

Relationship Between Emotional Eating and Overnutrition Among Senior High School Students in Tasikmalaya

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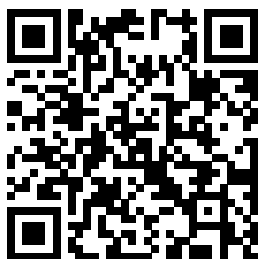
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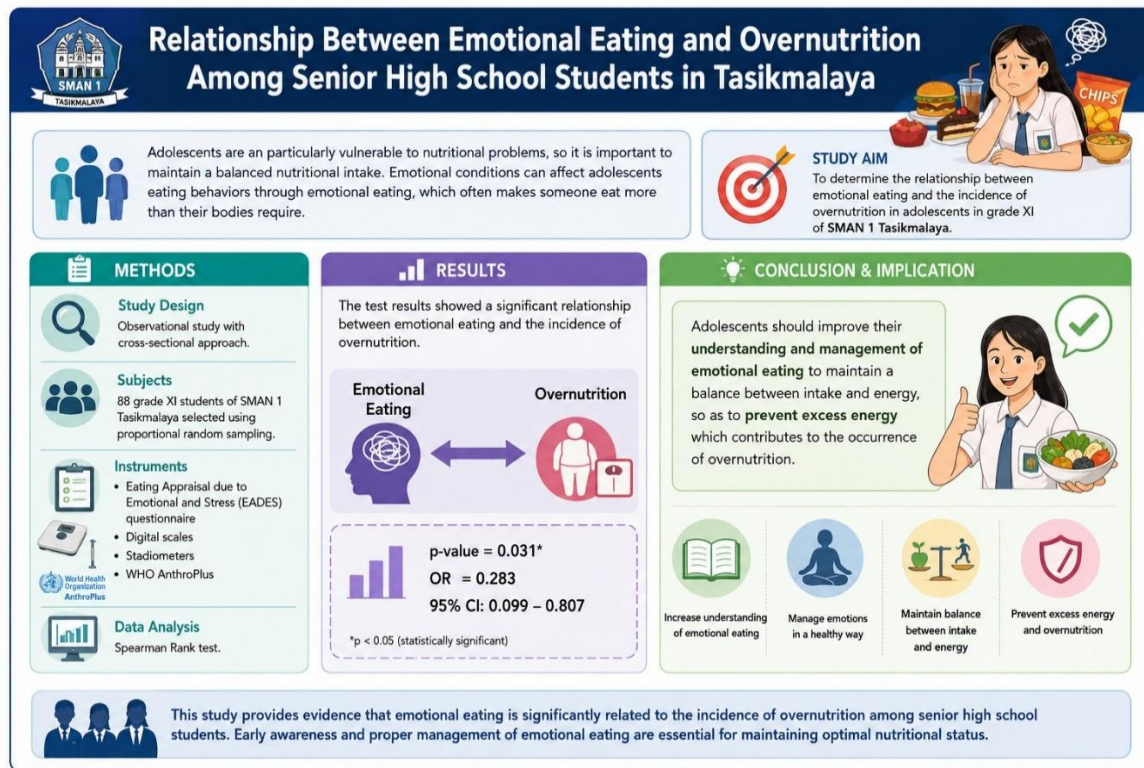
ABSTRACT

Adolescents are an particularly vulnerable to nutritional problems, so it is important to maintain a balanced nutritional intake. Emotional conditions can affect adolescents eating behaviors through emotional eating, which often makes someone eat more than their bodies require. This study aims to determine the relationship between emotional eating with the incidence of overnutrition in adolescents in grade XI of SMAN 1 Tasikmalaya. This study is an observational study with a cross-sectional approach. The subjects in this study were 88 grade XI students of SMAN 1 Tasikmalaya who were selected using a proportional random sampling method. The instruments used in this study were the Eating Appraisal due to Emotional and Stress (EADES) questionnaire, digital scales, stadiometers, and WHO AnthroPlus. The data analysis technique used the Spearman Rank test. The test results showed a significant relationship between emotional eating and the incidence of overnutrition (p-value of 0.031), OR = 0.283, 95% CI: 0.099-0.807. Adolescents should improve their understanding and management of emotional eating to maintain a balance between intake and energy, so as to prevent excess energy which contributes to the occurrence of overnutrition.

Key Messages:

- Emotional eating was significantly associated with the occurrence of overnutrition among eleventh-grade students at SMAN 1 Tasikmalaya.
- Adolescents with poor emotional regulation may be more likely to engage in emotional eating behaviors that affect their nutritional status.
- Emotional eating is an important behavioral factor that should be considered in efforts to prevent overnutrition among adolescents.
- Improving adolescents ability to manage emotions and eating behaviors may help maintain energy balance and support healthy nutritional status.

GRAPHICAL ABSTRACT



INTRODUCTION

Nutritional problems during adolescence are important to prevent in order to ensure that adolescents receive adequate nutrients intake during their growth period (1). Nutritional problems in adolescents arise due to an imbalance between food consumption and their nutritional requirements (2). This imbalance can lead to overweight conditions. Overnutrition is a condition characterized by an imbalance between daily energy intake and energy expenditure, resulting in the accumulation of excess energy stored as body fat (3).

Emotional eating is associated with appetite regulation mechanisms influenced by emotional states. Physiologically, the body responds to stress or negative emotions by increasing cortisol secretion. Cortisol stimulates appetite, thereby increasing an individual's desire to eat and potentially promoting overeating (4). As stress levels decrease, cortisol levels also decline, resulting in reduced appetite; conversely, elevated stress levels may trigger emotional eating behaviors. Energy-dense foods high in sugar and fat are commonly preferred during emotional eating because they activate dopaminergic pathways in the brain, which help alleviate stress and negative emotions (5). When left uncontrolled, emotional eating may lead to excessive energy intake that is not balanced by adequate energy expenditure, thereby increasing the risk of excessive weight gain (6).

According to data from the World Health Organization (WHO) in 2022, 19% of girls and 21% of boys aged 5–19 years worldwide were overweight, while 10% of children aged 5–19 years were obese (7). According to WHO, body mass index-for-age (BMI-for-age) is the recommended anthropometric indicator for assessing the nutritional status of children and adolescents aged 5–19 years. This indicator is used to evaluate growth by comparing an individual's BMI with the WHO Growth Reference for age and sex, thereby enabling the classification of nutritional status, including thinness, normal weight, overweight, and obesity.

Results from Indonesia's Basic Health Research (Riskesdas) showed that the prevalence of nutritional status based on BMI-for-age z-scores among adolescents aged 16–18 years was 9.5% for overweight and 4.0% for obesity (8). At the provincial level, the prevalence of BMI-for-age z-score nutritional status among adolescents aged 16–18 years in West Java was 10.90% for overweight and 12.32% for obesity (9). In Tasikmalaya City, the prevalence of BMI-for-age z-score nutritional status among adolescents aged 16–18 years was 13.74% for overweight and 2.49% for obesity.

The occurrence of overweight is influenced by several factors, including genetics, eating behavior,

physical activity, education and knowledge levels, place of residence, dietary patterns, and community lifestyle. Eating behavior is an important factor to consider because it is influenced by an individual's emotional regulation, such as feelings of fatigue, sadness, happiness, and other emotional states (10). One eating behavior that arises as a result of emotional influences is emotional eating, which refers to the tendency to eat in response to emotional triggers, particularly when an individual is experiencing psychological distress or emotional instability, such as anxiety, stress, or depression (11).

Emotional eating is associated with an individual's mood and emotional state, with food being perceived as a means of coping with the emotional void that arises during experiences of loneliness, sadness, depression, happiness, or other stressful life events (12). Individuals tend to consume energy-dense foods to alleviate emotional discomfort rather than to satisfy physiological hunger. Energy intake that exceeds energy expenditure leads to fat accumulation and ultimately results in a positive energy balance, which may contribute to overweight and obesity.

The service area of Tawang Community Health Center (Puskesmas Tawang) recorded an overweight prevalence of 13.3% and an obesity prevalence of 22% among adolescents aged over 15 years (13). SMAN 1 Tasikmalaya was selected as the research site because it had the highest prevalence of overnutrition among adolescents aged over 15 years within the Tawang Community Health Center service area, with an overweight prevalence of 28.07% and an obesity prevalence of 20.51% (14).

The results of a preliminary study conducted among 30 eleventh-grade students at SMAN 1 Tasikmalaya showed that 20% of students were overweight, 13.33% were undernourished, and 66.67% had normal nutritional status. Assessment of emotional eating levels revealed that 70% of students were classified as having moderate emotional eating, while 17% were categorized as having severe emotional eating. Based on these preliminary findings, this study aimed to examine the relationship between emotional eating, the occurrence of overnutrition among adolescents. This study was conducted using an observational design involving eleventh-grade students of SMAN 1 Tasikmalaya.

METHODS

This study used an analytical observational study with a cross-sectional design to assess the association between emotional eating and overnutrition status among adolescents. The study was descriptive-observational in nature and aimed to determine the relationship between emotional eating and the overnutrition status among adolescents at SMAN 1 Tasikmalaya. The study population consisted of 394 students, with a sample size of 88 participants determined using the Slovin formula.

The research instruments included an informed consent form, a screening form, a digital weighing scale, a stadiometer, the Eating Appraisal due to Emotions and Stress (EADES) questionnaire, and the WHO AnthroPlus application. The EADES questionnaire consisted of 24 items, including 9 favorable and 15 unfavorable statements, measured using a likert scale. The WHO AnthroPlus application was used to determine the nutritional status of participants by calculating their BMI-for-age (BMI/A) z-scores.

The participants in this study were 11th-grade high school students aged 16–17 years, including both male and female students. The inclusion criteria were 11th-grade students enrolled at SMAN 1 Tasikmalaya who were older than 15 years and were not following a special diet, such as a weight-loss diet, a medically prescribed diet, or any other weight management program. The exclusion criteria included students who were taking medications such as antidepressants or mood stabilizers and those who were absent during the data collection period.

CODE OF HEALTH ETHICS

This study was conducted in accordance with ethical principles for research involving human participants. Ethical approval was obtained from the Health Research Ethics Committee of Dian Nuswantoro Semarang University with ethical clearance number 00748/UNIVERSITAS DIAN NUSWANTORO/2026, approved on February 18, 2026. All research documents, including the research protocol, participant information sheet, and informed consent form, were reviewed and approved by the ethics committee. Prior to data collection, all participants were provided with information regarding the study objectives, procedures, benefits, and potential risks. Written informed consent was obtained from all participants who agreed to take part in the study. As most participants were 11th-grade high school students under 18 years of age, parental or guardian consent was

obtained prior to the commencement of the study. In addition, all participants provided their assent after receiving a clear explanation of the study objectives, procedures, potential benefits, and possible risks. The confidentiality and anonymity of participant data were strictly maintained, and participants were informed of their right to withdraw from the study at any time without any consequences.

RESULTS

Table 1. Distribution of Respondent Characteristics at SMAN 1 Tasikmalaya

Variable	Frequency (n)	Percentage (%)
Gender		
Male	40	45.45
Female	48	54.55
Age		
16 years	42	47.73
17 years	46	52.27

Table 1 presents the distribution of respondents characteristics at SMAN 1 Tasikmalaya. The majority of respondents were female. There were 40 male respondents (45.45%) and 48 female respondents (54.55%). The respondents ages ranged from 16 to 17 years. A total of 42 respondents (47.73%) were 16 years old, while 46 respondents (52.27%) were 17 years old.

Table 2. Univariate Distribution of Respondents at SMAN 1 Tasikmalaya

Variable	Frequency (n)	Percentage (%)
Overnutrition Status		
Overnutrition	20	22.73
Not Overnutrition	68	77.27
Emotional Eating		
High	63	71.6
Low	25	28.4

Table 2 presents the univariate distribution of respondents at SMAN 1 Tasikmalaya. A total of 20 respondents (22.73%) were classified as having overnutrition, while 68 respondents (77.27%) were not classified as having overnutrition. Emotional eating levels were categorized into two groups high and low. A total of 63 respondents (71.6%) were classified as having high emotional eating, whereas 25 respondents (28.4%) were classified as having low emotional eating.

Table 3. Analysis of the Relationship Between Emotional Eating and Overnutrition

Independent Variable	Dependent Variable	Sig (2-tailed)	Correlation Coefficient
Emotional Eating	Nutritional Status	0.778	0.030

The relationship between emotional eating and nutritional status was analyzed using Spearman's rank correlation test. The results showed a *p*-value of 0.778, indicating that there was no statistically significant relationship between emotional eating and nutritional status ($p > 0.05$). Therefore, the null hypothesis was accepted, and the alternative hypothesis was rejected. The correlation coefficient was 0.030, indicating a weak positive correlation between the two variables.

DISCUSSION

Spearman's rank correlation analysis showed no significant relationship between emotional eating and nutritional status ($p = 0.778$). The correlation coefficient of 0.030 indicated a very weak positive correlation, suggesting that higher emotional eating scores were not consistently associated with changes in nutritional status. These findings are consistent with those reported by (15), who found no significant association between emotional eating and BMI-for-age among adolescents ($p = 0.667$). This suggests that emotional eating may not be directly associated with nutritional status because it is influenced by various factors, including total energy intake, physical

activity, eating habits, genetic predisposition, and environmental factors.

Based on the questionnaire responses, most participants demonstrated the ability to control their eating behavior during positive emotional states. However, responses to negative emotions, such as anger, sadness, anxiety, and frustration, were predominantly neutral, indicating that some participants may still have difficulty regulating their eating behavior under emotional distress. Eating in response to negative emotions may lead to excessive energy intake beyond the body's requirements (16).

Emotional eating refers to eating behavior triggered by emotional states that arise when individuals experience difficulty coping with stress (17). Physiologically, stress activates the hypothalamic–pituitary–adrenal (HPA) axis, leading to increased cortisol secretion (18). Elevated cortisol levels stimulate appetite, particularly for foods high in calories, sugar, and fat (19). Cortisol also influences appetite regulation by increasing the activity of orexigenic hormones, such as ghrelin and neuropeptide Y (NPY), while reducing leptin sensitivity, thereby promoting increased food intake (20). Furthermore, ghrelin secretion increases during stress, enhancing feelings of hunger and the desire to eat (21). Despite these physiological mechanisms, the present study found no significant association between emotional eating and nutritional status, suggesting that other behavioral and environmental factors may have a greater influence on adolescents' nutritional status.

CONCLUSION

There was no significant relationship between emotional eating and overnutrition among eleventh-grade students at SMAN 1 Tasikmalaya in 2026. Students are expected to develop a better understanding of and ability to manage emotional eating behaviors as an effort to maintain energy balance and support healthy nutritional status. The findings of this study may serve as valuable input for schools in enhancing education related to healthy lifestyle practices. In addition, this study can be used as a reference for future researchers to investigate other factors associated with the occurrence of overnutrition among adolescents.

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CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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