

Evaluation Of Morbid Obese Patients In Terms Of Sexual Dysfunctions: A Cross-Sectional Study

Morbid Obez Hastaların Cinsel İşlev Bozuklukları Açısından Değerlendirilmesi: Kesitsel Bir Çalışma

Bülent Yaprak^{1*}, İbrahim Şahin², Bahri Evren², Lezzan Keskin³, Lale Gönenir Erbay⁴

1. Turgut Ozal University Malatya Training and Research Hospital, Internal Medicine Department, Malatya, Turkey

2. Inonu University, Faculty of Medicine, Department of Endocrinology, Malatya, Turkey

3. Turgut Ozal University Malatya Training and Research Hospital, Department of Endocrinology, Malatya, Turkey

4. Inonu University, Faculty of Medicine, Department of Psychiatry, Malatya, Turkey

ABSTRACT

Aim: Obesity is a risk factor for sexual dysfunction. The aim of this study was to determine the frequency of sexual dysfunction in patients diagnosed with morbid obesity.

Methods: The patient group included in the study consisted of 78 morbidly obese patients with BMI \geq 40 kg/m² and 68 healthy individuals with normal BMI. The data were obtained by using the sociodemographic information form filled by the participants, Beck anxiety scale, Beck depression scale and Golombok Rust Sexual Satisfaction Inventory.

Results: Obese individuals were found to have sexual dysfunction compared to individuals with normal body BMI (p<0.05). When the Golombok Rust subscale scores of obese men were compared to those of normal-weight individuals, a significant deterioration was found in all subscale scores, including frequency, communication, satisfaction, avoidance, touch, impotence and premature ejaculation. In addition, the anxiety and depression scores of obese individuals were shown to be higher than those of normal-weight individuals (p<0.05).

Conclusion: Morbidly obese individuals should be evaluated in terms of sexual functions. We believe that regulating obesity treatment, including possible treatment for sexual dysfunction, will increase the success rate and enhance the quality of life for patients.

Key Words: Sexual dysfunction, Depression, Morbid obesity, Anxiety, Stress

ÖZ

Amaç: Obezite cinsel işlev bozukluğu için bir risk faktörüdür. Bu çalışmanın amacı morbid obezite tanısı almış hastalarda cinsel işlev bozukluğu sıklığını saptamak amaçlanmıştır.

Yöntemler: Çalışmaya dahil edilen hasta grubu için BKl \geq 40 kg/m² olan 78 morbid obez hasta birey ve normal BKl değerine sahip 68 sağlıklı birey oluşturmuştur. Veriler, katılımcılar tarafından doldurulan sosyodemografik bilgi formu, Beck kaygı ölçeği, Beck depresyon ölçeği ve Golombok Rust Cinsel Doyum Envanteri kullanılarak elde edilmiştir.

Bulgular: Obez bireylerin normal vücut BKl'sına sahip bireylere göre cinsel işlev bozukluğu yaşadığı saptanmıştır (p<0.05). Obez erkeklerin Golombok Rust alt ölçek puanları normal kilolu bireylerinkilerle karşılaştırıldığında, frekans, iletişim, memnuniyet, kaçınma, dokunma, iktidarsızlık ve erken boşalma gibi tüm alt ölçek puanlarında anlamlı bir bozulma bulundu. Ayrıca obez bireylerin anksiyete ve depresyon puanlarının normal kilolu bireylere göre daha yüksek olduğu gösterilmiştir (p<0.05).

Sonuç: Morbid obez bireyler cinsel işlevler açısından değerlendirilmelidir. Olası cinsel işlev bozukluğu tedavisi de dahil olmak üzere obezite tedavisinin düzenlenmesinin hastaların başarı oranını artıracığına ve hastaların yaşam kalitesini artıracığına inanıyoruz.

Anahtar Kelimeler: Cinsel işlev bozukluğu, Depresyon, Morbid obezite, Anksiyete, Stres

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*Corresponding Author: Bülent Yaprak, Turgut Ozal University, Malatya Training and Research Hospital, Internal Medicine Department, Malatya, Türkiye, Phone: 0506 256 78 64 e-mail: dr_bulentyaprak@hotmail.com

ORCID : 0000-0001-5592-9755

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INTRODUCTION

Obesity is a chronic condition characterized by a rise in body fat tissue. Although the high amount of calories consumed daily and the low amount of energy consumed are regarded as the primary reasons for obesity, it is well known that obesity is caused by a mix of genetic and environmental factors (1, 2). The body mass index is used to determine the degree of obesity (BMI). BMI is calculated by dividing body weight in kilograms by height in centimeters squared. Obesity is described as a BMI more than 30, while morbid obesity is classified as a BMI greater than 40. Obesity, the frequency of which has been increasing in recent years, has now gone beyond being a cosmetic problem and has begun to be seen as a disease. In recent years, the number of studies addressing the relationship between obesity and psychopathology has increased. According to these studies, obesity is a complicated condition that affects an individual's anxiety, depression, health status, and quality of life, and has a significant comorbidity rate with sexual dysfunction (3). The mechanism of occurrence of sexual dysfunction secondary to obesity is multifactorial (4, 5).

As BMI is associated with sexual dysfunction, it has been proposed that sexual health deteriorates as well; however, the reasons for this association are not thoroughly explored. Obesity-related hormonal and inflammatory problems have also been identified as contributing factors. In obese women, a decrease in sex hormone-binding globulin (SHBG) may result in a decrease in free sex steroids, creating a compensatory hyperandrogenemic environment and affecting sexual functions in women. Again, the inflammatory environment and oxidative stress caused by excess adipose tissue also impair vascular and endothelial functioning, which has negative effects on sexual functions. In addition to these physiopathological reasons, concerns about physical appearance and body image in obese individuals, and physical restrictions caused by obesity are also listed as psychological causes of sexual dysfunction (6). The purpose of this study was to look into the sexual dysfunction, anxiety, and depression levels of morbidly obese and non-obese persons.

MATERIALS AND METHODS

This research included male and female participants aged 18 to 65 years old with a BMI over 40, no Diabetes Mellitus, and significant mental problems (Mental illness, Bipolar Disorder, Mental Retardation, Alcohol-Substance Addiction) who have been followed up on and treatment at the endocrinology outpatient department. Patients who came to the outpatient clinic or were referred from other outpatient clinics were questioned face to face and given a consent forms if they wished to participate in the trial; only those who supplied written consent were included in the study. The researcher performed every one of the interviews at the outpatient clinic over the course of 45-60 minutes, utilizing the face-to-face interview approach. The study's ethics committee decision was made by the Inonu University clinical research ethics committee. All. All steps of the study were carried out according to the Helsinki Declaration (2015-165).

Control Group: It consists of men and women who applied to the Endocrinology outpatient clinic and did not have any disease, between the ages of 18 and 65 with BMI<35, and did not have a major psychological disorder (Schizophrenia, Bipolar Disorder, Mental Retardation, Alcohol-Substance Addiction). In the selection of these patients, patients with endocrinological problems leading to sexual dysfunction were not included in the study.

Exclusion Criteria

Cognitive impairment, dementia, schizophrenia, schizoaffective disorder, bipolar disorder, alcohol and substance use disorders are serious medical conditions that may prevent participation in the study.

Data Collection Tools

The patients were initially given a sociodemographic data form, an interview form concerning beck anxiety, beck depression, and psychiatric information. The Golombok Rust Inventory of Sexual Satisfaction was then administered to the patients in order to assess sexual satisfaction.

Personal Information Form

In the Personal Information Form, questions

about the demographic characteristics of morbidly obese individuals with BMI ≥ 40 kg/m² and the control group with BMI < 35 , who applied to our endocrinology outpatient clinic, were included in the research group. There are 15 items in the form. These items are gender, marital status, occupation, education level, number of children in the family, whether they received any physical or psychiatric diagnosis, treatment, whether they received any psychological counseling assistance, use of alcohol and smoking habits. In addition to these, there are also items related to the variables, such as whether the participants used any substance or not.

Golombok Rust Inventory of Sexual Satisfaction

The Golombok Rust Inventory of Sexual Satisfaction (GRISS) was created by Rust and Golombok (1983) to assess the quality of sexual intercourse and sexual dysfunctions. Items are graded on a five-point Likert scale: "never-0 points," "rarely-1 point," "sometimes-2 points," "mostly-3 points," and "always-4 points." Negative questions were coded in reverse to ensure uniformity in scale interpretation. Both the scale's overall score and the scores generated from the subdimensions can be used to evaluate the scale. High scores indicate deterioration in sexual functions and the quality of the relationship. The received raw scores can then be converted into standard scores ranging from 1 to 9 (5 is the cut-off point). Since scores of 5 points and above are defined as the deterioration of sexual relations or functions, the participants with a score of 5 or higher were called the "problematic group", and those with a score below 5 points were called the "group with no problems". A separate profile can be created for men and women, or couples can share a common profile. The scale's standardization study was conducted by Tuğrul et al. (1993). The Golombok Rust Inventory of Sexual Satisfaction's Cronbach alpha internal consistency coefficient was calculated to be 0.83 for men and 0.94 for women, respectively. According to the data obtained from this sample, Cronbach's alpha values for all sub-dimensions in the female form ranged from 0.059 to 0.88 and in the male form from 0.42 to 0.85 (7).

Beck Depression Inventory

The Beck Depression Inventory examines somatic, emotional, cognitive, and motivational depression symptoms. The scale's purpose is not to establish a precise diagnosis, but rather to measure the intensity of depression symptoms in a consistent manner. The Beck Depression Inventory is a self-assessment tool that may be used in groups. It is suitable for both teenagers and adults over the age of fifteen. A deadline for submitting an application does not exist. The response time is between 10 and 15 minutes. The Beck Depression Inventory has 21 symptom categories, which are as follows: mood, pessimism, dissatisfaction, sensation of failure, sense of guilt, sense of punishment, self-hatred, self-blame, want to punish oneself, weeping episodes, irritability, socially introversion, lack of direction, body image inhibition of workability, sleep disorders, fatigue-fatigue, appetite decreased, weight loss, somatic complaints, loss of sex drive. It is an easy-to-apply scale that individuals can answer on their own. There are four options for each of the 21 symptom categories on the form. In the last week, including the day of the application, the individual is asked to select the sentence that best reflects his or her feelings. Each item's score ranges from 0 to 3. The depression score is generated by summing all these scores. The maximum score possible is 63. A high total score indicates a high level or severity of depression (8).

Beck Anxiety Inventory

In the Beck Anxiety Inventory reliability study conducted by Ulusoy, Şahin, and Erkmén (1996), 177 psychiatric patients were examined, and the scale's Cronbach Alpha internal consistency coefficient was found to be 0.93. In the study, it was also determined that the item-total score correlation coefficients ranged from 0.45 to 0.72. The test-retest reliability coefficient of the scale was calculated as $r=0.57$. In the study conducted for the validity study of the Beck Anxiety Inventory, the correlation of the scale (criterion-related validity) with the Automatic Thoughts Scale was found as 0.41, the correlation with the Beck Hopelessness Scale as 0.34, the correlation with the Beck Depression Inventory as 0.46, the correlation with the State Anxiety Inventory

(STAI-S) as 0.45 and the correlation with the State-Trait Anxiety Scale (STAI-T) as 0.53, respectively. In the construct validity study of the Beck Anxiety Inventory, it is also noted that the scale can considerably differentiate the anxious group from other diagnostic groups (depression, mixed and control groups). As a result of the factor analysis applied, it was determined that the scale consisted of two factors: "subjective anxiety" (1st, 4th, 5th, 7th, 8th, 9th, 10th, 11th, 14th, 15th, 16th, 17th and 19th items) and "somatic symptoms" (2nd, 3rd, 6th, 12th, 13th, 18th, 20th and 21st items) (9).

Statistical Analysis

For statistical analysis of our research data, we used SPSS 17.0 program. For quantitative data, arithmetic mean standard deviation was employed, whereas number (n) and percentage (%) were used for qualitative information. The Shapiro Wilk normality test was used to assess variables for quantitative data. The unpaired t test, Mann Whitney U test, and Pearson Chi-Square Analysis were used to compare the groups based on the normality test outcomes. A $p < 0.05$ value was considered statistically significant.

RESULTS

The study comprised 98 morbidly obese individuals with a BMI of 40 kg/m² or more who were married or had a permanent sexual partner. The research eliminated 10 individuals owing to diabetes (DM), 5 patients due to diabetes plus hypertension (DM+HT), and 5 patients due to other systemic disorders and medication usage. 57.7% (n=45) of the remaining 78 patients were female, while 42.3% (n=33) were male. The patients' mean BMI was 45.25±5.33 kg/m², and their mean age was 37.80±8.53 years. In order to compare with the patient, 68 healthy volunteers (28 girls (41.2%) and 40 men (58.8%)) with a BMI of 35kg/m² or less were recruited in the study. There was no statistically significant difference in age between the patient and control groups ($p=0.070$). It was observed that the rate of participants in the control group (29.4%) with a university degree was higher compared to the patient group (28.2%). It was observed that the individuals participating in the study were generally "Working Individuals" in both groups. The mean Beck

Depression Scale score of the patient group was 12.65±8.77, and the mean Beck Anxiety Scale score was 13.56±10.84, respectively. The mean Beck depression scale score of the control group was 6.26±3.88, and the mean Beck anxiety scale score was 8.91±7.75. A statistically significant difference was found between the two groups in terms of Beck depression and Beck anxiety scale scores ($p=0.00$, $p=0.012$, respectively) (Table 1).

Table 1. Comparison of sociodemographic data between patient and control groups

	Patient (n=78)	Control (n=68)	p
Sex (Female/Male)	(33/45)	(35/33)	0.046*
Age(Years)	37.80±8.53	35.60±5.93	0.076**
Education			
Primary School	%34.6	%1.5	0.001
Middle School	%12.8	%11.8	
High School	%24.4	%57.4	
University	%28.2	%29.4	
WorkWorking/	%57.7	%76.5/	0.017
Not Working	%42.3	%23.5	
Beck Depression Scale	12.65±8.77	6.26±3.88	0.001**
Beck Anxiety Scale	13.56±10.84	8.91±7.75	0.012**

*Pearson chi square test. **Mann Whitney U test.

The rates of patients who had problems in the sub-dimensions of frequency of sexual intercourse, communication, satisfaction, avoidance, and touching were calculated by converting the raw scores obtained from the Golombok Rust Inventory of Sexual Satisfaction (GRISS) to standard scores. Furthermore, the rates of premature ejaculation and erectile dysfunction in the male group, and vaginismus and anorgasmia in females were evaluated separately. In the analyzes comparing the mean GRISS subscale and total raw score in the patient and control groups, it was found that there was a statistically significantly higher deterioration in the scores of the other subscales of sexual functions, excluding vaginismus, in the patients (Table 2). There was no statistically significant difference between the vaginismus scores of patient and control groups ($p=0.77$). Scores of 5 and above in subscale raw scores indicate deterioration in that area. In this regard, it was determined that the deterioration in the "satisfaction" area (subscale score=6.08±3.15) was 26/33=78.7% in the patient group. It was observed that apart from "satisfaction", there was a significant problem in "premature ejaculation"

(subscale score=6.69±3.26) with a rate of 23/33=69.6% in men. It was also observed that the women in the patient group had problems in the area of "anorgasmia" other than the "satisfaction" area (subscale score=5.84±3.08) (Table 2).

Table 2. Comparison of GRISS subscale and total raw score averages between the patient and control groups

Golombok Rust Inventory of Sexual Satisfaction	Patient Group (Mean±S.D.)	Control Group (Mean±S.D.)	p**
Frequency	3.93±1.95	2.20±1.88	0.001
Communication	3.75±2.21	2.36±2.19	0.001
Satisfaction	6.08±3.15	3.52±2.97	0.001
Avoidance	3.56±3.13	1.51±2.20	0.001
Touching	3.79±3.31	2.35±2.73	0.001
GRISS total	36.92±15.12	21.86±16.73	0.001
Female-specific parameters			
Vaginismus	4.68±2.26	4.89±3.63	0.770
Anorgasmia	5.84±3.08	3.82±3.49	0.004
Male-specific parameters			
Premature ejaculation	6.69±3.26	2.77±2.00	0.001
Erectile dysfunction	4.66±2.23	2.17±1.87	0.001

**Mann Whitney U test, p<0.05.

According to the Golombok Rust Inventory of Sexual Satisfaction subscales of female morbidly obese patients, a deterioration rate of 35.5% was detected in frequency, 37.7% in communication, 68% in satisfaction, 44.4% in avoidance, 44.4% in touching, 48.8% in vaginismus and 64.4% in orgasm disorder, respectively. According to the Golombok Rust Inventory of Sexual Satisfaction subscales of male morbidly obese patients, a deterioration rate of 36.3% was detected in frequency, 27.2% in communication, 78.7% in satisfaction, 24.2% in avoidance, 27.2% in touching, 54.5% in impotence and 69.6% in premature ejaculation, respectively (Table 3).

DISCUSSION

The aim of this study was to investigate the hypothesis that morbidly obese individuals may experience worse sexual dysfunction than non-obese individuals. The main finding of the study is that morbidly obese individuals have more deterioration in all sub-scores other than GRISS total score and vaginismus in comparison to the healthy control group. In addition, anxiety and depression scores on the Beck Depression Inventory and the Beck Anxiety Inventory were

found to be statistically significantly higher in morbidly obese individuals compared to the control group.

Table 3. Comparison of GRISS between patient and control groups in men and women

Women	Scale	Patient		Control		p
		n	%	n	%	
Frequency	<5	29	(64.4)	22	(78.5)	0.201
	5≤	16	(35.6)	6	(21.5)	
Satisfaction	<5	14	(31.1)	16	(57.1)	0.028
	5≤	31	(68.9)	12	(42.9)	
Communication	<5	28	(62.2)	18	(64.2)	0.859
	5≤	17	(37.8)	10	(35.8)	
Avoidance	<5	25	(35.5)	21	(75.0)	0.094
	5≤	20	(44.5)	7	(25.0)	
Touching	<5	25	(55.5)	18	(64.2)	0.461
	5≤	20	(44.5)	10	(35.8)	
Vaginismus	<5	23	(51.1)	11	(39.2)	0.325
	5≤	22	(48.9)	17	(60.8)	
Orgasmic disorder	<5	16	(35.5)	18	(64.2)	0.017
	5≤	29	(64.5)	10	(35.8)	
Men						
Frequency	<5	21	(63.6)	40	(100)	0.001
	5≤	12	(36.4)	0	(0)	
Satisfaction	<5	7	(21.2)	21	(52.5)	0.006
	5≤	26	(78.8)	19	(47.5)	
Communication	<5	24	(72.7)	38	(95)	0.008
	5≤	9	(26.3)	2	(5)	
Avoidance	<5	25	(75.7)	40	(100)	0.001
	5≤	8	(24.3)	0	(0)	
Touching	<5	24	(72.7)	39	(97.5)	0.002
	5≤	9	(26.3)	1	(2.5)	
Impotence	<5	15	(45.4)	37	(92.5)	0.001
	5≤	18	(54.6)	3	(7.5)	
Premature Ejaculation	<5	10	(30.3)	34	(85)	0.001
	5≤	23	(69.7)	6	(15)	

*Pearson chi square test.

According to data from the World Health Organization, overweight and obesity are a significant global public health issue, with more adults being overweight or obese than underweight. In 2016, 39% of males aged 18 and older and 40% of women, about 2 billion adults globally, were overweight, while 11% of men and 15% of women, more than 500 million, were obese. Over the past four decades, the prevalence of both overweight and obese individuals has risen substantially (10-12).

Obesity causes many mental and physical health issues. It is evident that the lives of obese people are restricted by both health problems and many social obstacles. In addition to sexual dysfunction, it is a complex condition that affects the individual's health status and quality of life, as well as psychological stress, and depression (13, 14).

Sexual dysfunction resulting from obesity is caused by multiple factors. Morbid obesity has high comorbidity rates that are clearly associated with sexual dysfunction. It is known that metabolic diseases such as DM and HT, which are common in morbidly obese individuals (15); mental diseases such as depression and anxiety, and drugs used have an effect on sexual functions (16, 17). In addition, factors such as self-esteem and body image influence both the initiation of sexual activity and the avoidance behavior (17, 18). The exclusion of metabolic diseases, drug use and the presence of psychiatric disease in our study constitutes the strength of our study. The fact that the patient group identified in the study results had higher rates of Beck Anxiety and Beck Depression than the control group is an expected finding in morbidly obese individuals. In their study, Nimbi et al. concluded that obesity causes deterioration in mental status and increases anxiety and depression scores (19). Although this increase also found in our study indicates that the patient group experienced more depressive symptoms and anxiety, it was not significant enough to be diagnosed. Because the participants to be included in the patient group in our study were interviewed by a psychiatrist according to DSM-5, and those diagnosed with psychiatric diseases were excluded from the study.

The significance of sexuality in human life cannot be denied. It has major effects on the quality of life for both men and women. The effect of erectile dysfunction on men's quality of life has been demonstrated in many publications (20). Few studies have examined the effect of sexuality on women's quality of life. In a study including 2095 patients aged between 30-69 years, sexual dysfunction rates were determined, and it was shown that sexual dysfunction negatively affects quality of life (21). It has also been reported that the effect of sexual life on quality of life decreases

as the age of the woman increases (13, 22).

In their study, Botlani et al. found that high BMI values are associated with sexual dysfunction and many other chronic diseases. They found that individuals with a high BMI were more likely to report a decline in sexual quality (23). In addition, in another study examining the relationship between sexual dysfunction and obesity, bariatric surgery improved sexual dysfunction in morbidly obese women. It was found that individuals with high sexual dysfunction scores had lower scores and improved sexual life quality after weight loss after bariatric surgery (24).

In terms of the components of the applied sexual life scale, it was revealed that obese women had more deterioration in sexual desire, ease of orgasm, and orgasmic satisfaction subgroups than the control group. Sexual complaints were more common among sick women (63.6%) than among women in the control group (50.0%). In the study of Goitein et al., it was found that sexual parameters reduced in obese men, including sexual desire, erection, ejaculation and sexual satisfaction. Compared to the control group, there was a significant decrease in sexual desire, arousal, lubrication, orgasm, and sexual satisfaction in obese women (25). Regarding sexual dysfunction, there was no significant age-related difference between the patient and control groups. The difference in sexual dysfunction scores between patients and controls cannot be explained by sociodemographic data. In our study, it was important that the patient and control groups had comparable sociodemographic characteristics. In our study, the rates of sexual intercourse frequency, communication, satisfaction, avoidance and touching problems were calculated in the Golombok Rust Inventory of Sexual Satisfaction (GRISS). In addition, the rates of precocious ejaculation and erectile dysfunction in males and vaginismus and anorgasmia in females were evaluated separately. In the analyses comparing the GRISS in the patient and control groups, it was discovered that other than vaginismus, there was statistically significantly more deterioration in sexual function total and subscale scores. There was no statistically significant difference between the vaginismus scores between the women in the patient and control groups ($p=0.77$). In the patient

group, it is noticeable that the deterioration in the "satisfaction" area is particularly evident. Furthermore, there are significant problems with "premature ejaculation" in addition to "satisfaction" in men. It is observed that the women in the patient group have problems in the area of "anorgasmia" apart from the area of "satisfaction". As can be seen, there are differences between the results of our study and the results of the studies in literature, as well as when the results of the studies in the literature are compared between each other. These differences may be due to the scales used, differences in sociodemographic data, and not exclusion of comorbid diseases. Considering that comorbid diseases and sociodemographic characteristics are two key factors affecting sexual life, the most important aspect of our study is the exclusion of comorbid diseases and the sociodemographic comparison between the patient and control group. Our findings indicate that the sexual dysfunction seen in morbid obesity does not only occur secondary to comorbid diseases. Obesity alone causes sexual dysfunction independent of comorbidity. Further studies are required to elucidate the causes of this situation.

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