sampling technique was carried out using proportional random sampling so that each batch obtained a proportional number of respondents according to the number of population, namely 62 2nd semester students, 79 4th semester students, and 77 6th semester students. The respondents who were included were active students who were willing to participate voluntarily, had signed informed consent, and were able to understand and fill out the questionnaire well. Meanwhile, students who were inactive or unwilling to participate in the study were not included as a sample.

Analysis Design and Hypothesis Test

Data analysis in this study was carried out through univariate analysis and bivariate analysis. Univariate analysis was used to describe the characteristics of the respondents as well as the distribution of emotional eating and nutritional status in the form of frequency and percentage tables.

Bivariate analysis was conducted to determine the relationship between emotional eating as an independent variable and nutritional status as a dependent variable. The emotional eating variable was categorized based on the DEBQ questionnaire score (low, medium high), while nutritional status was determined based on the Body Mass Index category (underweight, normal, overweight, obesity). The variable used is categorical data with an ordinal scale, so the statistical test used is the spearman Rank correlation test. This test was chosen because it was able to capture the direction of the relationship and the strength of the correlation between the ratings on the two variables.

Hypothesis testing was carried out with a significance level of 0.05. The zero hypothesis (H_0) states that there is no relationship between emotional eating and nutritional status, while the alternative hypothesis (H_1) states that there is a relationship between emotional eating and nutritional status. Decisions are made based on p-values; if $p < 0.05$, H_0 is rejected and H_1 is accepted, while if $p \geq 0.05$, H_0 is accepted so that there is no relationship between emotional eating and nutritional status

RESULTS AND DISCUSSION

Univariate Analysis Results

Univariate analysis was conducted to describe the frequency distribution of each research variable from 218 respondents of medical students of Universitas Prima Indonesia.

Table 1. Frequency & Percentage Distribution by Respondent Characteristics (n=218)

Frequency Characteristics (n=218)	Percentage%
Gender	
Male	67 30.7
Women	151 69.3
Semester	
Semester 2	62 28.4
Semester 4	80 36.7
Semester 6	76 34.9
Nutritional Status	
Underweight	9 4.1
Normal	72 33.0
Overweight	47 21.6
Obesity 1	57 26.1
Obesity 2	33 15.1
Emotional Eating	
Low	36 16.5
Medium	64 29.4
Height	118 54.1

Based on the table above, it is known that the majority of respondents are female as many as 151 people (69.3%) more than men as many as 67 people (30.7%). This shows that medical students at Universitas Prima Indonesia are dominated by women.

Based on semester, the most respondents came from semester 4, which was 80 people (36.7), followed by semester 6 with 76 people (34.9%), and the fewest came from semester 2 with 62 people (28.4%). The distribution between semesters is relatively even, so that it can represent first- to third-year medical students.

Based on nutritional status, most of the respondents had a normal nutritional status, namely 72 people (33.0%), followed by the obesity category 1 as many as 57 people (26.1%), overweight as many as 47 people (21.6%), obesity 2 as many as 33 people (15.1%), and the least was the underweight category as many as 9 people (4.1%). These results show that more than half of the respondents (62.9%) have nutritional status above normal, which is included in the categories of overweight, obesity 1, and obesity 2, which indicates a tendency to be overweight in medical students.

Based on the level of emotional eating, the majority of respondents were in the high category, which was 118 people (54.1%), followed by the medium category as many as 64 people (29.4%), and the low category as many as 36 people (16.5%). This shows that more than half of medical students at Universitas Prima Indonesia have a high tendency to emotional eating, which may be related to the high academic load and psychological pressure experienced during their lectures.

Bivariate Analysis Results

Bivariate analysis was carried out to determine the relationship between independent and variable dependent variables in students. The statistical test used is the Chi-square test to find out whether there is a relationship between the two variables.

The Relationship between Emotional Eating and Nutritional Status

The results of the analysis of the relationship between *emotional eating* and nutritional status in 218 students are presented in the following table:

Table 2. The Relationship of *Emotional Eating* with Nutritional Status (n = 218)

Nutritional Status	Emotional Eating			Total	p-value
	Low n (%)	Medium n (%)	Height n (%)		
underweight	5 (55,6%)	2 (22,2%)	2 (22,2%)	9 (100%)	
Normal	13 (18,1%)	27 (37,5%)	32 (44,4%)	72 (100%)	
Overweight	5 (10,6%)	16 (34,0%)	26 (55,3%)	47 (100%)	
Obesity 1	8 (14,0%)	13 (22,8%)	36 (63,2%)	57 (100%)	
Obesity 2	5 (15,2%)	6 (18,2%)	22 (66,7%)	33 (100%)	
Total	36 (16,5%)	64 (29,4%)	118 (54,1%)	218 (100%)	0,016

Based on table 2, it can be seen that of the 218 respondents, the majority of students have a high level of emotional eating, which is 118 people (54.1%). When viewed from the distribution of emotional eating based on nutritional status, students with nutritional status, students with underweight nutritional status who have low emotional eating are the largest proportion, which is 55.6%, while students with normal nutritional status who have low emotional eating are only 18.1%.

Conversely, the higher the nutritional status category towards obesity, the greater the proportion of students with high emotional eating. In the overweight group, as many as 55.3% had high emotional eating, in the obesity group 1 as much as 63.2%, and in the obesity group 2 as much as 66.7%. This pattern shows a tendency that nutritional status is more related to high levels of emotional eating.

The Chi-square test result obtained $p = 0.016$ ($p < 0.05$), so that H_0 minus H_a is accepted. Thus, it can be concluded that there is a statistically significant relationship between emotional eating and nutritional status in Universitas Prima Indonesia students

The results of this study showed a meaningful relationship between emotional eating and student nutritional status ($p = 0.016$). These findings are in line with the theory that emotional eating is a eating behavior triggered by negative emotional conditions such as stress, anxiety, and sadness that encourage a person to consume food beyond their needs, thus contributing to weight gain and obesity.

The distribution pattern in this study clearly shows that the higher the degree of obesity of students, the greater the proportion who have high emotional eating. This shows that eating behaviors influenced by negative emotions, measured using the Dutch Eating Behavior (DEBQ) questionnaire, play a role in the imbalance in the nutritional status of Universitas Prima Indonesia students.

Regarding emoticioanal eating, several studies show that respondents with high emotional levels tend to have more overweight nutritional status than respondents with low emotional eating levels. This suggests eating behaviors influenced by emotional states can

contribute to improved nutritional status. Individuals who experience emotional eating generally consume foods high in calories, sugar, and fat as a response to the emotions they feel. (Syafei & Badriyah, 2019)

2020 research on emotional eating behavior often appears as a coping mechanism for emotional distress experienced by a person. When experiencing stress, individuals tend to consume food not because of physiological hunger, but to obtain a sense of comfort and reduce negative emotions, the habit can lead to an increase in energy intake that has an impact on changes in nutritional status. (Aziz et al., 2020)

Interestingly, the results of the study found that the proportion of emotional eating was quite low (55.6%). This can be explained that underweight individuals may have a more controlled diet or tend to limit eating when experiencing negative emotions, so they do not show high emotional eating patterns.

Based on the results of the study, respondents with high emotional eating levels tend to experience more nutritional status, namely overweight and obesity. This condition suggests that eating behaviors influenced by emotions can increase excessive energy intake thereby contributing to weight gain.

CONCLUSION

Based on the analysis and discussion, this study showed that most medical students at Universitas Prima Indonesia (UNPRI) had high levels of emotional eating, while the nutritional status of respondents was predominantly within the normal category, although the proportion of students classified as overweight or obese was also considerable. The statistical analysis demonstrated a significant association between emotional eating and nutritional status ($p = 0.016$), indicating that higher tendencies toward emotional eating were associated with a greater risk of overweight and obesity among students. Therefore, students are encouraged to increase awareness of healthy eating behaviors and develop adaptive emotion regulation strategies, such as engaging in physical activity, practicing relaxation techniques, or seeking professional support. Further research is recommended to employ longitudinal or cohort designs and incorporate additional variables, including physical activity, dietary intake, and stress levels, to provide a more comprehensive understanding of the relationship between emotional eating and nutritional status.

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