



## DESCRIPTION OF EATING BEHAVIOR AND BODY MASS INDEX IN ADOLESCENTS

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### Keywords:

*Eating behavior,  
Body mass index,  
Adolescents*

Received: 01 December 2025

Revised: 23 February 2026

Accepted: 25 February 2026

Available online: 01 May 2026

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### ABSTRACT

**Background:** Adolescence is a crucial phase of growth and development characterized by biological, psychological, and social changes. Eating patterns during this period play an important role in determining nutritional status, including the risk of underweight or overweight. Unhealthy eating behaviors may affect nutritional status and increase the risk of chronic diseases later in life. **Aim:** This study aimed to describe eating behavior and body mass index (BMI) among adolescents. **Methods:** This cross-sectional descriptive study was conducted from May to July 2025 at the Faculty of Medicine, Universitas Swadaya Gunung Jati. A total of 64 first-year medical students were selected using simple random sampling. Data were collected using the Eating Behavior Patterns Questionnaire (EBPQ) and BMI was assessed based on height and weight measurements. **Results:** Most respondents had poor eating behavior (60.94%) and were categorized as overweight (67.19%). The majority of respondents were 19 years old (51.56%) and female (59.38%). **Conclusion:** The findings indicate a high proportion of adolescents with poor eating behaviors and overweight status. This highlights the need for education on healthy eating patterns and regular monitoring of nutritional status among adolescents to prevent long-term health impacts.

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## INTRODUCTION

Adolescence is a critical period due to the transition from childhood to adulthood, marked by various biological, cognitive, and emotional changes. Husna et al., Hurlock, have divided adolescent development into three categories: early adolescence (12-15 years), middle adolescence (15-18 years), and late adolescence (18-21 years). Based on 2022 data from the Central Statistics Agency (BPS), the population aged 10-14 years is one of the largest age groups, accounting for 8% of the total population. Due to this significant percentage, health problems that arise in this group require special attention and immediate intervention. <sup>(1)</sup>

Balanced nutrition during this period will significantly determine their future maturity. Nutritional problems in adolescents arise from inappropriate nutritional behavior, namely an imbalance between nutritional intake and recommended nutritional adequacy. Nutritional

status reflects what is consumed over a long period of time. Nutritional status can be malnourished, good or normal nutrition, or overnutrition. Nutritional problems in adolescents are influenced by several factors including knowledge, eating behavior and body image. The higher a person's knowledge about nutrition, the more they will take into account the amount of nutrients and the types of food they choose to consume. A person's knowledge about nutrition can be obtained through formal or informal education. <sup>(3)</sup> Based on previous research on adolescents, one university said that respondents who had a thin BMI were 15.3%, normal 50.8%, overweight 22.9%, obesity 1 8.8%, obesity 2 2.3%. Based on these categories, respondents with a BMI of overweight and obesity can be caused by eating habits. <sup>(2)</sup>

A report from the Lancet Commission on Adolescent Health and Wellbeing warns that by 2030, an estimated 464 million adolescents worldwide will be overweight or obese—an increase of 143 million



since 2015. This problem is common in high-income countries, as well as in Latin America, the Caribbean, North Africa, and the Middle East. <sup>(3,4)</sup> In Indonesia, according to data from the Indonesian Ministry of Health in 2018, the prevalence of overweight in those aged 18 years and older was 13.5%, and obesity reached 28.7%. <sup>(4)</sup> Obesity in adolescents can increase the risk of degenerative diseases, psychological disorders, and quality of life issues. According to Jannah M (2020), adolescents who skip breakfast, frequently consume fast food, and have obese parents are at higher risk of obesity. <sup>(6)</sup>

Eating behavior plays an important role in adolescent nutritional status. Eating behavior is a habit or eating behavior that can be changed and is a strong factor in the occurrence of nutritional problems in adolescents. Good eating behavior is the daily consumption of food that meets each individual's nutritional needs for a healthy and productive life. <sup>(4,6)</sup> Poor eating behavior is the habit of consuming foods that do not provide all the essential substances, such as carbohydrates, fats, and proteins, needed for the body's metabolism. Meal frequency is also a factor that can influence nutritional status in adolescents. Meal frequency is how often a person consumes a main or side dish during a day. The number of meals per day is basically three main meals: breakfast, lunch, and dinner. <sup>(5,6)</sup> Lack of exercise in adolescents can lead to decreased physical fitness, decreased productivity, and even overnutrition, resulting in reduced fat burning and the accumulation of unused energy. <sup>(4,6)</sup>

Body mass index (BMI) is a simple method to assess the nutritional status of adults, especially in the context of being underweight or overweight. Being underweight can increase the risk of infection, while being overweight can increase the risk of degenerative diseases. One cause of excess weight is a lack of exercise. Therefore, maintaining a healthy weight can improve the prospects for a longer and healthier life. According to Rohani, maintaining an ideal weight and achieving good nutritional status and fitness requires a balance between nutrient intake, physical activity, and regular exercise. This can impact adolescent productivity; healthy and fit adolescents will find it easier to carry out all their activities at university. <sup>(3,4)</sup>

In addition to emotional and mental changes, self-quarantine can also worsen eating behaviors and

reduce physical activity levels in school-age adolescents. <sup>(3)</sup> Therefore, researchers are interested in examining the relationship between eating behavior and BMI in adolescents.

## METHODS

This research was conducted at the Faculty of Medicine, Swadaya Gunung Jati University, from March to June 2025. The research began with proposal preparation, proposal focus group discussions (FGD), ethics management, research, data analysis, and the preparation of the final report. This research used a cross-sectional approach, collecting primary data using a questionnaire. The target population in this study were FK UGJ students. The accessible population of this study were FK UGJ students in their first year. The sampling method in this study used a simple random sampling method, which is a sampling technique based on certain considerations relevant to the research objectives. Respondents were selected because they were considered capable of providing data in accordance with the variables studied, namely eating behavior and body mass index (BMI). The sample size was 64 students in the first year of medical education at the Faculty of Medicine, UGJ. The data collection method used in this study was primary data by conducting observations, measurements, and distributing EBPQ (Eating Behavior Patterns Questionnaire) questionnaires to research respondents. With a questionnaire Category of positive items (Strongly agree = 5, Agree = 4, Neutral = 3, Disagree = 2, Strongly Disagree = 1) and Negative items (Strongly agree = 1, Agree = 2, Neutral = 3, Disagree = 4, Strongly Disagree = 5). The research analysis using univariate analysis aims to explain or describe the frequency distribution of each independent and dependent variable, namely BMI eating behavior. This research has received approval from the Medical Research Ethics Committee of Swadaya Gunung Jati University Cirebon with ethical clearance number NO.85 / EC / FKUGJ / IV / 2025. Researchers also guarantee to maintain the confidentiality of personal data and the results obtained later.

## RESULTS

Based on the results of research conducted on 64 respondents, the characteristics of each respondent, including gender and age, were examined. The following results were obtained:



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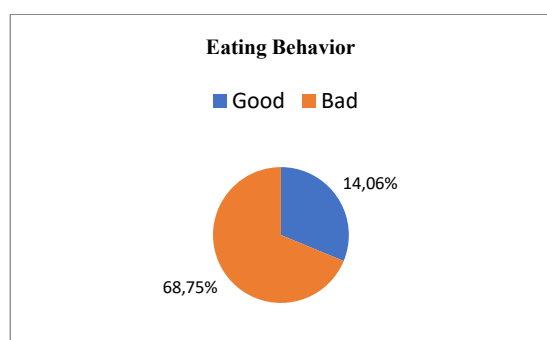
**Tabel 1.** Respondent Characteristics

Variables	N	Presentation (%)
<b>Gender</b>		
Male	26	40.62
Female	38	59.38
<b>Age</b>		
18 year	25	39.06
19 year	33	51.56
20 year	6	9.38

Based on Table 1, it can be seen that the most age group is 19 years old, namely 33 respondents (51.56%), 18 years old as many as 25 respondents (39.06%) and 20 years old as many as 6 respondents (9.38%). The characteristics of gender based on respondents are mostly female as many as 38 respondents (59.38%), for male gender there are 26 respondents (40.62%).

### Eating Behavior

Eating behavior is the practice of eating according to a person's nutritional needs, which can be met by consuming a variety of nutrients in a balanced manner. In this study, eating behavior was divided into two categories: good eating behavior and bad eating behavior. The following data were obtained:

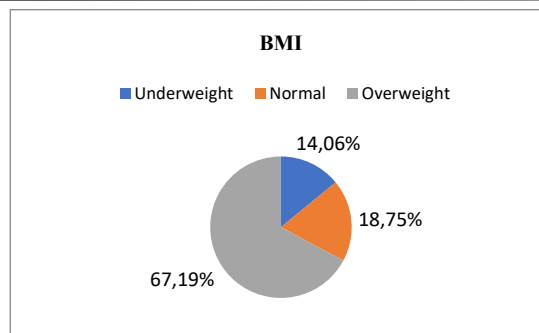


**Figure 1.** Eating Behavior Diagram

Based on the distribution results, it is known that out of 64 respondents, 44 respondents (68.75%) had bad eating behavior, while 20 respondents (14.06%) had good eating behavior.

### Body Mass Index

Definition of BMI. In this study, Body Mass Index is divided into three categories: Underweight, Normal, and Overweight. This can be seen in the table below:



**Figure 2.** BMI Diagram

Based on the univariate results of the distribution of respondents based on body mass index, it shows that of the 64 respondents, 9 respondents (14.06%) had a thin body mass index, 43 respondents (67.19%) had an obese body mass index and 12 respondents (18.75%) had a normal body mass index.

### DISCUSSION

Based on the characteristics of the respondents, there were more female respondents than male respondents. This is in line with research by Wilis et al. (2025), which stated that female adolescents are more concerned about body condition and self-image than males. Gender is another element that contributes to increased body fat. Females are more likely to consume more food. When physical maturity arrives, male adolescents use their energy reserves to synthesize protein, while female adolescents store more of their extra energy as fat (Nisa, 2019). Female adolescents often have twice the body fat as males. Data from the 2018 Basic Health Research (Riskesdas) shows that the prevalence of overnutrition in the population aged  $\geq 18$  years reached 13.6%, with a higher proportion in females (14.8%) than males (12.1%). According to a study by Djuartina et al. (2020), women are more concerned with social environments that encourage an ideal body shape. (23,24,25,26)

Based on the results of the study, the characteristics of the respondents were found to be in the average age range of 18-20 years, but the majority were 19 years old. This stage, according to the World Health Organization (2019), is referred to as middle adolescence. People are still searching for their identity, enjoy trying new things, and are still developing their decision-making skills. Age is a



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factor that can influence eating behavior, making it less variable. According to Hidayat (2021), adolescents between the ages of 16 and 19, especially those at the peak age of 17, are a group that is highly sensitive to self-perception and physical appearance. During this period, hormonal and psychological changes can influence eating habits, both in terms of the amount and type of food consumed. In research conducted by Heryuditari, adolescents (15 to 18 years old) are still unable to regulate their eating habits and are more attracted to fast food such as instant noodles, soda, and snacks. <sup>(27,28,29)</sup>

The results showed that the majority of respondents had poor eating habits, namely 39 people (60.94%), while respondents with good eating habits numbered 25 people (39.06%). This finding indicates that the majority of respondents lack optimal awareness in implementing healthy eating habits, such as eating regularly, avoiding foods high in fat and sugar, and consuming vegetables and fruit according to recommendations. Eating behavior is part of health behaviors influenced by various factors, including knowledge, attitudes, social environment, economic conditions, and family habits. According to the Health Belief Model (HBM) theory, a person is more likely to adopt healthy behaviors if they perceive themselves as vulnerable to disease and understand the benefits of changing these behaviors. Research by Lestari et al. (2023) showed that adolescents with low nutritional knowledge and frequent exposure to unhealthy food advertisements are more likely to have poor eating habits. They also more often skip breakfast and consume fast food more than three times a week. According to research by Putri and Hartati (2024), stress is significantly associated with a tendency to consume sweet and fatty foods as a coping mechanism, which, if uncontrolled, can lead to weight gain and metabolic disorders. Poor eating behavior, namely the habit of consuming foods that do not contain all the necessary nutrients, such as carbohydrates, lipids, and proteins, required for metabolism, is referred to as poor eating behavior. The data collection technique used in this study was the Eating Behavior Patterns Questionnaire (EBPQ), which consists of six items covering low-fat eating, emotional eating, cultural/lifestyle behavior, snacking on sweets, haphazard planning and meal skipping. The questionnaire used a Likert scale model with a reliability coefficient of 0.832. <sup>(30,31,32)</sup>

Based on the findings, the “poor” eating behavior category was primarily influenced by higher scores in the emotional eating and meal skipping subscales compared to the other dimensions.

The emotional eating subscale showed the strongest contribution to poor eating behavior. Respondents with high scores in this dimension tend to consume food in response to emotional states such as stress, anxiety, sadness, or boredom rather than physiological hunger. Physiologically, stress can elevate cortisol levels, which may increase appetite, particularly for high-sugar and high-fat foods. This pattern not only leads to excessive caloric intake but also increases the risk of higher body mass index (BMI) and metabolic disturbances. Among adolescents and young adults, emotional eating is often associated with academic pressure and social stressors, making it a significant determinant of unhealthy eating patterns.

The meal skipping subscale also contributed substantially to the poor eating behavior category. Frequently skipping main meals, especially breakfast, can disrupt glucose regulation and appetite control. From a metabolic perspective, prolonged fasting may trigger excessive hunger at subsequent meals, leading to overeating. In the long term, this pattern has been associated with impaired glucose metabolism, insulin resistance, and increased risk of metabolic syndrome. In adolescents, meal skipping is commonly linked to time constraints, lack of meal planning, or misconceptions about weight control.

Other subscales, such as sweet snacking and irregular planning, also contributed but played a more supportive role. Sweet snacking is often closely related to emotional eating, while irregular planning reinforces the likelihood of meal skipping. Meanwhile, the low-fat eating and cultural/lifestyle behavior subscales were not the dominant contributors to the classification of poor eating behavior in this study.

In conclusion, emotional eating and meal skipping were the main contributors to the “poor” eating behavior category. These findings highlight the importance of interventions that address not only dietary choices but also emotional regulation and structured meal patterns. Such approaches are particularly relevant for preventing increased BMI and metabolic risk among adolescents.



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## CONCLUSION

the majority of respondents were 19 years old and predominantly female. Most respondents (60.94%) exhibited poor eating behavior, while 39.06% had good eating behavior. The “poor” eating behavior category was mainly influenced by higher scores in the emotional eating and meal skipping subscales, with emotional eating showing the strongest contribution. These findings indicate that irregular meal patterns and eating in response to emotional states are the dominant factors underlying poor eating behavior among the respondents.

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