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The effect of body satisfaction on female sexual life after bariatric surgery: a follow-up study

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ABSTRACT

Aim: Discomfort with body shape is common among individuals with obesity and has effects on their sexual life. We aimed to investigate the effects of bariatric surgery on the body satisfaction and sexual life of women in this study.

Material and Method: The study consisted of 63 female patients who were aged between 20 and 55. Pre-operative psychiatric evaluations of the candidates were conducted and Hamilton Anxiety Scale , Hamilton Depression Scale, Arizona Sexual Experiences Questionnaire and Body Shape Questionnaire were used. Psychiatric evaluations of the patients were re-evaluated in the first year after surgery.

Results: The mean age was 35.4±8.6 years. While 87.3% of the participants had moderate-severe anxiety about the appearance of their bodies before the operation, 57.1% described problems in their sexual life. After the operation, 63.5% of the participants stated that they did not have any concerns about their body appearance, and 73% stated that they did not have any problems in their sexual life. The BSQ-34 scale score was found to be higher in those with an Arizona score of 11 and above before the operation ($p=0.045$; $p<0.05$). The results of the correlation analysis indicated that a positive ($r=0.257$) correlation was found between the pre-operative ASEX score and the BSQ34 scale score ($p<0.05$). The positive correlation between ASEX and BSQ34 scale score was also observed after the operation ($p<0.05$).

Conclusion: Our study showed that body dissatisfaction caused by obesity negatively affected sexual life and that increased satisfaction after bariatric surgery made positive contributions to sexual life.

Keywords: Sexual life, body satisfaction, bariatric surgery

INTRODUCTION

Obesity is an important public health problem that is increasing in prevalence all over the world and that reduces the quality of life. In addition to physical diseases, such as diabetes, hypertension, or respiratory system diseases, many psychiatric diseases such as depression, anxiety, sleep disorders, and sexual dysfunctions also impair the psychosocial functionality of individuals with obesity (1,2). From a sexual life point of view, which is an important area in people's lives, it is thought that conditions such as deterioration in body appearance, decrease in physical activity capacity, and decrease in the level of sex hormones in individuals with obesity may affect sexual life negatively (3,4). It has also been shown that obesity negatively affects sexual function by causing the person to feel ugly and dissatisfied with body image (5,6). Body image disorders accompanying obesity can contribute to the development of anxiety, depression, and low self-esteem and cause them to make negative evaluations about sexuality. In the literature, it has been reported that 56% of the women with obesity do not have a regular and satisfying sexual life and that more importantly, 23% avoid sex (7).

Although options to aid weight loss such as diet, pharmacotherapy, and exercise are recommended in the treatment of obesity, the results may not be satisfactory, especially in patients with morbid obesity. For this reason, bariatric surgery has been used as an effective method for weight loss in recent years (8). In addition to an average of 61.2% of body weight loss with this method, it has been shown that losing weight reduces all kinds of mortality and increases the quality of life in the long term (9). Many studies have shown that bariatric surgery also contributes to weight loss, sexual function, and quality of life. Changes in sex

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hormone levels and a decrease in depressive complaints are considered just two of the conditions that improve sexual life in both genders (10-13). On the contrary, there are studies indicating that rapid weight loss may have negative effects on sexuality and that the sexual life of people with excess skin after surgery is negatively affected (14).

Considering the literature, we can see that the effects of surgical techniques on sex hormones and sexual life are frequently studied. However, the scarcity of studies on body satisfaction, which is an important area, and its effect on sexuality, and the accompanying conflicting results draw attention. Considering the more frequency of female patients than male patients who presented to the surgery department, our study was planned to evaluate the contribution of bariatric surgery to sexuality in female patients through body image and satisfaction.

MATERIAL AND METHOD

The study was carried out with the permission of Balıkesir University Faculty of Medicine Clinical Researches Ethics Committee (Date: 14.04.2021, Decision No: 2021-105). All procedures were carried out in accordance with the ethical rules and the principles of the Declaration of Helsinki.

Sexually active female patients who were aged between 20 and 55 and presented to the general surgery outpatient clinic for bariatric surgery between 2020 and 2021 were included in the study. Women with a history of menstrual irregularity were not included in the study. Sixty-five female patients were selected among these patients by using the random sampling method. Psychiatric evaluations of the candidates were done before the surgery by a clinician and written consent was obtained from those who did not have psychopathology preventing the surgery. The participants were applied a socio-demographic data form, which was created by the researchers, the Hamilton Anxiety Scale (HAMA), the Hamilton Depression Scale (HAMD), the Arizona Sexual Experiences Questionnaire-Female Form, and the Body Shape Questionnaire (BSQ-34). Psychiatric evaluations of the patients were done for a second time in the first year after surgery. Two of the participants could not be reached, and therefore the scales were re-administered to 63 female patients.

The Socio-demographic Data Form

This form, which was prepared by the researcher, included questions about the participants' background and medical information, such as age, gender, marital status, height/weight, previous psychiatric illness, chronic illness, and the medications used.

The Hamilton Depression Scale (HAMD)

The Hamilton Depression Scale (HAM-D) was published by Max Hamilton in 1960 (15). It consists of 17 items that question the symptoms of depression in the past week. The highest score is 53. The scores are interpreted as follows: 0-7, no depression; 8-13, mild depression; 14-18, moderate depression; 19-22, severe depression; 23 and above severe depression. The Turkish validity and reliability study of the scale was carried out by Akdemir et al. (16)

The Hamilton Anxiety Scale (HAMA)

This scale (HAM-A) was developed by Hamilton in 1959 to determine the severity of anxiety (17). It consists of 14 items that evaluate the physical and psychic symptoms of anxiety. The evaluation is done between 0 and 4 points according to the severity of symptoms. The total score from the scale is interpreted as follows: 0-5, normal; 6-14, mild; 15 and above, severe anxiety. The Turkish reliability and validity study was carried out by Yazıcı et al. (18).

The Arizona Sexual Experiences Scale (ASEX)

The ASEX scale was developed in 2000 by McGahuey, Gelenberg, Laukes, Moreno, and Delgoda to evaluate disorders in sexual functions. It is a Likert-type evaluation scale consisting of five questions and separate forms for males and females. Each question is scored from 1 to 6 and a maximum of 30 points can be obtained. Low scores indicate a satisfying sexual response, while high scores indicate the presence of sexual dysfunction. In the validity and reliability study of the scale for Turkey, Cronbach's alpha values of internal consistency and reliability were found as 0.89 and 0.90, respectively, and its validity in distinguishing sexual dysfunction was proven (19) . In their study, the cut-off value was found as 11, and in our study, it was evaluated that those who got 11 and above from the scale had sexual problems.

The Body Shape Questionnaire (BSQ-34)

The BSQ-34 questionnaire was developed by Cooper and Taylor in 1987 to measure body shape concerns among women (20). The survey consists of 34 questions, each of which is scored between 1 and 6, and the highest score that can be obtained is 204. It shows that the higher the score obtained is, the higher the body dissatisfaction of the person is. The validity and reliability study of the Turkish version was carried out by Akdemir in 2012. The test-retest reliability result of the questionnaire that was adapted to our country was found to be r=0.81, Cronbach's alpha value for internal consistency was 0.96, and the reliability coefficient value was 0.88(21) . People under 80 points considered as not anxious about body shape, 80-110 slightly, 111-140 moderately and above 140 points thinks severely anxiety about body shape.

Statistical Analysis

The SPSS (Statistical Package for the Social Sciences) 25.0 software package was used for statistical analysis of the data. Categorical measurements were summarized as numbers and percentages, and continuous measurements as mean and standard deviation values (median and minimum-maximum where necessary). Shapiro-Wilk test was used to determine whether the parameters in the study showed a normal distribution. Mann-Whitney U test was used for the parameters that did not show a normal distribution. Wilcoxon signed ranks test was used to examine the differences between the pre-operative and post-operative values of the scale scores. Spearman's Rho test was used to analyze the correlations between the scales. In all tests, the statistical significance level was taken as 0.05.

RESULTS

A total of 63 female patients participated in the study, and the mean age was 35.4±8.6 years. While 90.5% of the participants were not diagnosed with any psychiatric diseases, 6 were using pharmacotherapy due to a diagnosis of anxiety disorder and were in remission under medication. The BMI value was determined as 44.3±3.6 before the operation. While 87.3% of the participants had moderate-to-severe concerns about the appearance of their bodies before the operation, 57.1% described problems in the sexual area. After the operation, 63.5% of the individuals stated that they did not have any concerns about their body appearance, and 73% stated that they did not have any problems in their sexual life (**Table 1**). While 2 of our patients had a mild level of anxiety about their body shape before the operation, it increased to a moderate level after the operation. At the same time, these 2 patients stated that although they did not have a sexual problem before the operation, they had problems in the sexual area after the operation.

Considering the mean scale scores of the patients, the post-operative BMI (p<0.001) values and the HAMA (p<0.001), HAMD (p<0.001), BSQ34 (p<0.001), and ASEX (p<0.001) scale scores were lower than the pre-operative values (p<0.05) (**Table 2**). When the groups were analyzed as two groups in terms of defining and not defining sexual problems, it was found that those with an Arizona score of 11 and above pre-operatively had a higher BSQ34 score (p=0.045; p<0.05). The HAMA scale scores were found to be higher in patients with an Arizona score of 11 and above post-operatively (p=0.014; p<0.05) (**Table 3**).

Table 1. Distribution of participants according to pre- and post-operative scale scores

	Frequency (n)	Percentage (%)
Pre-op BSQ34		
No worries at all	1	1.6
Slightly	7	11.1
Moderately	36	57.1
Severely	19	30.2
Pre-op ASEX		
<11	27	42.9
>11	36	57.1
Post-op BSQ34		
No worries	40	63.5
Slightly	21	33.3
Moderately	2	3.2
Severely	-	-
Post-op ASEX		
<11	46	73.0
>11	17	27.0

Table 2. Comparison of the pre-and post-operative scale scores

	Pre- operative	Post- operative	p
	Mean±sd	Mean±sd	
BMI	44.3±3.6	30.6±3.4	<0.001**
HAM-A	5.0±4.8	2.3±2.8	<0.001**
HAM-D	3.96±3.5	1.86±2.1	<0.001**
BSQ34	129.2±19.7	81.9±13.3	<0.001**
ASEX	12.5±5.3	8.3±4.1	<0.001**

* p<0,05, **p<0,001, Wilcoxon signed ranks test, BMI: Body mass index
HAM-A: Hamilton anxiety scale, HAM-D: Hamilton depression scale
BSQ34: Body shape questionnaire, ASEX: The Arizona sexual experiences scale

Table 3. Evaluation of the scale scores of the groups according to the ASEX score

	Pre-operative Arizona			Post- operative Arizona		
	<11	>11	p	<11	>11	p
BMI	45.4±4.6	43.4±2.3	0.214	30.9±3.7	29.9±2.2	0.525
HAMA	4.63±5.6	5.33±4.1	0.303	1.69±2.4	3.82±3.2	0.014*
HAMD	3.11±3.1	4.61±3.7	0.098	1.47±1.7	2.88±2.7	0.063
BSQ34	124.1±7.1	133.1±20.9	0.045*	79.6±10.8	88.2±17.3	0.107

* p<0,05, **p<0,001, Mann-Whitney U test, BMI: Body mass index, HAM-A: Hamilton anxiety scale, HAM-D: Hamilton depression scale, BSQ34: Body shape questionnaire

When the results of the correlation analysis were examined, a positive (r=0.257) correlation was found between the pre-operative ASEX score and the BSQ34 scale score (p<0.05). It was observed that the positive correlation between ASEX and BSQ34 scale score continued after the operation (p<0.05) (**Table 4**).

Table 4. Correlation between ASEX scores and BMI and other scales

	Pre-operative ASEX		Post- operative ASEX	
	r	p	r	p
BMI	-0.098	0.444	-0.166	0.194
HAMA	0.208	0.102	0.324**	0.009
HAMD	0.135	0.292	0.349**	0.005
BSQ34	0.257*	0.042	0.297*	0.018

* p<0,05, **p<0,001, Spearman's rho test, BMI: Body mass index, HAM-A: Hamilton anxiety scale, HAM-D: Hamilton depression scale, BSQ34: Body shape questionnaire

There was a moderate positive correlation between the pre-operative BSQ34 scale score and the HAMA (r=0.340) and HAMD (r=0.371) scale scores (p<0.05) (**Table 5**).

Table 5. Correlation between BSQ-34 and other scale scores

	Pre- operative BSQ34		Post-operative BSQ34	
	r	p	r	p
BMI	-0.091	0.480	-0.216	0.089
HAMA	0.340**	0.006	-0.194	0.128
HAMD	0.371**	0.003	-0.092	0.475
ASEX	0.257*	0.042	0.297*	0.018

* p<0,05, **p<0,001, Spearman's rho test, BMI: Body mass index, HAM-A: Hamilton anxiety scale, HAM-D: Hamilton depression scale, ASEX: The Arizona sexual experiences scale

DISCUSSION

In addition to weight loss, the main purpose of obesity treatment is to reduce obesity-related morbidity and mortality. Studies have shown that as dissatisfaction with body image increases, depressive symptoms also increase, and quality of life decreases, and it is also associated with a decrease in the individual's self-esteem (22). Considering studies on body image in individuals with obesity, it is seen that BMI has a significant effect on body dissatisfaction, and comparison of obese groups with non-obese groups causes more body dissatisfaction in these individuals (23). In addition, body dissatisfaction has been found to be higher in surgical candidates than in individuals with obesity treated with non-surgical methods (24). In a study, 73% of the surgical candidates stated that they were not satisfied with their bodies (25). Similarly, in our study, the rate of worrying about one's body was found to be moderate and severe at a rate of 87%, and the level of dissatisfaction was correlated with anxiety and depression scores. After surgery, approximately 63% of the patients stated that they were not worried about their bodies, and a significant decrease was found in their BSQ-34 scores. Two of our patients who had mild anxiety before the operation stated that their problems both in body shape and in the area of sexual life increased after the operation. Mento et al. (26) stated in their review that there was no change in the body image of people after surgery and that the discomfort felt from excess weight and negative body image before surgery was replaced by discomfort from excessive skin sagging after surgery. For this reason, it is thought that further studies are needed to evaluate other factors which include excess skin and cause individuals to maintain their negative perceptions.

It is also reported in studies that a significant part of the quality of life of individuals is related to sexual health and that there is a decrease in sexual satisfaction due to obesity. Women with obesity reported significant impairment in most areas of sexual function, including sexual desire, arousal, lubrication, orgasm, and satisfaction compared to healthy controls. Although the observed sexual dysfunction was associated with BMI, it was not completely attributed to the presence of anxiety or depression (27). This suggested that apart from physiological changes (especially the change in sex hormone levels), other psychological factors such as body image and body satisfaction that would affect sexual function were also important. In our study, this rate was 57%, and more than half of the patients complained about sexual dysfunction. When the participants were divided into two groups with and without sexual dysfunction, there was no significant difference in anxiety and depression scores. However, it was observed that body image concerns were significantly higher in the group that had sexual dysfunction compared to the group that did not. This finding was evaluated as supportive of the study by Çaynak et al. (28), which showed that body image had a significant effect on sexual life.

In a 1-year post-operative follow-up study examining the effect of bariatric surgery, significant reductions in depression and sexual pain levels and significant improvements in sexual desire, arousal, lubrication, and total sexual function scores were reported (12). In our study, 73% of the people stated after surgery that there was no problem in their sexual life. In their study, Mariano et al. (29) reported a decrease in physical and emotional difficulties, improvement in sexual functions, and an increase in the frequency of sexual practice after surgical treatment.

One of the important findings of our study was that the positive relationship we found between body satisfaction and sexual life in the pre-operative evaluation remained significant in the post-operative period, as well. In the literature, an increase in body shape satisfaction has been reported in those who have undergone weight loss surgery(30). In the review by Ivezaj and Grilo, research on body image, perception, and satisfaction after bariatric surgery was systematically reviewed, and findings from both cross-sectional and longitudinal studies showed overall improvements in body image following bariatric surgery. In addition, it has been reported that eating pathologies such as binge eating and night eating seem to be associated with greater post-operative body image dissatisfaction(31). Although studies on sexual life and body dissatisfaction are relatively few, it is also known that areas, such as sexual relationships, marital satisfaction, and social functionality, were positively affected by weight loss and improvement in body image(32). In this sense, our study supports that the body satisfaction of individuals is an important factor in terms of sexuality and sexual experiences.

However, although patients are generally more satisfied with their post-operative body shape, it is not clear how much their new body shape differs from what they idealize. Wee et al. (33) reported that 91% of morbidly obese participants who were candidates for bariatric surgery were willing to have the operation to reach their "dream weight" even if there was a risk of death. Munoz et al. (34), on the other hand, reported that unrealistic expectations of "idealized body shape" occur as a result of rapid weight loss in the early post-operative period. Gaudrat et al. (35) stated body satisfaction in the first year after the operation as the main factor predicting surgical satisfaction. Hult et al. (36), on the other hand, associated increased self-esteem after surgery with surgical satisfaction. However, in this study, the fact that body satisfaction and sexual dysfunctions were not explicitly questioned suggested that these two issues could be evaluated within weight loss, increased close relationship with the partner, and self-esteem among the participants.

Limitations of the Study

There are some limitations of our study. The inclusion of only female patients in our study prevents its generalization to the population; therefore, further studies including male patients are needed. In addition, the fact that the results of the study were obtained in a relatively short follow-up (12-month results) and that the subtitles of sexual experiences were not evaluated in detail were also considered as limitations.

CONCLUSION

Our study shows that there is a relationship between body satisfaction and sexual quality of life both pre-operatively and post-operatively and that bariatric surgery has a positive contribution to both areas. We need further studies to evaluate the possible mediator role of body satisfaction on sexual life.

ETHICAL DECLARATIONS

Ethics Committee Approval: The study was carried out with the permission of Balıkesir University Faculty of Medicine Clinical Researches Ethics Committee (Date: 14.04.2021, Decision No: 2021-105).

Informed Consent: All patients signed the free and informed consent form.

Referee Evaluation Process: Externally peer-reviewed.

Conflict of Interest Statement: The authors have no conflicts of interest to declare.

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Author Contributions: All of the authors declare that they have all participated in the design, execution, and analysis of the paper and that they have approved the final version.

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