

ORIGINAL ARTICLE

Relationship between Body Image and Psychological Well-being in Patients with Morbid Obesity

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ABSTRACT

Background: Morbid obesity is rising around the world. It can cause unpleasant appearance and body image. Most of the studies have aimed to evaluate the psychopathology of overweight and obesity and paying attention to mental well-being in morbid obese individuals is rare. Therefore, this study aimed to assess the relationship between body image and psychological well-being in morbid obese patients.

Methods: This cross-sectional study, using simple random sampling method, was done on 124 morbid obese patients who referred to obesity clinic in Shiraz from 2016 to 2017. The data were collected by body image index and psychological well-being questionnaire. Results were analyzed using descriptive statistics, Pearson correlation coefficient test, ANOVA, and Regression analysis.

Results: The results showed a significant relationship between body image and psychological well-being ($r=0.43$) ($P<0.001$), and between the total score of the body image and all the subscales of psychological well-being except autonomy and purpose in life ($P<0.05$). There was also a significant relationship between the total score of psychological well-being and all the subscales of body image ($P<0.05$). However, there was no significant difference between the mean scores of the body image and those of psychological well-being in different categories of body mass index (BMI) ($P>0.05$).

Conclusion: Final results indicated that body image defects caused by obesity could lie in negative psychological well-being in all aspects. This study can promote health clinicians' knowledge in supporting of mental status of obese individuals. It is suggested that preventing and supporting intervention should be performed as effective methods for encountering and coping with psychological effects of obesity.

KEYWORDS: Body image, Morbid obesity, Psychological

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INTRODUCTION

Morbid obesity, as a multifactorial and complex metabolic disease,¹ is defined as a Body Mass Index (BMI) of more than 40 kg/m² or more than 35 kg/m² associated with co-morbidities.² The prevalence of morbid obesity due to lifestyle changes has had a rising trend around the world including America and Europe, and is gradually placed at the top of the list of diseases threatening human health.³ According to the World Health Organization (WHO), more than 1.9 billion people suffer from overweight and 600 million from obesity.⁴ In Iran, the national statistics revealed that the prevalence of overweight, obesity and morbid obesity was respectively 28.60%, 10.80%, and 3.40%; these figures in the men and women living in urban and rural areas are, respectively, 37%, 48%, 46.70%, and 35.50%.⁵

There are many physical, economic, social, familial, emotional and behavioral consequences of obesity. One of the most common psychological problems is the defect in the body image.⁶ Body image has three dimensions: cognitive, subjective and behavioral. The cognitive aspect is related to the perception of their physical appearance (weight, size and body shape); the subjective dimension is related to satisfaction or concern and anxiety about the appearance; and the behavioral aspect is associated with avoidance of exposure as well as anxiety and discomfort.⁷ Although body image has several dimensional structures, it is often defined as a degree of satisfaction about the appearance (size, shape and general appearance).⁸ Several studies have shown that the perceived difference between appearance and ideal body image can lead to considerable dissatisfaction;⁹ this can often be seen in problems such as depression and obesity.¹⁰ In this regard, the results of a study showed that obesity increased the risk of depression in patients¹¹ and reduced their body image; it also led to body dissatisfaction, lack of attractiveness, and body dysfunction.¹² People with negative body image are more likely to have an eating disorder and more

frequently suffer from negative emotions such as depression, isolation, loss of self-confidence, obsession with weight loss.¹³ Obesity is also a risk factor for anxiety disorders.¹⁴ In general, a body image is closely linked to human mental states, so it has impacts on all aspects of human personality.¹⁴ On the other hand, destructive effect of obesity on the health-related quality of life and mental disorders has been shown by many researches.¹⁵⁻¹⁸ Moreover, an epidemiological study has shown that those with overweight and obesity have more physical and emotional disorders compared to those with normal weight.¹⁹ Physical disorders include the experience of the pain and suffering and the poor use of physical abilities for the happiness and life enjoyment. Moreover, emotional disorder is a condition in which an individual feels depressed, disappointed, anxious, and useless.¹⁶⁻¹⁸ On the contrary, the psychological well-being is continuous emotional and cognitive assessment of personal life that leads to experiencing pleasant emotions, life satisfaction, and low levels of negative excitements.²⁰ Despite the importance of psychological well-being, most of the studies have investigated the psychopathology such as anxiety, depression, low self-confidence, and eating disorders^{18,19,21} in the overweight and obese patients (25<BMI<35) or normal weight persons (18.50 <BMI<24.90),^{16,17,22,23} but attention to the mental health such as psychological well-being has been rare, especially in morbid obesity.

Furthermore, morbid obesity is a stigmatized condition, and these patients face with social exclusion, community judgment and discrimination in many areas of their lives,^{24,25} so they experience social isolation, lack of confidence, life dissatisfaction, and negative excitements.²⁶ Probably because of social isolation in these patients, they have been neglect by the researchers; also, they do not like to participate in the studies. Regarding the increasing rate of obesity and morbid obesity in Iran and the limited attention paid to morbid obese people and their mental

health in Iranian studies, the present study aimed to investigate the relationship between body image and psychological well-being in morbid obese patients.

MATERIALS AND METHODS

A cross-sectional design was conducted from October 2016 to April 2017. The target population of this study included all people with morbid obesity who referred to Obesity Clinic of Shiraz Mother and Child Hospital. The sample size was based on previous studies,²² descriptive studies ($r=0.31$), and ($r=0.14$), $\alpha=0.05$ and by using statistical software Power SSC; the sample size was estimated about 130. The samples were selected by simple random sampling method based on table of random numbers. Since the researchers had a population of 130 which is a three digit number, they used the first three digits of the numbers listed on the chart based on the patient records number in the clinic. They closed their eyes and randomly pointed to a spot on the chart. Then, the researchers assumed that they selected a digit in the first column. After that, they moved to the next number. We continued down the chart to reach the sufficient sample size ($n=130$). Inclusion criteria were individuals with Body Mass Index (BMI) >35 and from both genders (male and female), and adult age more than 18 Y/O, having literacy, and good mental and physical condition, and willingness to participate in the study. Patients who were diagnosed with serious chronic diseases or severe illness/injury (physical or mental), were taking medications affecting weight, and had a current or past severe psychiatric disorder were excluded from the study.

The study data were collected by a form including demographic characteristics, such as gender, age, weight, height, BMI, and two scales of the body image test and psychological well-being questionnaire-short form.

After receiving research approval, the researcher referred to obesity clinic for 2-3 days a week. After introducing herself and the aim of her study to the patients, she asked them to sign informed consents if they were

interested in participating in the study. Then, the researcher asked questions about their demographic information, and measured their weight and height. The researcher explained how to complete the two scales and asked them to complete them about themselves. At the end, only 124 of 130 patients answered the the questions completely and entered the final analysis.

Weight, Height and BMI Measurement

To measure weight, the researcher placed a standard and adjusted weight scale on a flat and firm surface. She asked the person to take off his shoes and heavy clothes (jacket, coat) and stand on the middle of the weight scale; then, the researcher recorded the subject's weight.

To measure height, a meter was used perpendicular to a flat and rigid wall. The person was asked to stand without shoes with a light cloth and loose dress, and his back attached on the meter. The patient's back, hip and heel contacted the wall. Then, we asked him to stick his/her legs and look straight, while the assessor flattened his hair with a ruler and recorded his height.²⁷ Also we calculated BMI by weight in kilograms divided by height in meters squared:²⁸

$$BMI = \frac{Weight (Kg)}{Height^2 (m^2)}$$

Body Image Inventory

The body image inventory was developed by Fisher.²⁹ This inventory includes 46 items in four subscales: head and face (12-items), upper extremities (10-items), lower extremities (6-items), and attitude to the overall features of the body (18-items). In addition, it is scored using a 5-point Likert scale ((1=very dissatisfied, 2=dissatisfied, 3=moderate, 4=satisfied, 5=very satisfied). To get a score of the body image, the items' scores are combined together. A score of 46 in this test represents a disorder and that higher than 46 (maximum 230) shows no disorder.³⁰

The body image test was validated in 99 high school students in four groups by

test-retest reliability. In doing so, the Persian version of this instrument was given to four groups of students under standardized conditions. The second administration occurred 10 days after the first. It should be noted that no interventions, which might have affected the stability of the characteristics being measured, were performed between the first and second administrations. Then, the Pearson correlation coefficient (r_{xy}) was used to determine the extent to which the two sets of scores were correlated. The Persian version of body image tool showed high test-retest reliability for the first-year students ($r=0.81$), second year students ($r=0.84$), third-year students ($r=0.87$), and total students ($r=0.84$) and the Cronbach's alpha was reported 0.93.³¹ In another study, the Cronbach's alpha was reported as 0.96.³² In our study, the Cronbach's alpha coefficient was found 0.94.

Psychological Well-being Questionnaire-Short Form

This 18-item tool was designed by Ryff to evaluate six aspects of psychological well-being. This instrument is scored through a 6-point Likert scale (1=very disagree, 6=very agree) and consists of six subscales: Autonomy (3-items), Environmental Mastering (3-items), Personal Growth (3-items), Positive Relations (3-items), Purpose in life (3-items), and Self-Acceptance (3-items). Items of 3, 4, 5, 9, 10, 13, 16, and 17 are reverse-scored. Each aspect is scored from 3 to 18 and the total scale is scored from 18 to 108 so that higher scores correspond to greater psychological well-being. Inter-factor correlations among four of the first-order psychological well-being constructs were sufficiently high (>0.80) to warrant a parsimonious representation as a second-order general well-being dimension.³³

This questionnaire was validated in 330 students at different levels in Iran. The factor analysis using varimax rotation showed that four factors had more than 1 eigen value. In total, four factors explained 50.37% of the variance. Correlation between Short Form 18-item questionnaire and the original scale

fluctuated from 0 to 0.89. In addition, in this study, the Cronbach's alpha coefficient was reported 0.73 for the total score, and for the factors it was 0.67, 0.72, 0.65, and 0.75, respectively.³⁴ In our study, the Cronbach's alpha coefficient was reported 0.73.

The study approval had been obtained from Vice-Chancellor for research of Shiraz University of Medical Sciences, but it does not have an ethical code. Besides, the subjects were verbally assured that participation in the study would be voluntary and participation/non participation would not affect their treatment and care. Written informed consents were also obtained from the obese patients. In this form, the purpose of the study as well as the confidentiality conditions was described for the participants. It should be mentioned that the participants were free to discontinue their participation in the study at any time.

The study data were analyzed using the Statistical Package for the Social Sciences (SPSS) for windows (version 18). Descriptive statistics (Mean, M; and Standard Deviation, SD, frequency) were used to summarize the demographic characteristics. Moreover, Pearson correlation coefficient was used to determine the relationships between the test scores. It should be noted that the correlation coefficients of -1.00 , 0 , and $+1.00$ represent perfect negative correlation, no relationship, and perfect positive correlation, respectively. The higher the absolute value of the coefficient, the stronger the relationship will be.³⁵ Also, the one-way analysis of variance (ANOVA) and linear Regression were used. Besides, a P value of 0.05 was considered as statistically significant.

RESULTS

The research population included 124 morbid obese people, who referred to obesity clinic of Mother and Child Hospital during 2016 and 2017 in Shiraz, Iran. Most of the samples had high school education (33.90%), were female (89.50%), were housewives (64.50%), and lived in Shiraz (69.35%).

Mean and standard deviation of age, height, weight and body mass index of participants were 39.65±10.61, 162.12±8.86, 116.78±23.07 and 44.23±6.29, respectively.

According to the results, the subjects were 17 to 67 years old and their mean age was 39.65±10.61 years old. According to descriptive statistics, the samples had a mean weight of 116.78±23.07 kg, mean height of 162.12±8.86 cm, and the BMI of 44.23±6.29 kg/m² (Table 1). The data showed a normal distribution by One-Sample Kolmogorov-Smirnov Test (P=0.20).

The relationship between satisfaction about the body image and psychological well-being in individuals with morbid obesity was calculated through Pearson correlation test which was significant (r=0.43) (P<0.001) and this relationship was positive.

There was no significant difference between the mean scores of the body image and different categories of BMI and also between the mean scores of psychological well-being and different categories of BMI (P>0.05) (Table 2).

There was also a significant and positive relationship between the total score of the body image and all the subscales of psychological well-being except for autonomy and purpose in life (P<0.05) (Table 3).

There was also a significant and positive relationship between the total score of psychological well-being and all the subscales of body image (P<0.05) (Table 4).

The results showed that age and gender were not a significant predictor of psychological well-being and the body image (P>0.05) (Table 5).

Table 1: Demographic Characteristics of the Participants (N=124)

Variable		N (%)
Gender	Male	13 (10.50)
	Female	111 (89.50)
Marital status	Single	18 (14.51)
	Married	98 (79.04)
	Divorced	7 (5.65)
	Widowed	1 (0.80)
City	Shiraz	86 (69.35)
	Others	38 (30.65)
Education level	< Diploma	39 (31.50)
	Diploma	42 (33.90)
	Associate Degree	15 (12.10)
	Bachelor	21 (16.90)
	Master	7 (5.60)
Job	House wife	80 (64.50)
	Employee	20 (16.10)
	Business man	16 (12.90)
	Unemployed	8 (6.50)
Total		124 (100)

Table 2: The difference between the mean scores of the body image and psychological well-being in different categories of BMI

Test	BMI Categories	Mean±SD	df	F	P value*
Psychological well-being	35-40	67.82±12.78	2	1.43	0.24
	40.01-50	69.75±11.36			
	>50	73.81±10.63			
The body image	35-40	140.02±29.74	2	1.09	0.33
	40.01-50	133.18±26.32			
	>50	129.87±15.62			

*The one-way analysis of variance (ANOVA)

Table 3: The relationship between body image among morbid obesity with six subscales of psychological well-being

Index		Psychological well-being Subscales					
		Environmental mastery	Self-acceptance	Positive relations with others	Purpose in life	Personal growth	Autonomy
Body Image	r	0.36	0.50	0.28	-0.050	0.33	0.17
	P*	<0.001	<0.001	0.001	0.51	<0.001	0.05

*Pearson correlation coefficient test

Table 4: The relationship between psychological well-being among morbid obesity with four subscales of body image

Index		Subscales of body image			
		Head and Face	Upper extremities	Lower extremities	Attitude to the overall features of the body
Psychological well-being	r	0.43	0.34	0.18	0.49
	P*	<0.001	<0.001	0.04	<0.001

*Pearson correlation coefficient test

Table 5: The regression analysis of psychological well-being and the body image based on age and gender

Dependent variable	Predictors Variable	β	t	df	f	P value*
Body image	Age	0.01	14.60	122	0.02	0.88
	Gender	0.15	-1.72	122	2.98	0.08
Psychological well-being	Age	0.08	0.89	122	0.80	0.37
	Gender	0.05	-1.94	122	3.80	0.05

*Linear Regression

DISCUSSION

The results of this study revealed a significant positive relationship between the body image satisfaction and psychological well-being in patients with morbid obesity; our hypothesis was confirmed. This finding implies that the more satisfied one is with his/her body image, the more likely it is that he/she will experience higher or better psychological well-being. It means that body image defects caused by obesity could be related to negative psychological well-being. This finding is consistent with the results of a descriptive study that has proven this kind of positive and direct relationship between the two variables.³⁶ But another study showed that obese girls could have body dissatisfaction but had good psychological well-being, so they tended to be more extraverted, have more close friends and receive greater family support.³⁷ The reason for the difference in the results of this study with the present study could be the difference in the studied samples (type and number) and the method used.

Due to the positive relationship between the body image and psychological well-being in the present study, other study findings also showed that dimensions of the body image are more detrimental compared to the psychological well-being of overweight and obese women, partly by encouraging the adoption of controlled regulation for enrollment in obesity treatment.³⁸ In this regard, the study results showed that for dissatisfaction with the body image and eating disorders, both psychological and medical treatments of obesity are addressed to improve the psychological well-being.³⁹ Since obesity is a threat to emotional well-being, it is positively correlated with some mental disorders such as depression and anxiety caused by a defect in the body image.⁴⁰

Our results indicated no difference between the mean scores of the body image in different categories of BMI. But some researchers in their study on the relationship between satisfaction and the body image and BMI in obese people found a one-way

significant relationship, showing that BMI was significantly correlated with negative body image, and overweight and obese participants reported significantly higher levels of negative body image than did normal and underweight participants.⁴¹ It is related to type of the present study's samples that had BMI more than 35; since when the body weight is greater than a certain amount, body appearance becomes unpleasant and the level of dissatisfaction is the same in all of the morbid obesity categories.

According to the findings of the present study, a significant relationship was found between body image and all the subscales of psychological well-being except for autonomy and purpose in life and vice versa. This finding was in the same line with that of the study on undergraduate students' psychological well-being status in Urmia University.⁴² Also, the results of another study showed that people with abnormal weight in aspects of psychological well-being, especially environmental mastery and personal growth, had a more undesirable condition in comparison with those who had a normal weight.²⁰ Morbid obesity has negative effects on mental health such as mental image of the body and obesity is a disturbing factor for well-being. Our results also showed the relationship between body image satisfaction and psychological well-being in people with morbid obesity.

Also, the role of confounding variables (age and gender) was evaluated and the results showed that age and gender were not significant predictors of psychological well-being and the body image. This finding was consistent with a part of the results of a cross-sectional study indicating that there was no significant relationship between the body image and gender, but age could be one of the main factors in decreasing satisfaction in the body image.⁴³ On the contrary, another study found that satisfaction of boys is more than girls.⁴⁴ These differences could be related to the difference in the type of the studied samples because our samples were in adult age and fairly homogeneous.

There were some limitations in the present study. Importantly, the current study was performed only in Shiraz on a small sample size of morbid obese people, so the results are not generalizable to other cities and other types of obesity. Therefore, it is recommended that future studies should be done more extensively in other urban and rural areas and in other groups of the society with larger sample size. Another limitation was that males were more than females. It was related to more prevalence of obesity in women in real world and also the fact that men were less willing to participate in the study and complete the scales.

Despite the limitations, this study improves the understanding of psychological outcomes related to obesity in some factors such as self-acceptance and positive relationships with others. It has shown that well-being is a type of internal feeling, so if a person accepts him/herself, he/she can have good psychological well-being in his/her life. Also, this study aimed to investigate the relationship between the body image and psychological well-being in morbid obese patients. It is suggested that other studies in the same field should be conducted on the different age groups such as obese adolescence.

On the other hand, one of the common problems in morbid obese people is changing their size and shape, which can cause many psychological disorders that affect the appearance dissatisfaction. Therefore, further studies on the effect of supporting and psychological training of these patients by health care providers are recommended. In this regard, through evaluation of such indexes as body image, status, psychological well-being and life satisfaction, nurses and psychologists, as the important members of the health care team, can provide community-based care to the patients with abnormal weight (under or overweight).

CONCLUSION

Since internalization of negative body image,

especially in the upper and lower extremities, is related to negative relationship, self-acceptance, and personal growth, interventions that focus on modifying negative attitudes of morbid obese patients about themselves might help the individuals overcome the psychological difficulties.

This study can prove helpful in promoting health clinicians' knowledge, clinical pathways, service provision, healthcare expenditures, and public health policy knowledge concerning a holistic approach in supporting mental status of obese individuals and improving their health, as well. Also, the present study can be the basis of future research in the health care groups and provide community-based education and care. Therefore, we emphasize the improvement of the public and health care providers' awareness of how to reduce the psychological consequences.

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