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The effects of bariatric surgery on sexual life, depression and quality of life in women

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ABSTRACT

Aims: Sexual dysfunction negatively affects women's biological, psychological and social aspects of life, reducing their quality of life. In this study, we aimed to investigate the effects of bariatric surgery (BS) on sexual life, depression and quality of life in women.

Methods: This prospective study was conducted at Medistate Hospital and İstanbul Medipol University Çamlıca Hospital between December 2022 and March 2023. Female sexual function index (FSFI) total score and FSFI subgroups (desire, arousal, hydration, orgasm, satisfaction, pain), Beck anxiety inventory (BAI) and Beck depression inventory (BDI) were compared in before and after BS.

Results: The mean age and body mass index (BMI) of the subjects were 32.59±3.92 years and 33.44±3.18, respectively. BS led to significant improvement in total FSFI score ($p<0.001$) and all sexual domains. Results found a statistically significant association between BS andimprovement in total BDI score in women ($p<0.001$). There was statistically significant association between BS andimprovement in total BAI score in women ($p<0.001$).

Conclusion: Our findings show the benefits of BS in improving sexual life and quality of life, at least for the first three months postoperatively.

Keywords: Bariatric surgery, obesity, quality of life, sexual functioning, female sexual function index

INTRODUCTION

Obesity is one of the most important health problems in the current era.[1] The effects of obesity on different aspects of human life have been proven. The previous findings show that women are more affected by obesity than men. Obesity negatively affects depression, sexual life and quality of life in women more than men.[2] Obesity also affects healthcare expenditures, as shown in a systematic review that has assessed the costs of obesity between 0.7 and 2.8% of the healthcare budget of a given country.[3]

Sexuality isretarded as a basic function of humans involving emotional, cognitive and physiological factors, which has a close relationship with the health state and quality of life.[4-6] Likewise, various medical problems can have an undeniable potential impact on sexual health and some psychological processes affecting sexual function and the development of various sexual dysfunctions play the determining role.[7]

The quality of life (QoL) as one of the important outcomes of chronic diseases has attracted the attention of researchers and specialists in recent year.[8,9] It has also been clear that obesity has negative clinical outcomes on the physical and psychological aspects of the quality of life, especially in those with severe obesity.[10] The World Health Organization (WHO) has defined the QoL as individuals understanding of their position in life, related to their cultural context and environmental value systems and related to their goals, standards and interests.[11] Obese women show more significant dysfunction in most dimensions of QoL than those with normal weigh.[12] There is a stronger relationship between obesity and different dimensions of QoL in women than in men and obese women have a lower quality of life, happiness and physical and mental health than men.[2] Depression is one of the most common mental diseases, which is characterized by symptoms such as dysthymia, fatigue, feelings of guilt and worthlessness, thoughts of suicide and death and sleep and appetite disorders. There is a well-established relationship between obesity and depression.[13] Obese women are diagnosed with depression and anxiety disorder approximately twice as much as obese men.[2]

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Although it is possible to lose weight using non-surgical methods, 66% of the individuals regain their lost weights within a time period of 24 months. Since comorbidities associated with obesity mostly result in premature deaths and cause epidemics, surgery has become the first choice in the treatment of morbid obesity.[4,5] Bariatric surgery is the only treatment modality which leads to nearly 15% weight loss in long term.[6] The most recent estimate (2016) of bariatric procedures provided by the American Society of Bariatric and metabolic surgeons found that the total number of procedures performed in the United States is 216,000.[7]

When mortality, morbidity, cost-effectiveness, patient's satisfaction and weight loss rates are taken into consideration, laparoscopic sleeve gastrectomy (LSG) is one of the most frequently preferred surgical procedures.[8] The other most preferred methods after LSG are as follows: Laparoscopic Roux-en-Y, Gastric Bypass (LRYGB), Laparoscopic Adjustable Gastric Band (LAGB) and Biliopancreatic Diversion with Duodenal Switch (BPDS).

One of the most effective treatments for patients with obesity is Bariatric Surgery (BS) because it helps obtain and keep weight loss exceeding 30% in the long term.[14] It should be noted that the BS's role is beyond the weight loss mentioned above, which includes improving medical conditions, particularly dyslipidemia,hypertension and diabetes mellitus.[4] The increasing number of evidence indicates that BS also improves sex hormones, fertility and health-related quality of life.[14]

This study has three main objectives: 1) to analyze the effect of BSon depression, 2) to determine if BS improves sexual function and 3) to determine the effect of BS on QoL.

METHODS

The Ethics Committee of İstanbul Medipol University approved this prospective study (Date: 24.11.2022, Decision No: 1017) Ninety-seven women participated in this study between December 2022 and March 2023. All procedures were carried out in accordance with the ethical rules and the principles of the Declaration of Helsinki.

The effects of the surgery were investigated to determine whether there was a difference in the third month before and after the 5 portBS sleeve gastrectomy. All patients(18 years of age and older), who underwent laparoscopic sleeve gastrectomy between December 2022 and March 2023were eligible. All patients were operated on by 1 of 4 bariatric surgeons of the same practice group in centers.The Female Sexual Function Index (FSFI), whose validity and reliability study was conducted in Turkey, was used to collect the data. Differences in FSFI total score and FSFI subgroups (desire, arousal, hydration, orgasm, satisfaction, pain), Beck Anxiety inventory (BAI) and Beck Depression inventory (BDI) were compared.

The inclusion criteria were: (1) the woman between the ages of 18 and 48. The exclusion criteria were: (1) pregnant women; (2) diabetes, hypertension, hematological problems and systemic diseases,absence of thyroid dysfunction.

The Turkish version of the FSFI was used to measure sexual dysfunction in women.15 We included six domains, including desire (the desire to have sexual experience), arousal (having interest in sexual relations before stimulations), lubrication, orgasm (reaching orgasm following arousal), satisfaction and pain calculated based on the patients self-report in the FSFI score. The six domains of the scale items are desire (2 questions), arousal (4 questions), orgasm (3 questions), lubrication (4 questions), satisfaction (3 questions) and pain (3 questions). The total FSFI score was the sum of all scores obtained in all six domains. A higher score indicates improved sexuality.

The BDI and BAI are 21-item inventory assessing the symptoms of depression and anxiety, respectively. The total score may range from 0 to 63. Hisli[16] and Durak[17] assessed the reliability and validity of the Turkish version of these surveys.

Statistical Analysis

The Kolmogorov-Smirnov test was conducted to study the normality. Mean and standard deviations (SD) were calculated to study each continuous variable. The Wilcoxon Signed-Rank test was performed to study the difference between the two groups. SPSS v22 was used for statistical analyses. A value of $p < 0.05$ was accepted as statistically significant. To calculate the sample size with the GPower 3.1 program, two groups' total mean was measured based on the Mann-Whitney test with a power of 95%, effect size of 50% and 0.05 type 1 error for at least 92 patients.[18]

RESULTS

This study included ninety-seven age-matched(32.59±3.92) and body mass index (BMI)-matched (33.44±3.18,) women. **Table 1** shows descriptive statistics of study parameters.

Table 1. Descriptive statistics of study parameters (n=97).

Study parameters	Median (range) mean±SD
Age	33 (24-41) 32.59±3.92
BMI	33 (31-48) 33.44±3.18,
Desire	4.2 (0.6-6) 3.98±1.29
Arousal	4.2 (0.9-6) 4.20±1.15
Lubrication	3.6 (1.2-6) 3.72±1.20
Orgasm	3.6 (0.8-6) 3.49±1.13
Satisfaction	3.2 (0-6) 3.29±1.22
Pain	3 (0-6) 3.04±1.66
FSFI total	23.3 (10.6-33) 23.16±4.56
BDI total	13 (2-63) 21.38±15.96
BAI total	9.5 (0-41) 11.62±9.24

SD, Standard deviation; BMI, Body mass index: FSFI; Female Sexual Function Index, BDI, Beck depression inventory; BAI, Beck anxiety inventory

Table 2 shows a comparison of two groups on the study parameters. There was a statistically significant difference between two groups in regard to desire, lubrication, orgasm, satisfaction and pain as FSFI subgroups (p<0.001).

Table 2. Comparison of before and after surgery groups

Study parameters	Before surgery (n=97) (range) mean±SD	After surgery (n=97) (range) mean±SD	p value
Desire	(0.6-6) 3.44±1.22	(3-5.6) 4.54±1.12	<0.001
Arousal	(0.9-6) 4.05±1.1	(3-5.7) 4.36±1.18	0.079
Lubrication	(1.2-6) 3.27±0.95	(3-5.7) 4.18±1.26	<0.001
Orgasm	(0.8-5.6) 3.14±1.01	(2-5.7) 3.83±1.15	<0.001
Satisfaction	(0-5.6) 3.03±1.13	(0-5.6) 3.56±1.26	0.003
Pain	(0-5.6) 2.59±1.34	(0-5.8) 3.51±1.18	<0.001
FSFI total score	(10.6-24.8) 19.5±2.93	(22-32.8) 26.83±2.5	<0.001
BDI total score	(15-63) 35.82±9.34	(2-11) 6.93±1.78	<0.001
BAItotal score	(10-41) 19.55±6.09	(0-9) 3.69±2.74	<0.001

N, number of subjects; all variables tested by a Wilcoxon Signed-Rank test

What is clear is that BS has had a significant positive effect on the quality of life of the study participants. In some parameters, the scores have increased tenfold. We see a significant decrease in anxiety and depression scores after BS.

Figure 1 shows the frequency of FSFI categories before and after BS groups.

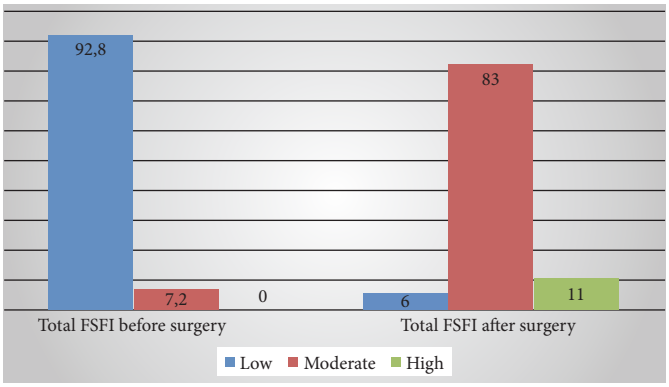

Figure 1. Frequency of FSFI categories in before and after BS groups

Figure 2 shows the frequency of BDI and BAI categories before and after BS groups.

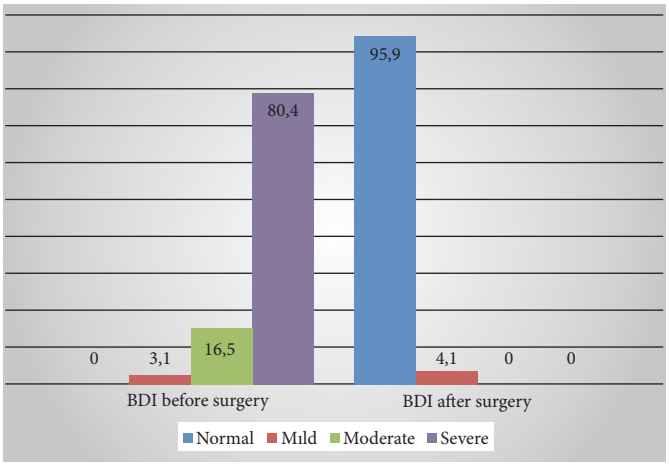

Figure 2. Frequency of BDI and BAI categories in before and after BS groups

DISCUSSION

Obesity has turned into a common disease.[19,20] Obese women are more affected by the adverse effects of obesity than men. For this reason, women, especially young women, seek treatment with profound and long-term effects. BS is the only treatment method for sustainable weight loss.[21] Since many obese people seek bariatric surgery, it is necessary to conduct studies to publish the expected results in these patients. Patients who plan for BS expect to achieve significant weight loss after the surgery by improving their health condition, general welfare, QoL and weight loss.[22]

Little information about the extent to which patients' expectations of weight loss after surgery are met has been published. The current study focuses on the effects of BS on QoL, sexual ability and depression in obese women before and after BS. After BS, women explained how weight loss improved their quality and sexual life. The mean overall FSFI score in 97 women (mean age of 32 years) increased from 19.5 before BS to 26.83 3 months after the operation. Depression has also significantly decreased in women after BS. The mean overall BDI score decreased from 35.82 before bariatric surgery to 6.93. Also, the mean overall BAI score decreased from 19.55 before bariatric surgery to 3.69.

According to several previous studies on sexual function after BS, sexual function significantly improved.[8,21-28] Improving sexual life has been associated with increased quality of life and decreased depression.

Chericket al.[8] have reported a significant improvement in depressive symptoms, quality of sexual life and self-esteem for the first three and six months postoperatively. Gao et al.[21] have stated improvements in female sexual function in obese patients after BS but not in women with pelvic floor disorders. Oliveira et al.[22] have reported improvements of sexual function effectively in women with obesity after BS. Bond et al.[27] have showed a resolved sexual impairment in many women after BS. Lohet al.[28] have reported a significant improvement in total FSFI score and all sexual domains except pain among women with obesity after BS in a systematic review and meta-analysis. The positive effect of BS on sexual function in the present study is in line with previous works.

Obese women are more exposed to discrimination, leading to lower self-esteem and increased anxiety and depression.[29] Imposing a stereotype of beauty with a slim body by the media is another issue that increases the feeling of social rejection in obese people and negatively affects their quality of life of these people.[30] Such facts are the main factors causing the high prevalence of depression and anxiety in these people. One of the most important reasons for people to undergo BSis to increase the QoL by increasing self-esteem and reducing anxiety and depression.[31]

Sierżantowicz et al.[10] have reported that the health-related QoLbenefit persists for a longer time, at least a 9-year follow-up after BS. According to Vieira et al.[31], BS improved the quality of life in women of reproductive age, reduced comorbidities and improved their sexual experience in emotional and physical fields.Silva et al.[32] state that patients undergoing BS show improved psychological conditions after weight loss. Małczaket al.[33] have compared different BS's to see their effects on health-related quality of life (HRQoL). Gastric bypass may and sleeve gastrectomy improve HRQoL. According to the long-term analysis, bariatric intervention improves HRQoL more than non-surgical interventions. According to Temel et al.[26] BS almost led to positive changes in the patients' psychosocial life and, consequently, their sexual life. The results published in the literature are consistent with the results of this study. According to these results, obese women are recommended to undergo BS to improve their quality of life.

The main limitation of this study is the lack of follow-up on sexual satisfaction and QoL of women after BS in the long-term period. Most studies recorded long-term weight regain.[34-36] The other limitation of this study is its relatively small sample size. Providing a comprehensive study on Turkish obese women for evaluation of BS effects on quality of life and sexual functionality is one of the most important strengths of this study.

CONCLUSION

The participants in our study expressed that QoL and sexual satisfaction improved after the surgery, as confirmed by reduced depression levels. However, there are suspicions about the long-term sustainability of these positive effects. Our findings are significant since they meet future healthcare needs in this rapidly increasing number of patients.

ETHICAL DECLARATIONS

Ethics Committee Approval: The study was conducted in accordance with the Declaration of Helsinki and approved by the Ethics Committee (Date: 24.11.2022, Decision No: 1017) for studies involving humans.

Informed Consent: Written informed consent was obtained from the patient participating in this study.

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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