

The Effect of Body Mass Index on the Sexual Functions of Morbidly Obese Female Patients

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ABSTRACT

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Objective: The aim of this study is to investigate whether morbidly obese female patients are suffering sexual dysfunction, in addition to analyzing the effect of body mass index (BMI) on sexual functions.

Method: A total of 72 morbidly obese women admitted to the Endocrinology Department, whose BMI scores were 40 or over, and 28 healthy women age-matched with the morbidly obese group, whose BMI scores were under 30 were included in this study. Considering the effects on sexual functioning, the patients and the control group were evaluated by a psychiatric specialist. Women with a psychiatric disorder according to DSM-5, taking medicines that could affect sexual functions, and those with a chronic physical or any neurological disease or being pregnant or breastfeeding were excluded from the study. A sociodemographic data form and the Arizona Sexual Experiences Scale (ASEX) were administered to both the treatment and control group.

Results: Statistical analyses revealed that morbidly obese female patients more frequently suffered from sexual dysfunction compared to the control group. The Arizona Sexual Experiences Scale (ASEX) and all subscale scores except the sexual satisfaction rate were significantly higher in morbidly obese female patients than in the control group. There was no correlation found between the BMI and sexual function in the analyses conducted.

Conclusion: In our study, morbidly obese female patients were found to show more impairments in all areas of sexual functions except sexual satisfaction rate when compared to the control group. Previous studies have suggested that obesity is the cause of sexual dysfunction in men; however, the same relationship could not be demonstrated in women. In a limited study of female patients, conflicting results were attributed to the inability to control variables. The fact that variables such as depression, anxiety, and chronic physical illness, which may affect sexual function, had been assessed in our study is important for accurately interpreting the findings. The data in our study reveals the importance of investigating sexual functions in morbidly obese female patients.

Keywords: Arizona Sexual Experiences Scale, morbid obesity, sexual dysfunctions

ÖZET

Morbid obez kadın hastalarda vücut kitle indeksinin cinsel işlevler üzerine etkisi

Amaç: Bu çalışmanın amacı morbid obez kadın hastalarda cinsel işlev bozukluğu olup olmadığının araştırılması ve vücut kitle indeksinin (VKİ) cinsel işlevler üzerine etkisinin incelenmesidir.

Yöntem: Bu çalışmaya İnönü Üniversitesi Tıp Fakültesi Endokrinoloji Bilim Dalı'na başvuran ve VKİ'si en az 40 olan 72 kadın morbid obezite hastası ve bu hastalarla yaş olarak eşleştirilmiş VKİ'si 30'un altında olan 28 sağlıklı kadın dâhil edilmiştir. Cinsel işlevleri etkileyebildiği bilindiğinden hasta ve kontrol grubu bir psikiyatri uzmanı tarafından değerlendirilerek DSM 5'e göre bir psikiyatrik hastalığı olanlar, cinsel işlevleri etkileyebilen ilaç kullananlar, kronik fiziksel hastalık ve/veya herhangi bir nörolojik hastalığı bulunanlar, gebelik ya da emzirme döneminde olanlar çalışma dışı bırakılmıştır. Hasta ve kontrol grubuna sosyodemografik veri formu ve Arizona Cinsel Yaşantılar Ölçeği (ACYÖ) uygulanmıştır.

Bulgular: Yapılan istatistiksel analizlerde morbid obez kadın hastalarda kontrol grubundan daha fazla sıklıkta cinsel işlev bozukluğu olduğu belirlendi. ACYÖ ve doyum oranı dışındaki tüm alt ölçek puanları morbid obez kadın hastalarda kontrol grubundan anlamlı olarak yüksekti. Yapılan analizlerde VKİ ile cinsel işlev arasında korelasyon saptanmadı.

Sonuç: Çalışmamızda morbid obez kadın hastalarda cinsel işlevlerin doyum oranı dışında kalan tüm alanlarında kontrol grubuna göre daha fazla bozulma olduğu saptanmıştır. Yapılmış çalışmalarda obezitenin erkeklerde cinsel işlev bozukluğuna neden olduğu ileri sürülmüş ancak kadınlarda aynı ilişki gösterilememiştir. Kadın hastalarda yapılan sınırlı çalışmada ise çelişkili sonuçlar değişkenlerin kontrol edilememesine bağlanmıştır. Çalışmamızda cinsel işlevleri etkileyebilecek depresyon, anksiyete ve kronik fiziksel hastalık gibi değişkenlerin kontrol edilmiş olması bulguların doğru yorumlanması açısından önemlidir. Çalışmamızın verileri morbid obez kadın hastalarda cinsel işlevlerin sorgulanmasının önemini ortaya koymaktadır.

Anahtar kelimeler: Arizona Cinsel Yaşantılar Ölçeği, morbid obezite, cinsel işlev bozuklukları



How to cite this article: Gonenir-Erbay L, Ozlu M, Sahin I, Evren B, Kayaalp C, Karlıdag R. The effect of body mass index on the sexual functions of morbidly obese female patients. *Dusunen Adam The Journal of Psychiatry and Neurological Sciences* 2017;30:338-343. <https://doi.org/10.5350/DAJPN2017300408>

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Date of receipt / Geliş tarihi:
March 28, 2017 / 28 Mart 2017

Date of the first revision letter /
İlk düzeltme öneri tarihi:
April 21, 2017 / 21 Nisan 2017

Date of acceptance / Kabul tarihi:
July 17, 2017 / 17 Temmuz 2017

INTRODUCTION

Obesity is a chronic illness that is characterized by an increase in the fat tissue of the body (1). While a high daily intake of energy and low output of energy spent is seen as the fundamental problem in obesity, it has been established that multi-factorial reasons emerging as a result of the interaction of genetic and environmental factors are the cause of the illness (2). The level of obesity is measured utilizing the Body Mass Index (BMI) (3). BMI – a weight for height index – is measured by dividing weight in kilograms by height in centimeters squared; persons with a BMI higher than 30 fall into the category of obese and those above 40 are considered morbidly obese (4). Obesity, whose prevalence has been on the rise in recent years, has moved beyond being perceived as an esthetic problem and is now being categorized as an illness. In recent years, there has been a surge in the number of articles that examine the relationship between obesity and psychopathology. These studies indicate that obesity is a complex condition affecting states such as anxiety, depression, and consequently the health and life quality of a person, furthermore, they found a high rate of sexual dysfunction and co-morbidity (5,6). The formation of a secondary sexual dysfunction in obesity is multifactorial (7). The psychological and social effects of obesity influence confidence and behavioral tendencies in instigating or abstaining from sexual relations. The role of sexuality in human life cannot be denied. It can be said that sexuality plays an important role in its effects on both men and women. Fewer studies focus on female obesity and sexual functions compared to those researching male obesity. The qualities, physiology, and mechanisms of female sexuality are more complex and unique than those of males. Just as the effect of female sexual function on the quality of life, a decrease in the quality of life will also lead to sexual dysfunction. Studies indicate that female sexual dysfunction occurs particularly with patients suffering from chronic illness (8). This study aims to research sexual function disorder in morbidly obese women and the effects of BMI on sexual functions.

METHOD

Our study was approved by the Inonu University Ethics Committee and designed in conformity with the Declaration of Helsinki. The study was conducted on 72 morbidly obese women with a minimal BMI of 40 who had sexual partners presenting to Inonu University's Faculty of Medicine, Department of Psychiatry for an assessment prior to bariatric surgery. Of these patients, 15 morbidly obese women diagnosed with an additional psychiatric illness or were using psychotropic medicine, 27 women with a chronic illness that would affect sexual function (such as Diabetes Mellitus), and 18 patients who did not have an active sex life were excluded from the study. Three of the patients refused to complete the forms being given to them. The control group was selected according to age by the hospital staff; in the end, 28 healthy women with a BMI below 30 who did not have a psychiatric or chronic physical illness were chosen for participation. The elimination criteria were having a mental illness that would prevent the participant from understanding the scales given to them, the use of medication affecting their sexual functions, the presence of a psychiatric and/or medical illness, as well as the abuse of alcohol and/or substances. The treatment and control groups were assessed by a psychiatrist and those with a psychiatric illness were eliminated from the study. Additional criteria for being included in the study were being above the age of 18 and being literate.

Measures

The participants' sociodemographic characteristics, such as their age, marital status, education and profession were collected and recorded with the aid of an interview form completed by the researchers. The Arizona Sexual Experiences Scale (ASEX) is a five-item self-questionnaire that evaluates the five basic dimensions of sexual function (sex drive, arousal, vaginal lubrication/

penile erection, ability to reach orgasm, and satisfaction from orgasm). The Female Version features questions on sex drive, arousal, vaginal lubrication, ability to reach orgasm, and satisfaction from orgasm, in this order. Each of the five questions is evaluated on a scale from 1-6, and the total score varies between 5 and 30. The validity and reliability of the scale for Turkey has been confirmed. A patient reaching a total score of ≥ 19 , a score of 5 or higher for any one subscale, or three or more scores of 4 among the subscales is considered to have a sexual dysfunction (9,10).

Statistical Analysis

SPSS (Statistical Package for Social Sciences) for Windows 17.0 was used for the statistical analysis evaluating the findings in the study. The normal distribution of the variables was assessed using the Kolmogorov-Smirnov and Shapiro-Wilk tests. Variables found to be normally distributed were evaluated using the Paired Samples t Test, while variables not normally distributed were assessed using the Mann-Whitney U test to compare the numerical variables between two groups. In order to compare the categorical variables, the Pearson chi-square test was used. The statistical significance level was set at $p < 0.05$.

RESULTS

The average age of the treatment group was 38.11 ± 8.88 years and 36.96 ± 6.29 years for the control group; there was no statistically significant difference determined between the two groups ($p = 0.534$). Demographic data belonging to the treatment and control groups are shown in Table 1.

Comparing the ASEX scores between the groups, it was determined that the total ASEX score in the patient group was statistically significantly higher than that of the control group ($p = 0.007$). When examining the subscale scores, with the exception of level of satisfaction, the scores of the morbidly obese were significantly higher than those of the control group. The total and subscale ASEX points of the treatment and control groups are found in Table 2.

There was no significant correlation found between sexual functions and BMI in the statistical analysis conducted in order to understand the relationship between sexual functions and the BMI in the treatment group ($p > 0.05$).

DISCUSSION

Many studies have proven that the quality of sexual life is a determining factor in the overall quality

Table 1: The sociodemographic data of morbidly obese and control groups

	Morbidly obese group n=72		Control group n=28		t/ χ^2	p
	Mean	SD	Mean	SD		
Age	38.11	8.88	36.96	6.29	t=0.624	0.534
	n	%	n	%		
Education level						
Primary school	33	45.8	7	25.0	$\chi^2=16.547$	<0.001
High School	20	27.8	15	53.6		
University	19	26.4	6	21.4		
Employment status						
Working	20	27.8	14	50.0	$\chi^2=4.437$	0.035
Not working	52	72.2	14	50.0		
No. of children						
None	11	15.3	1	3.6	$\chi^2=7.811$	0.020
1 child	13	18.1	12	42.9		
2+ children	48	66.7	15	53.6		

SD: Standard deviation; n: Sample size

Table 2: A comparison of total and subscale ASEX scores between morbidly obese and control group

	Morbidly obese group n=72		Control group n=28		z	p*
	Mean	SD	Mean	SD		
ASEX total score	15.62	4.50	11.85	5.86	-2.703	0.007
Satisfaction level	2.63	1.20	2.17	1.12	-1.597	0.110
Physiological arousal	2.87	0.94	2.28	1.30	-2.434	0.015
Psychological arousal	3.04	0.73	2.42	1.34	-2.530	0.011
Sexual drive	3.52	1.44	2.39	1.47	-3.331	<0.001
Orgasm capacity	3.47	1.19	2.60	1.37	-2.760	0.006

SD: Standard deviation; n: sample size, *Mann-Whitney U Test

of life (11). However, even today, it is not clear whether or not obesity is an independent risk factor in the quality of female sexual life (12). Despite the fact that some studies indicate a higher rate of sexual function disorder among obese women, other studies have not found similar results (13). A series of studies conducted by Kolotkin et al. indicate that obesity is an important risk factor in an individual's sexual dysfunction. However, sexual dysfunction could be associated with the low self-respect and body image, among many other psychiatric problems that accompany obesity (13-15). Included in this study were morbidly obese patients with a BMI higher than 40 and no psychiatric illness who presented to a university hospital for bariatric surgery. Because the effects of obesity on the sexual life of women are not as evident as they are in men, it was decided that this study would be implemented with female patients only.

The main finding of our study was that with the exception of sexual satisfaction, all of the sexual functions in morbidly obese patients showed deterioration. The reasons for the development of sexual function disorder accompanying obesity are multifactorial. In the morbidly obese, we find high levels of comorbidities that may directly cause sexual dysfunction. It is established that illnesses such as diabetes mellitus, high blood pressure (8), psychiatric problems such as depression and anxiety as well as medication used all have an effect on sexual functions (16). There are also studies that report no relation between BMI and female sexual function (17). However, as the limitation of the studies it has to be noted that they

were not controlled for the absence of metabolic illnesses that affect sexual function. In our study, metabolic illnesses, drug use and the presence of psychiatric illnesses, considered as variables potentially affecting the findings, were determined as elimination criteria and thus controlled. Furthermore, keeping in mind that the effects of obesity on sexual functions might change with age, the lack of significant difference in age between our treatment group and control group work to increase the validity of the findings.

It is important to note that in other studies reporting conflicting findings in the present literature (16,17), obesity patients are not divided into different groups based on their level of obesity. This may have affected the assessment of results, because it appears that individuals who are at lower levels of obesity act similar to individuals who are not obese (13). In order to attain homogeneity, only patients falling into the category of morbidly obese have been included in our study.

Various studies have focused on defining the characteristics of the sexual lives of women who suffer from sexual function disorder. While the literature demonstrates that sexual desire and orgasm disorder are prevalent among women, these findings have not been consistently reproduced with obese women (18). When examining the results of our study, we see that in stages of sexuality (sex drive, arousal, vaginal lubrication, ability to reach orgasm, and satisfaction from orgasm), with the exception of satisfaction, the obese have more complaints compared to the control group. However, there was no correlation determined

between sexual function disorder and BMI. This finding may have to do with the fact that our sample group consisted of the morbidly obese patients with a BMI higher than 40. In studies that feature patients suffering from different levels of obesity, a correlation between BMI and sexual dysfunctions seems more likely. Furthermore, the literature states that female sexual dysfunction has more to do with body image than BMI (19). Studies hold that women who believe their bodies are not attractive to their partners tend to avoid sexual relations. In other words, it is asserted that the problem is “avoidance” more than being a disorder of sexual functions (20). Factors such as this stress the significance of analyzing the effect of obesity on the sexual lives of women as body weight in particular appears to be the most important element influencing the appearance of a female body (21).

The biggest limitation of this study is the small sample size due to the strict exclusion criteria being used. In addition, body image and self-respect, which are held to be critical for a better understanding of these findings, were not examined.

Further, it could be said that the contradictions of our findings with those in other studies in the literature might be related to factors such as restrictive sexual education, negative beliefs about sexuality, and even intercultural differences such as marriage methods (arranged marriage etc.). Thus, future studies that

consider BMI, body image, and relations between cultural and social contexts will be pivotal in shedding light on this matter, in addition to paving the way for practices that improve the quality of patients’ lives.

In conclusion, female sexual dysfunction is an important factor that deteriorates the quality of life of those affected. When considering that women who are morbidly obese experience higher rates of sexual function disorder, the need for a multidisciplinary assessment on this matter becomes apparent. Furthermore, the results of this study reveal the necessity of investigating sexual functions during psychiatric evaluations undertaken prior to bariatric procedures or at any other time.

Contributions category	Authors name
Development of study idea	L.G.E., R.K., C.K.
Methodological design of the study	L.G.E., I.S.
Data acquisition and process	M.O., B.E., C.K.
Data analysis and interpretation	I.S., M.O., B.E.
Literature review	M.O., B.E.
Manuscript writing	L.G.E., R.K.
Manuscript review and revision	I.S., R.K., C.K.

Conflict of Interest: Authors declared no conflict of interest.

Financial Disclosure: Authors declared no financial support.

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