

RESEARCH ARTICLE

BODY IMAGE AND EXERCISE HABITS: A STUDY ON UIN JAKARTA FEMALE MEDICAL STUDENTS (2020-2022)

Wilda Shafiya¹, Marita Fadhilah^{2*}, Auliyani Andam Suri³, Syarief Hasan Lutfie⁴,
Sity Kunarisasi², Muhammad Alif Adril¹

¹Clinical Clerkship, Faculty of Medicine, UIN Syarif Hidayatullah Jakarta, Indonesia.

²Department of Community Medicine, Faculty of Medicine, UIN Syarif Hidayatullah Jakarta, Indonesia.

²Department of Physiology, Faculty of Medicine, UIN Syarif Hidayatullah Jakarta, Indonesia.

³Department of Physical Medicine and Rehabilitation, Faculty of Medicine, UIN Syarif Hidayatullah, Jakarta, Indonesia.

*Corresponding Author : maritafadhilah@uinjkt.ac.id

ABSTRACT

Background: Body image refers to an individual's perception of their physical appearance, which may influence self-confidence and exercise habits. During adolescence and early adulthood, significant physical and psychological changes often result in body dissatisfaction, potentially affecting patterns of physical activity. Exercise is a structured form of physical activity intended to promote health and maintain physical fitness. This study aimed to examine the relationship between body image and exercise habits among female medical students.

Methods: A quantitative analytic study with a cross-sectional design was conducted involving 100 female medical students in the academic phase (class of 2020–2022) at the Faculty of Medicine, UIN Jakarta. Participants were

selected using random sampling. Data on body image and exercise habits were collected using validated questionnaires and analyzed using the chi-square test.

Results: The analysis revealed a statistically significant negative association between body image and exercise habits ($p = 0.006$; $p < 0.05$). Students with a negative body image were more likely to engage in frequent exercise compared to those with a positive body image.

Conclusion: Body image significantly influences exercise habits among medical students. A better understanding of this relationship may support the development of health promotion strategies that foster consistent exercise routines without reinforcing negative body perceptions.

Keywords: Body image, exercise habits, medical students

INTRODUCTION

According to the World Health Organization (WHO), adolescence is a transitional phase from childhood to adulthood. During this phase, individuals experience numerous changes, including shifts in responsibility, biology, emotions, personality, and mental condition.¹ The Ministry of Health of Indonesia divides adolescence into two segments: early adolescence (ages 12 to 16) and late adolescence (ages 17 to 25).² The changes that occur in adolescence influence how individuals think and accept themselves, including accepting changes that occur in their physical changes. The problematic issue regarding the assessment of the ideal body shape is significantly influenced by body image. If adolescents are unable to accept their body image, it may affect their daily habits and behavior.^{3,4}

Body image refers to a person's perception, thoughts,

and feelings about their body shape. During adolescence, teenagers undergo significant physical changes that can greatly impact their self-confidence. Many young people may feel dissatisfied with their appearance, which, in turn, affects their self-acceptance.^{5,6} A study conducted on 4,263 students in Sweden found that 31% of women and 9% of men experienced moderate levels of body dissatisfaction. This dissatisfaction was linked to compulsive exercise as a means of controlling body weight.⁹ These findings provide a basis for researchers who aim to study late adolescents further.

Sport is a part of physical activity that involves various body movements, carried out repeatedly and structured with the aim of health and maintaining a person's physical fitness. Exercise can burn calories, thereby preventing or overcoming obesity. Therefore, many teenagers choose to exercise as a way to get a better body image.¹⁰ There are various types of exercise, but the sport that is closely related to body image is weightlifting, because with certain

repetitions, it can changes in those who practice it Research on exercise habits among students from the Faculty of Medicine at Udayana University showed that 90.7% of students in the Undergraduate Medicine and Medical Professional Study Program regularly engage in weight and endurance, exercise with the highest percentage of students with a Body Mass Index (BMI) overweight. This may occur because gender, especially female, is one of the factors that influences body image, leading them to exercise regularly in pursuit of an ideal body.¹¹ Another study conducted on female students at the Faculty of Medicine, Diponegoro University, Semarang, Central Java, aged 18-22 years, stated that among 34 respondents with a satisfied body image, four individuals (11.8%) did sports with low frequency. In contrast, among respondents with a dissatisfied body image, 11 individuals exercised more frequently. Those with a dissatisfied body image were found to be 4.3 times more likely to exercise compared to those with a satisfied body image.¹²

Based on three studies focused on students, particularly female students at the Faculty of Medicine, the researchers selected female students from the academic stage of the Faculty of Medicine at UIN Jakarta as research subjects. This choice was made because students in this developmental stage are believed to influence their body image. Additionally, the knowledge that medical students possess, especially regarding health aspects, also affects their reactions to body image issues.¹³ Based on this background, this study aimed to investigate the relationship between body image and exercise habits among female students in the academic stages of the Faculty of Medicine at UIN Jakarta from the class years 2020 to 2022.

METHODS

This study used a quantitative analytical categorical method with a cross-sectional design to analyze the relationship between body image and exercise habits among female students at the academic stage of the Faculty of Medicine, UIN Jakarta, class of 2020-2022. A total of 100 respondents were selected using stratified cluster random sampling. The inclusion criteria for this study were female students aged 17-25 years who were willing to participate and engaged in exercise at least once per week. In contrast, the exclusion criteria included individuals with chronic diseases, eating disorders, or psychiatric disorders, as well as those who did not exercise, which were identified through an initial questionnaire.

Data were collected using a questionnaire that included the Body Appreciation Scale-2 (BAS-2) to assess body image, as well as an exercise habits questionnaire that captured the frequency and duration of exercise over the past three months. Data analysis was performed using the Chi-square with a significance level set at $p < 0.05$. Sample size

estimation was calculated using the unpaired categorical comparative analytical formula. Data processing and analysis used the Statistical Package for Social Science (SPSS) program version 22.0.

ETHICAL APPROVAL

This research has received ethical approval following a review by the Committee of Health Research Ethics at the Faculty of Medicine, Syarif Hidayatullah State Islamic University Jakarta, with registration number B-028/F12/KEPK/TL.00/07/2023.

RESULTS

Table 1 shows the majority of respondents were 19 years old (30%), with most participants being third-year students from the class of 2020 (39%) and regarding body mass index (BMI) 42% of the sample fell within the normal range, while 58% were outside the normal range: underweight (10%), overweight (17%), obesity I (27%), and obesity II (4%). Furthermore, among the 100 respondents, the majority reported having a positive body image, with 80% achieving an average score of 40.5. The body image indicators were assessed using a scoring range of 1 to 5, where 1 represents "never," 2 represents "rarely," 3 represents "sometimes," 4 represents "often," and 5 represents "always." Responses were considered negative if the score was below the hypothetical threshold of 3.7 and assessed as positive if they exceeded this threshold or were rated as "always."

Table 1. Sample Distribution According to Age, Class Year, BMI and Body Image

Variable	n (%) / Mean \pm SD
	N = 100
Age (year)	
17-18	8 (8)
19-20	56 (56)
21-22	34 (34)
23	2 (2)
Class	
2020	39 (39)
2021	30 (30)
2022	31 (31)
BMI	
Underweight	10 (10)
Normal	42 (42)
Overweight	17 (17)
Obesity I	27 (27)
Obesity II	4 (4)
Body Image	
Positive	80 (80)
Negative	20 (20)
Mean Score \pm SD	40.5 \pm 6.6

Table 2 shows that the item with the highest positive response among respondents was "I love my body," with 49% agreeing. Conversely, the body image indicator with the most negative results was "I am comfortable with my body," which received only 2% agreement. Additionally, the body image statement with the highest average score was "I appreciate the differences and unique characteristics of my

body," which had an average of 4.37, indicating a positive body image. On the other hand, the statement with the lowest average was "I feel happy with my body," which scored an average of 3.79. Despite being the lowest average, this score still reflects a positive body image, as it exceeds the threshold of 3.7 set for this indicator.

Table 2. Sample distribution based on body image indicators (N=100)

Body Image Indicators	Category	n (%)	Mean Score \pm SD
I respect my body	Never	1 (1)	4.17 \pm 0.85
	Rare	2 (2)	
	Sometimes	17 (17)	
	Often	39 (39)	
	Always	41 (41)	
I feel happy with my body	Never	1 (1)	3.79 \pm 0.95
	Rare	8 (8)	
	Sometimes	28 (28)	
	Often	37 (37)	
	Always	26 (26)	
I feel that body at least have some good qualities	Never	1 (1)	3.98 \pm 0.84
	Rare	2 (2)	
	Sometimes	24 (24)	
	Often	44 (44)	
	Always	29 (29)	
I have a positive attitude towards my body	Never	1 (1)	4.09 \pm 0.82
	Rare	2 (2)	
	Sometimes	18 (18)	
	Often	45 (45)	
	Always	34 (34)	
I pay attention to my body's needs	Never	1 (1)	3.98 \pm 0.87
	Rare	3 (3)	
	Sometimes	24 (24)	
	Often	41 (41)	
	Always	31 (31)	
I love my body	Never	1 (1)	4.3 \pm 0.81
	Rare	0 (0)	
	Sometimes	16 (16)	
	Often	34 (34)	
	Always	49 (49)	
I appreciate differences and the unique characteristics of my body	Never	1 (1)	4.37 \pm 0.7
	Rare	0 (0)	
	Sometimes	7 (7)	
	Often	45 (45)	
	Always	47 (47)	

My behavior demonstrates a positive attitude towards my body; for example, I raise my head and smile	Never	1 (1)	4.17±0.79
	Rare	1 (1)	
	Sometimes	15 (15)	
	Often	46 (46)	
	Always	37 (37)	
I am comfortable with my body	Never	2 (2)	3.93±0.93
	Rare	3 (3)	
	Sometimes	26 (26)	
	Often	38 (38)	
	Always	31 (31)	
I feel me beautiful/handsome even me different from the picture media about people who beautiful/handsome (model, actress/actor)	Never	1 (1)	3.88±0.93
	Rare	5 (5)	
	Sometimes	29 (29)	
	Often	35 (35)	
	Always	30 (30)	

Table 3 shows that the majority of respondents exercise infrequently, with 76% indicating they rarely engage in physical activity. In contrast, only 24% report exercising frequently. Among the respondents, 52% have the habit of exercising once a week, while only 1% exercise four times a week. Furthermore, this study also found that 41% respondents exercise for less than 30 minutes, while 59 % respondents exercise for 30 minutes or more. The most common form of exercise among respondents is brisk walking, which is performed by 30% of participants, whereas cycling is the least favored activity, with only 2% of respondents engaging in it.

Table 3. Distribution of Respondents by Exercise Habits, Frequency, Duration, and Type of Exercise

Variable	n (%) N = 100
Exercise Habits	
Often	24 (24)
Seldom	76 (76)
Frequency of exercise	
1x/week	52 (52)
2x/week	24 (24)
3x/week	21 (21)
4x/week	1 (1)
5x/week	2 (2)
Length of Time to Exercise Each Session	
< 30 minutes	41 (41)
≥ 30 minutes	59 (59)
Type of Sport	
Weight Lifting	4 (4)
Bicycle	2 (2)
Basketball	3 (3)
Badminton	6 (6)
Brisk Walking	30 (30)

Jogging	27 (27)
Short Distance Running	3 (3)
Long Distance Running	3 (3)
Swimming	8 (8)
Gymnastics (Aerobics and Zumba)	10 (10)
Yoga	4 (4)

Table 4 displays a comparison between body mass index and respondents' exercise habits. In this table, it can be seen that respondents with an obese body mass index exhibit the highest frequency of exercise habits (12%). Respondents with body mass index overweight and obesity II showed the lowest frequency of exercise habits (0%). When combined, respondents with a normal body mass index exercised often (11%) or rarely (30%), while respondents with a body mass index outside the normal range exercised frequently (13%) or rarely.

Table 4. Distribution of Body Mass Index with Exercise Habits

BMI	Exercise Habits		Total n (%)
	Often n (%)	Seldom n (%)	
Underweight	1 (1)	9 (9)	10 (10)
Normal	11 (11)	30 (30)	42 (42)
Overweight	0 (0)	17 (17)	17 (17)
Obesity I	12 (12)	16 (16)	26 (26)
Obesity II	0 (0)	4 (4)	4 (4)
Total	24 (24)	76 (76)	100 (100)

Table 5 shows the correlation between body image and exercise habits. Among participants with a positive body image, 24 individuals (24%) reported exercising often, while 56 individuals (56%) reported exercising seldom. In contrast, none of the participants with a negative body image

exercised often, and all 20 individuals (20%) exercised seldom. The Chi-square test revealed a statistically significant association between body image and exercise habits ($p = 0.006$). This finding indicates a significant negative relationship between body image and exercise habits in academic stage students at the Faculty of Medicine,

UIN Syarif Hidayatullah Jakarta, class of 2020, 2021, and 2022. The study found a significant negative relationship, contrary to the hypothesis that both negative and positive body image would be associated with frequent exercise habits.

Table 5. Analysis of Correlation Between Body Image and Exercise Habits

Body Image	Exercise Habits		Total	P-Value
	Often n (%)	Seldom n (%)		
Positive Body Image	24 (24)	56 (56)	80 (80)	0,006
Negative Body Image	0 (0)	20 (20)	20 (20)	
Total	24 (24)	76 (76)	100 (100)	

DISCUSSION

In this study, it was found that the majority of respondents were 19 years old (30%), followed by 20 years old (26%) and 21 years old (26%). This is in accordance with the criteria desired by researchers, where researchers conducted research in late adolescence (17-25 years).² Each individual has a different response to their body mass index. A body mass index outside the normal number can affect body image and exercise habits. In this study, it was found that female students' body mass index was within the normal range (42%). Body mass was outside the normal range (58%) by dividing underweight (10%), *overweight* (17%), obesity I (27%), and obesity II (4%). These results show that the body mass index outside the normal number is greater than the normal body mass index.

The results of research related to body image stated that respondents had a positive body image (80%) and respondents with a negative body image (20%). When comparing the results of body mass index and body image, it was found that the body mass index was greater than the normal figure. However, the positive body image of the respondents was still greater. Data from the body image indicator distribution table shows supporting data with the results of the sample distribution which got the most positive results (49%) on the point 'I love my body'. This is contrary to previous research, which states that if the body mass index is outside the normal number, the body image results obtained will be more likely to produce negative results.¹⁴ Other research, which is in line with the results of this study, stated that 81.4% of obese respondents at the Faculty of Medicine, Muhammadiyah University of Yogyakarta, had a positive body image. This is also supported by related research on self-esteem among students at the Faculty of Medicine, the Atma Jaya Catholic University of Indonesia, which stated that 76.6% of respondents had the highest self-esteem.^{14,15}

Likewise with exercise habits, in this study it was

found that respondents who had exercise habits frequently were 24% while those who had exercised rarely were 76%.

These results indicate that the majority of respondents had infrequent exercise habits. These results are strengthened by the distribution table of body mass index with exercise habits, which shows that whether the body mass index is normal or outside the normal range, the majority have infrequent exercise habits. This also contradicts the results of previous research, which stated that a body mass index that is outside the normal figure will increase a person's exercise habits.' Exercise habits themselves are obtained from the frequency of exercise and the length of time a person exercises. It is said to be frequent if someone does exercise $\geq 3x/\text{week}$ with a duration of ≥ 30 minutes, and it is said to be rare if someone does exercise $< 3x/\text{week}$ with a duration of < 30 minutes.¹⁶ Based on the results of the frequency and length of time exercising in this study, it was found that respondents who exercised $\geq 3x/\text{week}$ (24%) while those who exercised $< 3x/\text{week}$ (66%). These results support the results of the majority of respondents rarely exercising. The results of research on the length of time they exercise also show that respondents exercised for ≥ 30 minutes/session (59%) and < 30 minutes/session (41%). Although the results of the duration of exercise show that the majority is ≥ 30 minutes/session, it cannot be stated that respondents exercise frequently because the frequency is not sufficient.

The results of research related to exercise habits stated that more respondents rarely exercised. This result is in accordance with research related to exercise habits among the Faculty of Medicine UIN Jakarta students class of 2018, which stated that 60.4% of the total respondents rarely exercised. A busy lecture schedule could be one of the factors that support these results.¹⁷ This was also stated in research conducted by Wattanapisit, which reported that the majority of medical students in Southeast Asia have low levels of physical activity because they consider studying more

important than taking time to exercise and are afraid that their academic performance will decrease if they exercise.¹⁸

Another factor that might influence respondents' sports habits is the availability of facilities and infrastructure that support sports activities at the Faculty of Medicine, UIN Jakarta. Research conducted by Zahradina on Faculty of Medicine UIN Jakarta preclinical students in 2020 reported stated that students' motivation to exercise was relatively low, partly because there was no adequate advice for doing sports at Faculty of Medicine UIN Jakarta.¹⁹

This research also provides insights into the types of sports that female students commonly participate in. The highest percentage of participation was found in brisk walking, at 30%. This preference may be associated with a generally positive body image, leading to the choice of exercises that are not focused on weight lifting (anaerobic activities) to enhance body image. In a previous study conducted in Sweden in 2022, where negative body image was more prevalent, weight lifting was found to be more popular than other sports. This preference likely stems from the fact that weight lifting can increase muscle mass. During weight lifting, micro-damage occurs in muscle tissue, which triggers the release of growth hormone to repair this damage by adding actin and myosin to muscle fibers. This addition influences the external appearance of body shape.^{10,19}

The choice of this type of sport is also supported by many factors, such as the availability of facilities that are easily accessible to respondents. The results indicate that the most popular types of exercise among the respondents were brisk walking (30%) and jogging (27%). This popularity is attributed to the presence of various areas suitable for these activities, both on the campus and around the Faculty of Medicine UIN Jakarta.²⁰

Another factor that can influence respondents' choice of sport is economic factors, where weight lifting, which, according to theory, is correlated with improving body image, requires respondents to become members of a fitness centre and spend more money.²¹ Apart from that, respondents lacked knowledge that brisk walking and jogging were more effective for increasing $VO_2\text{Max}$ compared to building muscle mass, and the ideal body also influences the choice of type of exercise.²²

This research presents findings with a p-value of 0.006 ($p < 0.05$), indicating a significant negative relationship between body image and exercise habits among academic students at the Faculty of Medicine, UIN Jakarta, from the classes of 2020, 2021, and 2022. The results reveal that both students with positive and negative body images reported infrequent exercise habits, which is contrary to the initial hypothesis. The hypothesis suggested that individuals with either positive or negative body images would have more regular exercise habits. However, In this study, both respondents who had positive and negative body image had

infrequent exercise habits.

The relationship between the two is due to negative and positive body image, which can contribute to exercise habits indirectly. Positive body image refers to understanding, appreciation, and acceptance of an individual's body. Having a satisfied body image supports individuals in accepting all aspects of the body and appreciating its bodily functions. Conversely, someone who has a dissatisfied body image tends to criticize their own body rather than accept it.²³

Psychologically, women who have a negative body image do not have good self-confidence, so their thinking patterns will lead to implementing behaviour that can improve their body image, one of which is exercising. However, in this study, respondents with a negative body image did not exercise frequently, as indicated by 0% in the column for respondents with a negative body image who exercised frequently. Likewise, respondents who had a positive body image were the majority of the results in this study. The percentage of respondents who have a positive body image and often exercise is 23%. This value is still smaller than the percentage of respondents with a positive body image who rarely exercise, which is 57%. This is at odds with the results of previous research, which explained that many respondents who exercise often come from those who have a negative body image.¹²

The difference in results could be due to respondents with negative body image choosing other ways to improve their body image besides exercising. Likewise, respondents with positive body image are able to accept and feel confident with their bodies, so that they no longer do things that can improve their body image.²⁴

Another factor that may influence and can explain why the majority of respondents have a positive body image, even though 58% of respondent had body mass index (BMI), outside normal range, is environmental factors. The strong element of religious teaching that prioritizes gratitude in students at the academic stage of the Faculty of Medicine UIN Jakarta can influence how respondents behave with their body image. The facts that support this are the results of the sample distribution based on body image indicators, which at each point are above the hypothetical indicator standard (≥ 3.7).^{12,24}

CONCLUSION

The findings of this study indicate a statistically significant negative correlation between body image perception and exercise habits among academic-stage students at the Faculty of Medicine, UIN Syarif Hidayatullah Jakarta, class of 2020-2022. This suggests that students with a more negative body image tend to engage in exercise more frequently compared to those with a more positive body image.

IMPLICATION

The findings of this study offer valuable insights into the complex relationship between body image perception and exercise habits among medical students. The observed negative association where students with a negative body image were more likely to engage in frequent exercise suggests that physical activity may not always stem from positive self-perception, but rather from dissatisfaction or compensatory behavior.

This insight has practical significance for health promotion efforts within academic institutions. Exercise campaigns should be designed with sensitivity to body image concerns, ensuring that they promote health and wellbeing without reinforcing unrealistic or harmful appearance standards. Instead, they should emphasize body functionality, self-acceptance, and mental health.

From a policy standpoint, the results can inform targeted segmentation in health communication strategies, allowing for more effective messaging to specific student subgroups based on body image perception.

Finally, this study highlights a need for further research in the fields of community medicine and psychiatry, particularly on the psychological factors influencing exercise behavior and the development of holistic, body image-informed preventive health programs for students.

STRENGTHS AND LIMITATIONS

This study benefits from the use of validated measurement tools, including the Body Appreciation Scale-2 (BAS-2) and a structured exercise habits questionnaire, which enhance the reliability and validity of the findings. The focus on a specific population female medical students in the academic phase adds depth and relevance to the analysis, particularly within the context of adolescence and emerging adulthood. The cross-sectional design and statistical analysis using the chi-square test also provide a clear snapshot of the relationship between body image and exercise habits.

However, this study has several limitations. The relatively small sample size ($n=100$) may limit the statistical power and the ability to detect more subtle associations. Additionally, the study relies on self-reported data, which is subject to potential biases such as recall bias and social desirability bias. The use of a single institution as the research setting limits the generalizability of the findings to broader populations. These limitations should be considered when interpreting the results and applying them to other contexts.

CONFLICT OF INTEREST

The authors declare no conflicts of interest.

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DECLARATION OF USING AI

The authors affirm that artificial intelligence (AI) tools were used solely to assist in the writing process for language enhancement purposes, including grammar checking, paraphrasing, and improving clarity of expression. No AI tools were employed to generate original content, perform data analysis, or interpret the research findings. The authors take full responsibility for the integrity, accuracy, and originality of the content, interpretations, and conclusions presented in this manuscript.

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