KMAN PUBLISHING INSTITUTE
Journal Website

Article history:
Received 02 April 2024
Revised 15 June 2024
Accepted 20 June 2024
Published online 01 July 2024

Psychology of Woman Journal

Volume 5, Issue 3, pp 97-105

E-ISSN: 3041-8515

Examining the Mediating Role of Body Esteem in the Relationship Between Social Body Anxiety and Health-Oriented Lifestyle in Women with Obesity

Bita. Hajiebrahim Araghi[1], Mohammad Ali. Rahmani[2*], Flora. Rahimaghaee[3]

[1] PhD Student of Health Psychology, Department of Psychology, Tonekabon Branch, Islamic Azad University, Tonekabon, Iran
[2] Department of Clinical and Counseling Psychology, Tonekabon Branch, Islamic Azad University, Tonekabon, Iran
[3] Associate Professor, Medical Science Faculty, Tonekabon Branch, Islamic Azad University, Tonekabon, Iran

*** Corresponding author email address**: Rahmanima20@gmail.com

A r t i c l e I n f o

Article type:
Original Research

How to cite this article:
Hajiebrahim Araghi, B., Rahmani, M. A., & Rahimaghaee, F. (2024). Examining the Mediating Role of Body Esteem in the Relationship Between Social Body Anxiety and Health-Oriented Lifestyle in Women with Obesity. *Psychology of Woman Journal*, *5*(3), 97-105.
http://dx.doi.org/10.61838/kman.pwj.5.3.12

A B S T R A C T

Objective: The aim of this study was to examine the mediating role of body esteem in the relationship between social body anxiety and a health-oriented lifestyle in women with obesity.

Methods and Materials: The present study is applied in nature and belongs to the category of correlational designs, specifically structural equation modeling. The statistical population consisted of all women with obesity who visited obesity and beauty clinics in various regions of Tehran in 2023. The sample size was determined using Stevens' (1996) sample estimation method, with a total of 250 participants considered. Data were collected using the Health-Promoting Lifestyle Profile (HPLP) by Walker et al. (1987), the Social Physique Anxiety Scale by Hart et al. (1989), and the Body Esteem Scale by Mendelson et al. (2001). Data analysis was conducted using SPSS version 26 and AMOS version 24.

Findings: Pearson correlation results showed a significant relationship between social body anxiety, body esteem, and a health-oriented lifestyle. The results also indicated that social anxiety (β = -0.202, P = 0.033) had a significant negative effect on a health-oriented lifestyle, and body esteem (β = 0.285, P = 0.011) had a significant positive effect on a health-oriented lifestyle. Social anxiety (β = -0.379, P < 0.001) had a significant negative effect on body esteem. Additionally, the results showed that body esteem plays a mediating role in the relationship between social body anxiety and a health-oriented lifestyle in women with obesity, with an indirect effect of -0.1102.

Conclusion: Overall, the results indicate that body esteem significantly mediates this relationship. Specifically, social anxiety can impact a health-oriented lifestyle through its effect on body esteem. This suggests that changes in body esteem can alter the way social anxiety affects a health-oriented lifestyle. The negative indirect effect suggests that the relationship between social anxiety and a health-oriented lifestyle is inversely influenced by body esteem.

Keywords: *Body esteem, social body anxiety, health-oriented lifestyle, obesity.*

1. Introduction

In the past half-century, obesity has become a global epidemic, with estimates suggesting that over 1.5 billion adults are overweight. Approximately 300 million women are clinically obese (Kristiansen, 2023). In women, a Body Mass Index (BMI) of 25 to 29.9 is considered overweight, while a BMI of 30 and above is classified as obesity (Hrabe et al., 2017). Overweight in women is associated with heart disease, diabetes, and many cancers, which significantly impact women's health (Yuan et al., 2023). The evidence demonstrating the adverse effects of obesity on women's health is vast and undeniable. Obesity, particularly abdominal obesity, is central to metabolic syndrome and is strongly associated with polycystic ovary syndrome in women (Horenstein et al., 2021). Obese women are particularly susceptible to diabetes, which in turn increases the risk of cardiovascular diseases (Silva et al., 2022). Obesity significantly increases the risk of several major cancers in women, especially breast cancer or endometrial cancer (Brekalo, 2022). Therefore, promoting a health-oriented lifestyle in women with obesity is essential for maintaining their health.

National health policies should emphasize reducing unhealthy lifestyles. A health-oriented lifestyle is a multi-causal and multidimensional phenomenon that relates to collective behavioral patterns and can act as a barrier to health problems while ensuring individual health. This lifestyle encompasses various dimensions such as exercise, proper and improper nutrition, self-control, preventive behaviors, and more. The essence of a health-oriented lifestyle is the coherence in performing a set of health-related behaviors (Arıkan et al., 2024). A meta-analysis of studies conducted in 17 countries showed that nearly 60% of premature deaths could be attributed to unhealthy lifestyles, including smoking, excessive alcohol consumption, physical inactivity, poor diet, and obesity (Lima et al., 2020). In epidemiological studies, factors related to a health-oriented lifestyle, such as not smoking, moderate alcohol consumption, physical activity, and a healthy diet, have been associated with fitness and reduced obesity (Lima et al., 2020). Consequently, promoting a health-oriented lifestyle in women with obesity can lead to positive outcomes. Therefore, identifying the correlates of a health-oriented lifestyle in women with obesity appears to be necessary.

One of the correlates of a health-oriented lifestyle is social body anxiety. Social anxiety plays an important role in a health-oriented lifestyle (Zhang et al., 2022). Social body anxiety is a feeling of distress associated with an individual's perceived evaluation of their physical appearance (Silva et al., 2022). Social body anxiety stems from social anxiety, self-expression, and body image, and it is defined as the anxiety a person experiences when they perceive that others may evaluate their body negatively (Campos-Uscanga et al., 2022). Social body anxiety can begin at an early age. Between 40% and 50% of first and second graders experience social fears related to their body (Zartaloudi et al., 2023). As the body begins to change during puberty, this social anxiety can deepen, and being overweight or obese can exacerbate social body anxiety (Rounsefell et al., 2020). A review study by Rounsefell et al. (2020) showed that social body anxiety is associated with dieting or food restriction, binge eating, and healthy food choices (Rounsefell et al., 2020).

Although social body anxiety is related to a health-oriented lifestyle, this relationship is influenced by constructs that play a mediating role. One of these mediating variables is body esteem. Body esteem is an aspect of self-concept that is consistently associated with weight and includes the attitudes, evaluations, and emotions a person has about their body (Mills & Miller, 2007). Low body esteem has implications for health and a healthy lifestyle. Compelling evidence suggests that obesity increases the risk of low body esteem, particularly in obese women (Arıkan et al., 2024).

It is important to note that models can be shaped based on three sources: theories, existing research, logic, and researcher reasoning. Although model analysis is primarily used for theory testing, if a researcher intends to examine hypotheses with mediating relationships, they can develop a model or create a new model by combining several existing hypotheses or theories and testing it (Hrabe et al., 2017). Given the importance of obesity, the present study aims to examine the relationships among five latent variables: social body anxiety, body esteem, and health-oriented lifestyle, using the structural equation modeling technique. In this model, body esteem is considered a mediator between social body anxiety and a health-oriented lifestyle. Therefore, this research seeks to answer the question of whether body esteem mediates the relationship between social body anxiety and a health-oriented lifestyle in women with obesity.

PWJ
Psychology of Woman Journal
E-ISSN: 3041-8515

2. Methods and Materials

2.1. Study design and Participant

The present study is applied in nature, retrospective in terms of time, and belongs to the category of correlational designs, specifically structural equation modeling. The statistical population of this research included all women with obesity who visited obesity and beauty clinics in various regions of Tehran in 2023. In this study, to estimate the sample size, considering the type of research, Stevens' (1996) sample estimation method was used, which suggests a minimum sample size of approximately 15 subjects per predictor variable in correlational studies. Given the number of predictor variables in the present study, the sample size was estimated to be 240. To account for the potential incomplete completion of some questionnaires, 260 questionnaires were distributed among the research sample, and the responses were collected. Finally, after excluding incomplete questionnaires, the study continued with 250 participants. Due to the difficulty in accessing patient lists and the confidentiality of their information in obesity and beauty clinics, the sampling method was convenience sampling.

Inclusion criteria included single and married women aged 18 to 60 years who visited obesity and beauty clinics in Tehran, had a Body Mass Index (BMI) above 30, did not participate in other treatment programs, were interested in participating in the study, and provided informed consent to participate in the research.

Data were collected using a field method. For this purpose, during the spring and summer of 2023, the questionnaires were distributed among the sample group members. Due to the irregular visits of women with obesity to obesity and beauty clinics, the questionnaires were uploaded to the Google Forms web application, and the clinic's secretary was requested as a project collaborator to send the questionnaire link to participants and individuals with a file through the WhatsApp social network. To gain the participation of obesity and beauty clinics, the necessary permits were first presented to the technical supervisor, and then the research objectives were explained. After securing the technical supervisor's participation, the questionnaire completion link was distributed via the WhatsApp social network. It is worth noting that a cover letter was sent along with the link, and in this cover letter, participants were informed of the research objectives as much as possible to avoid bias. Participants were also assured that their information would be treated confidentially.

2.2. Measures

2.2.1. Health-Oriented Lifestyle

To assess the health-oriented lifestyle, the standard questionnaire by Walker et al. (1987) consisting of 52 items on a four-point scale ranging from never, sometimes, often, and always with scores of 1, 2, 3, 4, respectively, was used in the form of six subscales. In the study by Mohammadi Zeidi et al. (2011), the number of items in this scale was reduced from 52 to 49. Three questions were removed in their study from the original version due to low factor loadings. The items of each subscale include: Spiritual Growth and Self-Actualization (items 1 to 10); Health Responsibility (items 11 to 23); Interpersonal Relationships (items 24 to 30); Stress Management (items 31 to 33); Physical Activity and Exercise (items 34 to 42); and Nutrition (items 43 to 49). The total score of the 49 items represents the health-oriented lifestyle. The score range is between 49 to 196, with higher scores indicating a more favorable health-oriented lifestyle. In Iran, Mohammadi Zeidi et al. (2011) standardized this questionnaire, and the final internal consistency of this questionnaire was reported as 0.82 using Cronbach's alpha. In the present study, the validity of the questionnaire was confirmed through content validity and expert opinion (Khavari, 2023). To assess the reliability of the questionnaire, Cronbach's alpha was used, and the reliability of the questionnaire and its subscales was found to be above 0.7.

2.2.2. Social Body Anxiety

To assess social body anxiety, the Social Physique Anxiety Scale by Hart et al. (1989) consisting of 12 items on a five-point scale ranging from never, rarely, sometimes, often, and always with scores of 1, 2, 3, 4, 5, respectively, was used in the form of two subscales. The items of each subscale include: Comfort/Discomfort with Physical Appearance (items 1, 2, 5, 12); Expectation of Negative Evaluation by Others (items 3, 4, 6, 7, 8, 9, 10, 11). It should be noted that items 1, 8, and 11 were reverse-scored. The total score of the 12 items represents social body anxiety, with a score range between 12 to 60. Higher scores indicate higher social body anxiety. Scott et al. (2004) reported the temporal reliability of this test as 0.94 based on the test-retest method. Yousfi et al. (2009) studied the validity and factorial reliability of this scale among Iranian student populations. Based on the results of this factorial analysis conducted on data from a study of 237 students at Kermanshah University

PWJ
Psychology of Woman Journal
E-ISSN: 3041-8515

(108 girls and 129 boys), Yousfi et al. demonstrated the factorial structure of this scale well in both genders. In the present study, the validity of the questionnaire was confirmed through content validity and expert opinion (Charmaraman et al., 2021). To assess the reliability of the questionnaire, Cronbach's alpha was used, and the reliability of the questionnaire and its subscales was found to be above 0.7.

2.2.3. *Body Esteem*

To assess body esteem, the Body Esteem Scale by Mendelson et al. (2001) consisting of 23 items on a five-point scale ranging from never, rarely, sometimes, often, and always with scores of 1, 2, 3, 4, 5, respectively, was used in the form of three subscales. The items of each subscale include: Appearance Esteem (items 1, 6, 7, 9, 11, 13, 15, 17, 21, 23); Attribution Esteem (items 2, 5, 12, 14, 20); Weight Esteem (items 3, 4, 8, 10, 16, 18, 19, 22). It should be noted that items 4, 7, 9, 11, 13, 17, 18, 19, 21 were reverse-scored. The total score of the 23 items represents body esteem, with a score range between 23 to 115. Higher scores on this scale indicate higher levels of body esteem. The overall reliability of this scale was 0.81. A significant relationship was found between body esteem and self-esteem, which is evidence of the validity of this test. In Iran, the Cronbach's alpha coefficient of this scale was reported as 0.76, and for the subscales of appearance esteem, attribution esteem, and weight esteem, the Cronbach's alpha coefficients were 0.71, 0.79, and 0.76, respectively, in the study by Ariapourian and Shirzadi (2012). In the present study, the validity of the questionnaire was confirmed through content validity and expert opinion (Mahmood & Malik, 2022). To assess the reliability of the questionnaire, Cronbach's alpha was used, and the reliability of the questionnaire and its subscales was found to be above 0.7.

2.3. *Data Analysis*

In the present study, data analysis was performed using SPSS version 26 and AMOS version 24. The Kolmogorov-Smirnov test was used to check the normality of the variable distributions, and Pearson correlation, regression tests, and structural equations were used to test the hypotheses.

3. Findings and Results

In this study, 250 women with obesity who visited obesity and beauty clinics in Tehran in 2022 were examined. The participants had an average Body Mass Index (BMI) of 35.20 with a standard deviation of 3.76, within a range of 30.03 to 44.22. Most participants were in the age range of 31-40 years (87 participants, 34.8%), were married (152 participants, 60.8%), were unemployed (126 participants, 50.4%), and 114 participants (45.6%) had been dealing with obesity since their youth.

Descriptive information (mean, standard deviation, skewness, and kurtosis) of the variables social body anxiety, body esteem, and health-oriented lifestyle is reported in Table 1. The exogenous variable, social body anxiety, had a mean (standard deviation) of 42.75 (6.69). The mediating variable, body esteem, had a mean (standard deviation) of 54.06 (14.22). The endogenous variable, health-oriented lifestyle, had a mean (standard deviation) of 124.20 (15.78).

Table 1

Descriptive Statistics (Mean and Standard Deviation) of the Study Variables in Women with Obesity (N = 250)

Variable	Component	Mean	Standard Deviation	Range (Min-Max)	Skewness	Kurtosis
Social Body Anxiety	Comfort with Physical Appearance	14.69	2.77	7-20	-0.50	-0.17
	Expectation of Negative Evaluation	28.06	6.48	9-35	-1.02	0.34
	Total Social Body Anxiety Score	42.75	6.69	26-54	-0.76	-0.23
Body Esteem	Appearance	26.02	8.85	10-49	0.33	-0.28
	Weight	13.02	4.84	8-28	1.21	1.48
	Attribution	15.02	3.59	7-25	0.58	0.54
	Total Body Esteem Score	54.06	14.22	27-97	0.50	0.03
Health-Oriented Lifestyle	Spiritual Growth	29.58	6.31	15-40	-0.45	-0.67
	Health Responsibility	33.74	7.27	18-50	0.34	-0.51
	Interpersonal Relationships	21.11	3.49	12-27	-0.46	-0.27
	Stress Management	7.63	1.88	3-12	-0.31	0.11
	Physical Activity	15.56	3.83	9-24	0.34	-0.93
	Nutrition	16.56	3.28	8-23	-0.54	-0.30
	Total Health-Oriented Lifestyle Score	124.20	15.78	86-166	0.21	0.05

PWJ
Psychology of Woman Journal
E-ISSN: 3041-8515

Table 2 shows Pearson correlation information between social body anxiety, body esteem, and health-oriented lifestyle. According to the correlation matrix results, there was a significant negative relationship between social body anxiety with body esteem and health-oriented lifestyle in women with obesity (P < 0.001). Additionally, the components of social body anxiety, body esteem, and health-oriented lifestyle had moderate to strong correlations with the overall score of their respective main constructs.

Table 2

Correlation Matrix Between Research Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13
1	1												
2	0.81**	1											
3	-0.27**	-0.24**	1										
4	-0.56**	-0.57**	0.43**	1									
5	-0.66**	-0.64**	0.16**	0.67**	1								
6	-0.08	-0.07	0.09	0.35**	0.23**	1							
7	-0.59**	-0.55**	0.34**	0.83**	0.82**	0.55**	1						
8	-0.13**	-0.16**	0.38**	0.27**	0.07	0.02	0.39**	1					
9	-0.17**	-0.22**	0.08	0.06	0.18**	0.30**	0.24**	0.25**	1				
10	-0.11	-0.30**	0.09	0.05	0.09	0.06	0.04	0.34**	0.33**	1			
11	-0.15**	-0.31**	0.04	0.14**	0.07	0.20**	0.25**	0.33**	0.39**	0.27**	1		
12	-0.22**	-0.36**	0.16**	0.28**	0.11	0.24**	0.32**	0.03	0.33**	0.18**	0.28**	1	
13	-0.29**	-0.27**	0.13*	0.25**	0.06	0.13*	0.25**	0.08	0.08	0.23**	0.28**	0.01	1
14	-0.25**	-0.31**	0.24**	0.29**	0.03	0.26**	0.28**	0.62**	0.78**	0.63**	0.62**	0.49**	0.31**

1. Expectation of Negative Evaluation, 2. Total Social Anxiety Score, 3. Total Self-Control Score, 4. Appearance, 5. Weight, 6. Attribution, 7. Total Body Esteem Score, 8. Spiritual Growth, 9. Health Responsibility, 10. Interpersonal Relationships, 11. Stress Management, 12. Physical Activity, 13. Nutrition, 14. Total Health-Oriented Lifestyle Score

*p < .05, **p<0.01

In this study, multicollinearity was assessed using the tolerance and variance inflation factor (VIF) statistics. No multicollinearity was observed among the research variables (Table 3).

Table 3

Standardized Coefficient, Standard Error, and Significance Level of Observed Variables

Path	Standardized Coefficient	Standard Error	t-value
Social Anxiety			
Comfort with Physical Appearance	0.326	-	-
Expectation of Negative Evaluation	0.614	0.460	8.801
Body Esteem			
Appearance	0.811	-	-
Weight	0.849	0.042	13.564
Attribution	0.370	0.031	4.575
Health-Oriented Lifestyle			
Spiritual Growth	0.432	-	-
Health Responsibility	0.632	0.331	5.099
Interpersonal Relationships	0.538	0.143	4.820
Stress Management	0.620	0.085	5.069
Physical Activity	0.413	0.138	4.212
Nutrition	0.476	0.113	4.695

The results of the measurement model analysis are presented in Table 3. The significance of the regression weights for the measurement model variables—self-differentiation, critical thinking, emotional self-regulation, happiness, and marital satisfaction—indicates that all indicators are valid for their respective latent variables.

Fit indices (PCFI = 0.575, PNFI = 0.544, CMIN/DF = 2.576, RMSEA = 0.079, IFI = 0.909, CFI = 0.901, GFI = 0.911) indicate a good fit of the proposed model to the data.

PWJ
Psychology of Woman Journal
E-ISSN: 3041-8515

Therefore, the proposed model demonstrates an adequate fit. Based on the estimated indices, the results indicate that the structural model of health-oriented lifestyle in women with obesity, based on social body anxiety with the mediation of body esteem, has an adequate fit.

According to Table 4, the standardized coefficients of all paths and critical values in the proposed research model can be observed. The results show that social anxiety (β = -0.202, p = 0.033) had a significant negative effect on health-oriented lifestyle, and body esteem (β = 0.285, p = 0.011) had a significant positive effect on health-oriented lifestyle. Social anxiety (β = -0.379, p < 0.001) had a significant negative effect on body esteem.

Table 4

Standardized Coefficients of the Proposed Research Model Paths

Path	Standardized Coefficient	Standard Error	Critical Ratio	p-value
Social Anxiety ---> Health-Oriented Lifestyle	-0.202	0.010	-2.106	0.033
Social Anxiety ---> Body Esteem	-0.379	0.054	-4.692	< 0.001
Body Esteem ---> Health-Oriented Lifestyle	0.285	0.011	2.574	0.011

The results of the mediation relationships using the bootstrap test are shown in Table 5. To determine the significance of each mediation relationship and the indirect effect of the independent variable on the dependent variable through the mediator, the bootstrap method was used. The bootstrap results for the mediation paths of the proposed research model are presented in Table 5. As seen in Table 5, the lower confidence interval for body esteem as a mediating variable between social anxiety and health-oriented lifestyle in women with obesity is -0.2491, and the upper confidence interval is -0.0571. The confidence level for this interval is 95%, and the number of bootstrap resamples is 5000. Since zero is outside this confidence interval, the result is statistically significant. Therefore, body esteem has a mediating role in the relationship between social anxiety and health-oriented lifestyle in women with obesity, with an indirect effect of -0.1102. Therefore, social anxiety indirectly affects the health-oriented lifestyle of women with obesity through the mediation of body esteem.

Table 5

Bootstrap Results for Indirect Paths in the Proposed Model

Path	Indirect Effect	Standard Error	Lower Bound	Upper Bound	p-value
Social Anxiety ---> Health-Oriented Lifestyle via Body Esteem	-0.1102	0.0281	-0.2491	-0.0571	< 0.001

4. Discussion and Conclusion

The results obtained from the structural equations showed that social anxiety had a significant negative effect on health-oriented lifestyle in women with obesity (β = -0.202, p = 0.033). The results indicate that for every one-unit increase in social anxiety, the health-oriented lifestyle of women with obesity decreases by 0.20 units. This finding is consistent with the results of prior studies (Rounsefell et al., 2020; Silva et al., 2022; Zartaloudi et al., 2023). Social anxiety can have numerous negative impacts on the health-oriented lifestyle of women with obesity. This anxiety may lead to decreased self-confidence and increased stress, which can reduce women's motivation to follow a healthy lifestyle. Additionally, social anxiety can lead to social isolation and reduced social and physical activities, which can, in turn, lead to weight gain and further health problems (Silva et al., 2022). Social anxiety may also increase unhealthy behaviors such as emotional eating or consuming unhealthy foods as a way to cope with stress. These behaviors can lead to weight gain and further health problems. In general, social anxiety can create a vicious cycle in which anxiety and stress lead to unhealthy behaviors, which in turn increase anxiety and stress (Yuan et al., 2023).

Another result obtained from the structural equations showed that social anxiety had a significant negative effect on body esteem in women with obesity (β = -0.379, p < 0.001). The results indicate that for every one-unit increase in social anxiety, body esteem in women with obesity decreases by 0.35 units. This finding is consistent with the results of prior studies (Mills & Miller, 2007; Rounsefell et al., 2020; Zhang et al., 2022). Social anxiety can have significant negative effects on the body esteem of women

PWJ
Psychology of Woman Journal
E-ISSN: 3041-8515

with obesity. Social anxiety is typically associated with fear of judgment or negative evaluation by others, and it can lead to decreased self-confidence and negative attitudes toward one's body. This fear of judgment may cause women with obesity to feel that their bodies are unacceptable, leading to decreased body esteem. Women with social anxiety may avoid participating in social and group activities because they fear being judged by others (Hoying et al., 2023). This avoidance of social situations can lead to reduced social and supportive opportunities, which are essential for improving body esteem. Furthermore, social anxiety can lead to increased overall stress and anxiety, which may result in negative attitudes toward one's body (Hrabe et al., 2017). Social anxiety can also influence body-related behaviors. For example, women with social anxiety may avoid exercising in public places and instead engage in less physical activity and make unhealthy food choices. These behaviors can lead to weight gain and decreased body esteem. Additionally, social anxiety can reduce self-efficacy in women. Self-efficacy refers to confidence in one's ability to perform tasks and achieve goals (Campos-Uscanga et al., 2022). Women with social anxiety may feel that they cannot make positive changes in their lifestyle, leading to decreased body esteem. Overall, social anxiety can have many negative effects on the body esteem of women with obesity, leading to decreased self-confidence, negative attitudes toward the body, reduced physical activity, and unhealthy food choices (Rounsefell et al., 2020).

Another result obtained from the structural equations showed that body esteem had a significant positive effect on health-oriented lifestyle in women with obesity ($\beta = 0.285$, $p = 0.011$). The results indicate that for every one-unit increase in body esteem, the health-oriented lifestyle of women with obesity increases by 0.28 units. This finding is consistent with the results of prior studies (Campos-Uscanga et al., 2022; Rounsefell et al., 2020; Zhang et al., 2022). Women with obesity who have high body esteem generally feel better about their bodies, and this positive feeling can lead to improved health-oriented behaviors. These women may engage more in physical activities and exercise because they feel their bodies are worth caring for and paying attention to (Hrabe et al., 2017). These activities can lead to weight loss and improved overall health. Additionally, body esteem can help improve food choices. Women with obesity who have high body esteem may pay more attention to healthy and balanced nutrition and avoid unhealthy and high-calorie foods (Hoying et al., 2023). These healthy food choices can lead to weight loss and improved overall health. Body esteem can also contribute to improved mental health. Women with obesity who have high body esteem generally feel better about themselves, and this positive feeling can lead to reduced stress and anxiety (Zartaloudi et al., 2023). This reduction in stress and anxiety can lead to improved health-oriented behaviors and weight loss. Furthermore, body esteem can enhance self-efficacy (Campos-Uscanga et al., 2022). Women with obesity who have high body esteem generally feel they can make positive changes in their lifestyle, and this sense of self-efficacy can increase motivation and commitment to a health-oriented lifestyle. Overall, body esteem can have many positive effects on the health-oriented lifestyle of women with obesity, helping them achieve their health and weight loss goals (Zhang et al., 2022).

Finally, the results obtained from the structural equations showed that body esteem plays a mediating role in the relationship between social anxiety and health-oriented lifestyle in women with obesity, with an indirect effect of -0.1102. The results are consistent with the findings of prior studies (Campos-Uscanga et al., 2022; Silva et al., 2022; Zhang et al., 2022). Social anxiety can have significant effects on the health-oriented lifestyle of women with obesity. These effects can also be observed indirectly through body esteem. Social anxiety refers to the fear and concern of negative judgment by others in social situations (Zartaloudi et al., 2023). This anxiety can lead to avoidance of social situations and reduced physical activity, which can, in turn, lead to weight gain and obesity. Body esteem refers to the degree of satisfaction and respect a person has for their body. Women with higher body esteem generally have less concern about negative judgments from others and engage more in physical activities and health-oriented lifestyles (Hoying et al., 2023). Social anxiety can indirectly affect a health-oriented lifestyle through reducing body esteem. Women with higher social anxiety may have lower body esteem, leading them to pay less attention to physical activities and healthy eating (Rounsefell et al., 2020).

5. Limitations and Suggestions

This study has several limitations that should be acknowledged. First, the cross-sectional design of the study limits the ability to establish causal relationships between the variables. Additionally, the sample was limited to women with obesity who visited specific obesity and beauty clinics in Tehran, which may not be representative of the broader population of women with obesity. The reliance on self-

PWJ
Psychology of Woman Journal
E-ISSN: 3041-8515

reported data may also introduce bias, as participants might have underreported or overreported their behaviors and feelings. Finally, the study did not account for other potential confounding variables such as socioeconomic status, psychological comorbidities, or cultural factors that might influence social anxiety, body esteem, and health-oriented lifestyle.

Future research should consider employing a longitudinal design to better establish causality between social anxiety, body esteem, and health-oriented lifestyle. Expanding the sample to include a more diverse population, including men and individuals from different cultural backgrounds, would enhance the generalizability of the findings. Additionally, future studies should explore the role of other psychological factors, such as self-efficacy, body image flexibility, and social support, as potential mediators or moderators in the relationship between social anxiety and health-oriented lifestyle. Incorporating objective measures of lifestyle behaviors, such as physical activity trackers or dietary assessments, could also provide more accurate data and reduce the potential for self-report bias.

The findings of this study highlight the importance of addressing social anxiety and enhancing body esteem in interventions aimed at promoting a health-oriented lifestyle among women with obesity. Healthcare providers and mental health professionals should consider integrating psychological support, such as cognitive-behavioral therapy, with traditional weight management programs to address the psychological barriers that may hinder lifestyle changes. Additionally, public health initiatives should focus on creating supportive environments that reduce the stigma associated with obesity and promote positive body image, which could empower women to engage more actively in health-promoting behaviors.

Authors' Contributions

Authors contributed equally to this article.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

Acknowledgments

We would like to express our gratitude to all individuals helped us to do the project.

Declaration of Interest

The authors report no conflict of interest.

Funding

According to the authors, this article has no financial support.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

References

Arıkan, F., Kartöz, F., Karakuş, Z., Altınışık, M., Özer, Z., & Korcum Şahin, A. F. (2024). Body image and social appearance anxiety in patients with cancer undergoing radiotherapy: Across-sectional study. *BMC Psychol*, *12*(1), 363. https://doi.org/10.1186/s40359-024-01856-w

Brekalo, M. (2022). Longitudinal study of social anxiety symptoms and appearance rejection in predicting body dysmorphic symptoms: Appearance-based rejection sensitivity as a mediator. *Body Image*, *42*, 440-446. https://doi.org/10.1016/j.bodyim.2022.07.019

Campos-Uscanga, Y., Morales-Ortiz, A. V., Argüelles-Nava, V. G., Moreno Cortes, M. L., & Ramírez-Chang, L. A. (2022). Lifestyle, psychological well-being, and body mass index of indigenous women. *Archivos LatinoAmericanos De Nutricion*, *72*(1), 43-49. https://doi.org/10.37527/2022.72.1.005

Charmaraman, L., Richer, A. M., Liu, C., Lynch, A. D., & Moreno, M. A. (2021). Early Adolescent Social Media-Related Body Dissatisfaction: Associations with Depressive Symptoms, Social Anxiety, Peers, and Celebrities. *J Dev Behav Pediatr*, *42*(5), 401-407. https://doi.org/10.1097/DBP.0000000000000911

Horenstein, A., Kaplan, S. C., Butler, R. M., & Heimberg, R. G. (2021). Social anxiety moderates the relationship between body mass index and motivation to avoid exercise. *Body Image*, *36*, 185-192. https://doi.org/10.1016/j.bodyim.2020.11.010

Hoying, J., Terry, A., Kelly, S., & Melnyk, B. M. (2023). A cognitive-behavioral skills building program improves mental health and enhances healthy lifestyle behaviors in nurses and other hospital employees. *Worldviews Evid Based Nurs*, *20*(6), 542-549. https://doi.org/10.1111/wvn.12686

Hrabe, D. P., Melnyk, B. M., Buck, J., & Sinnott, L. T. (2017). Effects of the Nurse Athlete Program on the Healthy Lifestyle Behaviors, Physical Health, and Mental Well-being of New Graduate Nurses. *Nurs Adm Q*, *41*(4), 353-359. https://doi.org/10.1097/NAQ.0000000000000258

Khavari, M. (2023). The Effectiveness of Self-Compassion-Based Therapy on Health-Oriented Lifestyle and Mindfulness in Students With Psychological Distress. *Jarac*, *5*(5), 37-44. https://doi.org/10.61838/kman.jarac.5.5.5

PWJ
Psychology of Woman Journal
E-ISSN: 3041-8515

Kristiansen, M. V. (2023). Forcing an Effortless Stance: The Lived Body in Social Anxiety Disorder. *Psychopathology*, *56*(6), 430-439. https://doi.org/10.1159/000529100

Lima, R. A., de Barros, M. V. G., Dos Santos, M. A. M., Machado, L., Bezerra, J., & Soares, F. C. (2020). The synergic relationship between social anxiety, depressive symptoms, poor sleep quality and body fatness in adolescents. *J Affect Disord*, *260*, 200-205. https://doi.org/10.1016/j.jad.2019.08.074

Mahmood, S. A., & Malik, F. (2022). Impact of Instagram Usage on Young Women's Body Esteem: Mediating Role of Beauty Perception. *Pakistan Journal of Psychological Research*. https://doi.org/10.33824/pjpr.2022.37.3.21

Mills, J. S., & Miller, J. L. (2007). Experimental effects of receiving negative weight-related feedback: a weight guessing study. *Body Image*, *4*(3), 309-316. https://doi.org/10.1016/j.bodyim.2007.04.004

Rounsefell, K., Gibson, S., McLean, S., Blair, M., Molenaar, A., Brennan, L., Truby, H., & McCaffrey, T. A. (2020). Social media, body image and food choices in healthy young adults: A mixed methods systematic review. *Nutr Diet*, *77*(1), 19-40. https://doi.org/10.1111/1747-0080.12581

Silva, W. R. D., Teixeira, P. A., Marôco, J., Ferreira, E. B., Teodoro, M. A., & Campos, J. (2022). Relationship between Attention to Body Shape, Social Physique Anxiety, and Personal Characteristics of Brazilians: A Structural Equation Model. *Int J Environ Res Public Health*, *19*(22), 14802. https://doi.org/10.3390/ijerph192214802

Yuan, W., Chen, L., Wu, Y., Su, B., Liu, J., Zhang, Y., Chen, M., Ma, Y., Guo, T., Wang, X., Ma, T., Ma, Q., Cui, M., Ma, J., & Dong, Y. (2023). Sleep time and quality associated with depression and social anxiety among children and adolescents aged 6-18 years, stratified by body composition. *J Affect Disord*, *338*, 321-328. https://doi.org/10.1016/j.jad.2023.06.029

Zartaloudi, A., Christopoulos, D., Kelesi, M., Govina, O., Mantzorou, M., Adamakidou, T., Karvouni, L., Koutelekos, I., Evangelou, E., Fasoi, G., & Vlachou, E. (2023). Body Image, Social Physique Anxiety Levels and Self-Esteem among Adults Participating in Physical Activity Programs. *Diseases*, *11*(2), 66. https://doi.org/10.3390/diseases11020066

Zhang, Y., Zhang, N., & Xu, C. (2022). Implicit theories of body weight and engagement in healthy lifestyles among young adults: The mediating effect of self-control. *J Health Psychol*, *27*(12), 2797-2805. https://doi.org/10.1177/13591053211065102

PWJ
Psychology of Woman Journal
E-ISSN: 3041-8515