



# The Relationship Between Body Mass Index and Body Image Among Adolescent Students

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## ABSTRACT

Adolescence is a period marked by significant changes, including physical changes such as alterations in body mass index (BMI). Deviations in BMI from expected norms can impact an adolescent's body image. This study aims to examine the relationship between BMI and body image among male and female adolescents at SMAN 2 Kisaran. The research employed a quantitative approach with a descriptive correlational design. The population for this study included 648 adolescents, with a sample size of 247 respondents selected through proportionate stratified random sampling. We tested the correlation using the Spearman correlation test. The results indicate that adolescents with a normal BMI tend to have a positive body image (95 individuals, 38.5%), while those with an obese BMI tend to have a negative body image (17 individuals, 6.9%). The analysis showed a statistically significant relationship between BMI and body image, with a p-value of 0.00, less than the alpha value of 0.05. This study highlights the importance of parental and educational roles in providing education about ideal body shapes and suggests the establishment of counseling services to support mental health and self-esteem related to body image among adolescents.

**Keywords:** Body Mass Index, Body Image, Adolescence



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## 1. Introduction

Gorman & Sultan (2008) divide the adolescent development stage into three phases: early adolescence (aged 10-13 years), middle adolescence (aged 14-16 years), and late adolescence (aged 17-19 years). Adolescents experience the most important changes in terms of biology, physiology, and psychology during adolescence. These changes have an impact on the emergence of uncertainty, fear, worry, and confusion (Hartini, 2017). According to Agustin et al., (2019), body image is a subjective assessment of one's physical appearance, including self-opinion and views of how others see their body type. Several circumstances, including physical changes, can influence an adolescent's body image. Adolescents may experience negative effects from unexpected physical changes, including psychological suffering. Although they are physically attractive to others, adolescents who feel there is a gap between their current physical condition and their idealized concept may feel dissatisfied about physical body appearance (Andiyati, 2016).

According to Riset Kesehatan Dasar (2018), adolescents aged 16-18 years in Indonesia are still undernourished. Among adolescents aged 16 to 18 years, the prevalence of underweight is 8.1% (6.7% underweight and 1.4% severely underweight). On the other hand, among adolescents aged 16-18 years, the

prevalence of overweight and obesity is 13.5% (9.5% obese and 4.0% obese) (Kementerian Kesehatan Republik Indonesia, 2021). This information shows that obesity, emaciation, and other nutritional problems are common in adolescence. Body Mass Index (BMI) is an accurate measurement way to assess underweight or overweight (Rosidawati et al., 2019). Kementerian Kesehatan Republik Indonesia categorizes BMI as severely underweight (BMI < 17), underweight (17 < BMI < 18.5), normal (18.5 < BMI < 25), fat (BMI > 25-27), and obese (BMI > 27). Low BMI is associated with an increased risk of infectious diseases, while high BMI is associated with an increased risk of degenerative diseases (Yunitasari, 2019).

Destiara et al. (2017) conducted a study on adolescent girls living in the Sanggau Malang girls' dormitory, which revealed that 44.4% had an overweight BMI and the majority (83.3%) had a negative body image. However, Rosidawati et al., (2019) conducted a study on PGRI East Jakarta high school students and found that 18 students (60%) with a lean BMI had a good body image and were satisfied with their body type. Even though these two researches show different results, it is normal for adolescents to experience physical changes, and many adolescents are particularly sensitive to their physical appearance. Research has shown that adolescents with higher BMI (indicating overweight or obesity) often have negative body image perceptions. They may feel dissatisfied with their body shape or weight, which can impact self-esteem and mental well-being (Gorman & Sultan, 2008). This study aimed to describe the relationship between Body Mass Index and Body Image among Male and Female Adolescents at SMAN 2 Kisaran.

## 2. Methods

This study was designed using a descriptive correlation and cross-sectional approach. The population of this study was 648 first- and second-grade students at SMAN 2 Kisaran. The researchers applied the Slovin formula to calculate the research sample, and 247 students were involved as research respondents. We applied proportionate stratified random sampling as a sampling technique to determine the appropriate number of samples from a disproportionately stratified population. There were 110 respondents from grade I and 137 respondents from grade II. The withdrawal of samples from each class was made possible by the random sampling strategy, which ensured that each member of the population had the same probability of being selected as a sample.

We conducted the data collection by distributing research instruments and measuring the students' height and body weight. We used a microtome to measure the students' height and a digital weight scale to measure their body weight. This study adapted the Body Shape Questionnaire (BSQ) (Yurtsever et al., 2022) to assess participants' perceptions of their bodies. The Language Center of the University of Sumatera Utara/USU translated the questionnaire from English to Indonesian for this research. A lecturer from the Faculty of Nursing, USU, conducted content validity testing and modified the wording of each question to ensure clear understanding by the respondents. The results of the validity test showed a value of 4 for each indicator, indicating that the instrument used was valid. The reliability test yielded a value of 0.986, confirming that the Body Shape Questionnaire (BSQ) was reliable. The questionnaire used an ordinal scale. The data analysis was conducted using SPSS software, specifically the Spearman test, where a p-value of less than 0.05 indicates a significant relationship between Body Mass Index (BMI) and body image. This research passed the ethical clearance examination from USU with reference number 485/KEPK/USU/2024.

## 3. Results

The findings revealed that 247 students (44.5% in class X and 55.5% in class XI) participated as research samples. 46.2% of the respondents were 16 years old, 64% were female, and 82.2% identified as Muslims. The majority of respondents, comprising 108 individuals (43.7%), belong to the Batak tribe. Details are shown in Table 1.

**Table 1** Respondents' characteristics (n=247)

Characteristics	f	%
Age		
15	47	19,0
16	114	46,2
17	86	34,8
Sex		
Female	158	64,0
Male	89	36,0
Religion		
Islam	203	82,2
Christian	44	17,7

Table 1 Continued

Characteristics	f	%
Ethnic		
Batak	108	43,7
Jawa	104	42,1
Melayu	17	6,9
Minang	12	4,9
Sunda	6	2,4
Class		
X	110	44,5
XI	137	55,5

The frequency distribution of the research variables revealed that 121 respondents (49%), 60 respondents (24.3%), 25 respondents (10.1%), and 12 respondents (4.9%) had normal BMI. Of the 247 respondents, 195 (78.9%) had a good body image, while 52 (21.1%) had a negative body image. Table 2 provides more details.

Table 2 Body Mass Index and Body Image Description (n=247)

Variable	f	%
Body Mass Index		
Severely Underweight	29	11,7
Underweight	60	24,3
Normal	121	49,0
Fat	12	4,9
Obese	25	10,1
Body Image		
Positive	195	78,9
Negative	52	21,1

Table 3 of this study, using the Spearman correlation statistical test, reveals a significant p-value of 0.00, indicating a p-value less than 0.05. The study found a significant relationship between the body mass index and body image of both male and female adolescents at SMAN 2 Kisaran. The Spearman statistical test yielded a value of  $r = 0.438$ , indicating a strong and positive relationship direction. Table 3 provides a detailed explanation.

Table 3 Relationship between Body Mass Index and Body Image (n=247)

Variable 1	Variable 2	N	R	p-value
Body Mass Index	Body Image	247	0,438	0,00

#### 4. Discussion

The body mass index, or BMI, serves as one type of measurement to determine body composition. The individual strives to achieve a normal body weight in order to achieve the highest possible state of health. Age and gender adjustments are necessary to establish BMI categories for adolescents. Growth factors influence adolescent BMI. It is obvious that adolescent girls and boys have different body transformations. In addition, adolescent girls undergo physical changes faster than adolescent boys (Jannah, 2016). Physical changes can affect a person's psychological development, which in turn can influence their body image.

Over the course of a person's life, their perception of their body evolves. Various elements, such as the judgment of others, the surrounding environment, societal conventions, and prevailing cultural values, all have an impact on this change (Wati et al., 2019). How happy adolescents are with various aspects of their body, including their overall appearance, strongly influences their body image. An adolescent is considered to have a good or healthy body image if they are satisfied with their physical appearance and think well of their body size and shape.

During this period, adolescents start to recognize their obesity and experience dissatisfaction with their body shape, a phenomenon that is more prominent in early adolescence than in late adolescence (Juliastuti et al., 2022). The majority of those with a positive body image were female, accounting for 116 individuals (47.0%), while 42 individuals (17.0%) had a negative body image. Male bodies primarily consist of muscle, while female bodies primarily consist of fat. Other researchers stated that hormonal factors play a role in the high prevalence of obesity in women compared to men. This is in line with research by Lestari et al., (2016), which found that higher levels of testosterone production in men led to greater muscle mass in women and that this was the cause of excess weight in women.

The majority of respondents, comprising 164 individuals (66.4%), identify as Muslims and maintain a positive body image. The study reveals that there is no significant difference in body image among respondents based on their religious affiliations. Kartikowati & Zubaedi, (2016) assert that religiosity manifests not only in ritualized worship but also in private moments during daily activities. This theory suggests that religion, as a value system, should be able to protect itself from the adverse effects of beauty standards. When a person truly interprets and applies religion as a belief system, it not only becomes a barrier but also a supervisor of their behavior, controlling all negative attitudes and feelings towards their body. Furthermore, the results showed that 39 people (15.8%) had a negative body image, and the majority of respondents were of Batak ethnicity; 83 people (33.6%) had a positive body image, and 25 people (10.1%) had a negative body image. Culture, particularly appearance and the standards set by society, significantly influences body image. In other words, society evaluates what is considered beautiful, ideal, and what is not. Appearance standards evolve over time, and most women strive to meet these ideals. (Thompson & Smolak, 2001). Environmental pressures shape perspectives on the body through cultural norms about physical appearance and attractive body size. The shame a person experiences about their body stems from their belief that they have not achieved a body size that meets cultural standards (Denich & Ifdil, 2015).

Adolescents who have a healthy body image and a normal, lean, or obese body mass index tend to be more confident in their physical appearance and more accepting of themselves, which has been associated with a lower likelihood of acting out. On the other hand, adolescents who have a poor perception of their bodies are more likely to encourage their friends to take actions that will give them the body type they deem desirable. However, this behavior often negatively impacts their health (Anindita, 2021).

## 5. Conclusion

The research results indicate that most students have a positive body image and a normal BMI. The Spearman correlation statistical test reveals a significant relationship between body mass index and body image. In the context of nursing care, it is important for nurses to incorporate activities that address body image. Additionally, nursing should take into account the significance of body image in adolescents to prevent eating disorders, which are more prevalent in adolescent cases.

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## References

- Agustin, D., Iqomh, M. K. B., & Prasetya, H. A. (2019). Gambaran Harga Diri, Citra Tubuh, Dan Ideal Diri Remaja Putri Berjerawat. *Jurnal Keperawatan Jiwa*, 6(1), 8. <https://doi.org/10.26714/jkj.6.1.2018.8-12>
- Andiyati, A. D. W. (2016). Hubungan Antara Body Image Dengan Kepercayaan Diri Siswa Kelas X Di Sma Negeri 2 Bantul. 4(4), 80–88.
- Anindita, S. M. (2021). Model Remaja Putri: Body Image dan Bulimia Nervosa. *Muqoddima Jurnal Pemikiran Dan Riset Sosiologi*, 2(1), 19–36. <https://doi.org/10.47776/mjprs.002.01.02>
- Denich, A. U., & Ifdil, I. (2015). Konsep Body Image Remaja Putri. *Jurnal Konseling Dan Pendidikan*, 3(2), 55–61. <https://doi.org/10.29210/116500>
- Destiara, F., Hariyanto, T., & Adi W, R. C. (2017). Hubungan Indeks Massa Tubuh (Imt) Dengan Body Image Remaja Putri Di Asrama Putri Sanggau Malang. 2, 21–33.
- Gorman, L. M., & Sultan, D. F. (2008). *Psychosocial Nursing* (3rd Editio). F.A. Davis Company.
- Hartini, H. (2017). Perkembangan Fisik Dan Body Image Remaja. *Islamic Counseling: Jurnal Bimbingan Konseling Islam*, 1(2), 27. <https://doi.org/10.29240/jbk.v1i2.329>
- Jannah, M. (2016). REMAJA DAN TUGAS-TUGAS PERKEMBANGANNYA DALAM ISLAM. 1(April), 243–256.
- Juliasuti, D., Erlangga Haq, Y., Rivani, B., & Mutiara. (2022). Faktor Risiko Internal Citra Tubuh Negatif Pada Remaja Putri dimasa Pandemi Covid-19. *Jurnal Kesehatan*, 13(3), 170–174.
- Kartikowati, E., & Zubaedi. (2016). Psikologi Agama dan Psikologi Islami Sebuah Komparasi. In *Prenadamedia Group* (Vol. 1, Issue April).
- Kementerian Kesehatan Republik Indonesia. (2021). *Bagaimana Cara Mengukur Indeks Massa Tubuh (IMT)/ Berat Badan Normal?* Kementerian Kesehatan Republik Indonesia.
- Lestari, S. U., Bidjuni, H., & Kallo, V. D. (2016). Hubungan Obesitas Dengan Kepercayaan Diri. *Ejournal Keperawatan (e-Kp)*, 4, 1–5.
- Riskesdas. (2018). *Laporan Provinsi Sumatera Utara Riskesdas 2018*. Lembaga Penerbit Badan Litbang

Kesehatan.

- Rosidawati, Pudjiati, & Prayetni. (2019). *Hubungan Indeks Masa Tubuh ( IMT ) Dengan Body Image Pada Siswa SMA PGRI Jakarta Timur*. 4(2).
- Thompson, J. K., & Smolak, L. (2001). *Body Image, Eating Disorders, and Obesity in Youth: Assessment, Prevention, and Treatment*. American Psychological Association.
- Wati, C. R., Lidiawati, M., & Bintoro, Y. (2019). *Hubungan Indeks Massa Tubuh Dengan Body Image Pada Remaja Putri Kelas I Dan Kelas II SMAN 4 Banda*. 849–857.
- Yunitasari, E. (2019). *Status Gizi Mempengaruhi Usia Menarche ( Nutritional Status Effects The Age of Menarche )* Esti Yunitasari \*, Retno Indarwati \*, Devi Rahma Sofia \*. 168–174.
- Yurtsever, I., Matusiak, L., Szepietowska, M., Evans, C., & Szepietowski, J. C. (2022). Body Shape Questionnaire-34 (BSQ) and Functionality Appreciation Scale (FAS) - pertinent body image screening tools: Creation and validation of Polish language versions. *Science Progress*, 105(3), 1–11. <https://doi.org/10.1177/00368504221117068>