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Analysis of the Relationship Between Contributing Factors and Body Image Among Medical Students

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ABSTRACT

Introduction: Body image refers to an individual's perception and evaluation of their physical appearance. A positive body image plays a crucial role in enhancing self-esteem, psychological resilience, and overall mental and physical well-being. In contrast, a negative body image has been linked to mental health problems, such as depression and disordered eating. This study aimed to examine the associations between various contributing factors and body image among medical students.
Method: A quantitative cross-sectional study was conducted involving 67 medical students, selected through total population sampling. Data collection instruments included the Figure Rating Scale, Global Physical Activity Questionnaire (GPAQ), Dutch Eating Behavior Questionnaire (DEBQ), a 24-hour dietary recall, the Perceived Stress Scale (PSS-10), and the Rosenberg Self-Esteem Scale (RSES) to assess self-confidence. All instruments exhibited acceptable levels of validity and reliability. Data were analyzed using Chi-Square and Binary Logistic Regression Methods.

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Results: Significant associations were identified between body image and physical activity (p = 0.040), self-confidence (p = 0.018), and body mass index (BMI) (p = 0.001). Logistic regression analysis revealed that BMI (OR = 1.766, p = 0.002, 95% CI [0.644–2.888]), self-confidence (OR = 0.311, p = 0.045, 95% CI [0.099–0.975]), and physical activity (OR = 1.966, p = 0.031, 95% CI [1.063–3.831]) were significant predictors of body image.
Conclusion: Body mass index, self-confidence, and physical activity were significantly associated with body image. The implementation of educational and psychological support programs is recommended to promote healthy self-perception and behavioral patterns among medical students.

Keywords: Body image, body mass index, medical, motor activity, self-concept, students

Introduction

Body image is an internal representation of one's physical appearance, encompassing perceptual, affective, cognitive, and behavioral dimensions. It is shaped by internal beliefs as well as external influences, including cultural standards, peer comparisons, and media portrayals. A positive body image fosters self-acceptance, resilience, and overall well-being, whereas a negative body image may contribute to psychological distress, such as anxiety, depression, disordered eating, and diminished self-esteem.[1]

In recent years, body dissatisfaction, particularly related to shape and weight, has driven a notable increase in aesthetic procedures worldwide. For example, more than 325,000 liposuction procedures were performed in the United States in 2022, reflecting a shift toward altering body shape to conform to perceived ideals rather than enhancing beauty.[2] Such behaviors are often rooted in a psychological discomfort arising from the gap between perceived and ideal body image.[3]

The transition to young adulthood (ages 18–25), a developmental period often experienced by university students, is marked by identity formation and the consolidation of self-concept. Physical appearance becomes a salient concern, particularly within academically demanding environments such as medical schools. Prior studies have noted that confidence levels among young adults are frequently moderate to low, with physical attributes serving as significant influencing factors. Ifdil argued that young adults often assess themselves based on their physical appearance, resulting in dissatisfaction and reduced self-confidence when their body image does not align with societal ideals.[4]

Moreover, the academic pressure faced by medical students—including continuous assessments, prolonged study hours, and limited time for recreation—can exacerbate psychological stress and negatively impact body image. Research by Vicennia et al. found that

a substantial proportion of medical students expressed body dissatisfaction despite having normal BMI values, highlighting the importance of cognitive and psychosocial components in body image formation.[5]

Given the multifactorial nature of body image and its potential determinants, this study aims to investigate the relationships between gender, physical activity, eating behavior, stress level, body mass index (BMI), and self-confidence with body image among medical students.

Methods

This study employed a quantitative, cross-sectional design involving 67 medical students enrolled at Universitas Negeri Gorontalo. A total population sampling method was utilized. Data collection was conducted between November and December 2024.

Data were collected using validated instruments: the Figure Rating Scale to measure body image; the Global Physical Activity Questionnaire (GPAQ) for assessing physical activity levels; the Dutch Eating Behavior Questionnaire (DEBQ) to evaluate restrained, emotional, and external eating patterns; a 24-hour dietary recall to assess nutritional intake; the Perceived Stress Scale (PSS-10) to measure stress levels; and the Rosenberg Self-Esteem Scale (RSES) to evaluate self-confidence. All instruments demonstrated acceptable psychometric properties, with significance values below 0.05 and Cronbach's alpha coefficients exceeding 0.70.

Ethical approval for this study was obtained from the Health Research Ethics Committee of Universitas Negeri Gorontalo (Approval Letter No. 242B/UN47.B7/KE/2024). Participants were informed about the study objectives and procedures, and written informed consent was obtained.

Data was analyzed using three stages: univariate analysis to describe the distribution of each variable; bivariate analysis using the Chi-square test to explore associations between independent variables and body image; and multivariate analysis using binary logistic regression to identify significant predictors. Odds ratios (OR), p-values, and 95% confidence intervals (CI) were reported for each predictor variable.

Result

Table 1 shows the majority of participants were female (79.1%). Most reported engaging in moderate levels of physical activity (68.7%) and exhibited moderate levels of self-confidence (52.2%). A normal body mass index (BMI) was observed in (58.2%) of respondents, while (53.7%) reported having a negative body image perception.

Table 1. Distribution of respondent frequencies based on gender, physical activity, eating behavior, stress level, body mass index, self-confidence, and body image (n=67)

Variable		Frequency (f)	Percentage (%)
Gender	Male	14	20.9
	Female	53	79.1
Physical activity	Low	16	23.9
	Moderate	46	68.7
	Severe	5	7.5
Eating behavior	*Restraint eating*		
	High	43	64.2
	Low	24	35.8
	Emotional eating		
	High	57	85.1
	Low	10	14.9
	External Eating		
	High	17	25.4
	Low	50	74.6
Stress level	Severe	34	50.7
	Low	11	16.4
	Moderate	22	32.8
Body mass index	Normal weight	39	58.2
(BMI)	Underweight	6	9.0
	Overweight	6	9.0
	Obesity	16	23.9
Self-confidence	High	32	47.8
	Moderate	35	52.2
	Low	0	0
Body image	Negative	36	53.7
	Positive	31	46.3

Table 2 demonstrated statistically significant associations between body image and physical activity ($p = 0.040$), self-confidence ($p = 0.018$), and BMI ($p = 0.001$). No significant associations were observed with gender, eating behaviors, or stress levels.

Table 2. Analysis of the relationship between body image and gender, physical activity, eating behavior, stress level, body mass index, self-confidence

Variable		Body image				Total (N=67)		*P-Value*
		Negative (n=36)		Positive (n=31)				
		n	%	n	%	N	%	
Gender	Male	7	10.4	7	10.4	14	20.9	0.753
	Female	29	43.3	24	35.8	53	79.1	
Physical activity	Low	13	19.4	3	4.5	16	23.9	
	Moderate	21	31.3	25	37.3	46	68.7	0.040*
	Severe	2	3.0	3	4.5	5	7.5	
Eating behavior	*Restraint eating*							
	High	23	34.3	20	29.9	43	64.2	0.957
	Low	13	19.4	11	16.4	24	35.8	
	Emotional eating							
	High	31	46.3	26	38.8	57	85.1	0.796
	Low	5	7.5	5	7.5	10	14.9	
	External Eating							
	High	12	17.9	5	7.5	17	25.4	0.107
	Low	24	35.8	26	38.8	50	74.6	
Stress level	Severe	17	25.4	17	25.4	34	50.7	
	Low	12	17.9	10	14.9	22	32.8	0.459
	Moderate	7	10.4	4	6.0	11	16.4	
Body mass index (BMI)	Normal weight	27	40.3	12	17.9	39	58.2	
	Underweight	5	7.5	1	1.5	6	9.0	0.001*
	Overweight	1	1.5	5	7.5	6	9.0	
	Obesity	13	19.4	3	4.5	16	23.9	
Self-confidence	High	22	32.8	10	14.9	32	47.8	
	Moderate	14	20.9	21	31.3	35	37.1	0.018*
	Low	0	0	0	0	0	0	

Chi-square analysis, *significant at $p < 0.05$

Table 3 shows multivariate logistic regression analysis which confirmed that BMI (OR = 1.766, p = 0.002, 95% CI [0.644–2.888]), self-confidence (OR = 0.311, p = 0.045, 95% CI [0.099–0.975]), and physical activity (OR = 1.966, p = 0.031, 95% CI [1.063–3.831]) were significant predictors of body image. The Nagelkerke R^2 value was 0.421, indicating a moderate explanatory power of the model.

Table 3. Logistic regression equation

Variable	Coefficient (ß)
Constanta	-3.511
Gender	-0.833
Physical activity	676
Eating behavior	
a. Restrain eating	-.0.970
b. Emotional eating	-1.350
c. External eating	508
Stress level	-1.140
Body mass index (BMI)	1.766
Self-confidence	-1.168

Discussion

The relationship between gender and body image among medical students

Although female students exhibited a slightly higher prevalence of negative body image compared to their male counterparts, the association was not statistically significant. This finding aligns with previous research suggesting that the uniform academic pressures and stressors experienced during medical training may attenuate gender-based differences in body image perception.[6]

The relationship between physical activity and body image among medical students

Moderate levels of physical activity were positively associated with body image perceptions. This is consistent with existing literature indicating that physical activity enhances body composition, increases self-efficacy, and reduces stress.[7] However, it is important to note that high-intensity exercise may prioritize performance outcomes over physical appearance, which does not necessarily lead to improved body satisfaction.[8]

The relationship between eating behavior and body image among medical students

Despite a substantial proportion of participants reporting high levels of restrained,

emotional, and external eating behaviors, none of these factors demonstrated a statistically significant relationship with body image.[9] These findings suggest that while eating behaviors may function as coping mechanisms or methods of dietary control, they do not directly influence body image. Previous studies have posited that such behaviors are more strongly related to affect regulation and are often mediated by body mass index and self-esteem.[10]

The relationship between stress levels and body image among medical students

No statistically significant association was identified between perceived stress levels and body image. This outcome may reflect the presence of adaptive coping strategies among medical students or the normalization of elevated stress within this academic environment.[11]

The relationship between body mass index and body image among medical students

Body mass index emerged as a strong predictor of body image. Students classified as obese exhibited the highest levels of body dissatisfaction.[12] Nonetheless, a notable number of students with normal BMI also reported a negative body image, underscoring that body perception is not solely determined by objective physical metrics but is heavily influenced by subjective ideals and internalized societal standards.[13]

The relationship between self-confidence and body image among medical students

The research findings indicated that among the 67 respondents, the majority exhibited moderate (52.2%) or high (47.8%) levels of self-confidence, with no participants reporting low self-confidence. Negative body image was predominantly observed among students with high self-confidence (22 respondents or 68.8%), whereas positive body image was more common in the moderate self-confidence group (21 respondents or 61.8%)—not 16.2%, as previously stated, suggesting a possible calculation error. The Chi-square test revealed a statistically significant association between self-confidence and body image ($p = 0.018$), indicating that self-perception is meaningfully related to individuals' body image evaluations.

This finding is supported by Clemmens, who reported a positive association between self-confidence and body image. Individuals with higher self-esteem are generally more inclined to perceive their bodies positively, regardless of their actual physical characteristics. However, the presence of respondents with high self-confidence yet negative body image suggests the possibility of cognitive distortions or social pressures that influence body perception independently of overall self-evaluation.[14]

Furthermore, a study by Veldhuis found that within high-pressure academic settings—such as medical schools—students tend to compare themselves against social ideals or their peers. This comparison may distort body image even when overall self-confidence remains relatively high. These findings highlight that body image is a more specific psychological

construct and should not be conflated with global self-esteem.[15]

According to the Body Image Investment Model proposed by Cash et al., self-confidence is one of several psychological domains that influence how individuals interpret and respond to their body image. Those who place a high personal or social value on appearance tend to integrate body image more centrally into their self-concept. Consequently, fluctuations in body perception can directly influence self-confidence, and conversely, shifts in self-confidence can impact body image evaluation.[16]

The limitation of this study is that the majority of respondents were female, with only 20.9% being male. This imbalance in the sample size may limit the generalizability of the research findings to the overall population of medical students.

Conclusion

Physical activity, self-confidence, and body mass index were identified as factors significantly associated with body image. Accordingly, students are encouraged to cultivate a positive body image by focusing on their individual strengths and uniqueness, participating in activities that enhance self-confidence, maintaining positive self-talk, and refraining from making unfavorable comparisons with others.

Conflicts of Interest

Nothing to declare

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References

1. Burychka D, Miragall M, Baños RM. Towards a comprehensive understanding of body image: Integrating positive body image, embodiment and self-compassion. *Psychol Belg*. 2021;61(1):356–68.
2. American Society of Plastic Surgeons. Plastic Surgery Statistics Report [Internet]. 2023 [cited 2025 July 1]. Available from: https://www.plasticsurgery.org/documents/News/Statistics/2022/plastic-surgery-statistics-full-report-2022.pdf
3. Mallaram GK, Sharma P, Kattula D, Singh S, Pavuluru P. Body image perception, eating disorder behavior, self-esteem and quality of life: a cross-sectional study among female medical students. *J Eat Disord.* 2023; 11(1):225.

4. Ifdil I. Hubungan kecemasan dan harga diri dengan body image remaja. *J Psikol.* 2015;11(2):78–85.
5. Vicennia Serly A, Sofian YE. Hubungan body image, asupan energi dan aktivitas fisik dengan status gizi. *JOM FK*. 2021;2(2):1–9.
6. Lemoine JE, Konradsen H, Lunde Jensen A, Roland-Lévy C, Ny P, Khalaf A. Factor structure and psychometric properties of the Body Appreciation Scale-2 among adolescents and young adults in Danish, Portuguese, and Swedish. *Body Image*. 2018; 26:1–9.
7. Bandura A. Social foundations of thought and action: A social cognitive theory. Englewood Cliffs: Prentice-Hall; 1986.
8. Hausenblas HA, Fallon EA. Exercise and body image: A meta-analysis. *Psychol Health*. 2006;21(1):33–47.
9. Van Strien T. Eating behavior, depression and anxiety in female students. *Appetite*. 2013; 65:3–8.
10. Linardon J, Mitchell S. Rigid dietary control, flexible dietary control, and intuitive eating: Evidence for their differential relationship to disordered eating and body image concerns. *Eat Behav*. 2017; 26:16–22.
11. Pritchard ME. The relationship among stress, self-esteem, and body image in college women. *J Coll Stud Psychother*. 2007; 22(1):43–61.
12. Alleva JM. Body image interventions: A meta-analysis. *Psychol Bull*. 2021; 147(1):22–48.
13. Higgins ET. Self-discrepancy: A theory relating self and affect. *Psychol Rev.* 1987; 94(3):319–40.
14. Clemmens DA. Self-esteem and body image in college students: The role of psychological resilience. *J Am Coll Health*. 2020; 68(7):689–95.
15. Veldhuis J. Body image and self-esteem in higher education: Effects of peer comparison and academic pressure. *J Health Psychol*. 2022; 27(4):835–49.
16. Cash TF, Smolak L, editors. Body image: A handbook of science, practice, and prevention. 2nd ed. New York: The Guilford Press; 2011.