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# Predictors of psychosocial functionality in obese women

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***ABSTRACT***

***Objective:*** *The aim of this study is to determine the level of depression, self-esteem, body satisfaction and quality of life in obese women as well as the predictors of psychosocial functionality.* ***Methods:*** *The study group consisted of 110 obese women participating in a diet and exercise program held in Kocaeli University Faculty of Medicine. Beck Depression Inventory, Rosenberg Self Esteem Scale, Body Satisfaction Scale and Obesity Related Problems Scale were used. Weight and height measurements were done using a calibrated digital scale and a height scale.* ***Results:*** *Psychosocial functionality of the study group was found to be moderately deteriorated and it showed significant relationship with depression, self-esteem and body dissatisfaction but not with BMI. In the linear regression model, in addition to self-esteem and body dissatisfaction, educational status of the obese women were determined as the predictors for psychosocial functionality.* ***Discussion:*** *Self-esteem, depression and body satisfaction are all concepts that are intertwined in obese individuals. In conclusion this study shows that body satisfaction and self-esteem were more important for psychosocial function of obese women, rather than BMI per se. The severe deterioration of psychosocial functionality of obese women with a higher educational status might well be related to more exposure to stigmatization and discrimination as a result of taking a more active role in society. There is a need for future studies where stigmatization is also investigated as a triggering cause of body dissatisfaction and low self-esteem, thus leading to a decrease in quality of life.* ***(Anatolian Journal of Psychiatry 2019; 20(2):145-152)***

***Keywords:*** *obese women, psychosocial functionality, quality of life, body satisfaction, self-esteem, stigma in obesity*

# *Şişman kadınlarda ruhsal-toplumsal işlevselliğin yordayıcıları*

***ÖZ***

***Amaç:*** *Bu araştırmanın amacı, şişman kadınların depresyon, benlik saygısı, beden hoşnutluğu ve yaşam kalitesi düzeylerini belirlemek ve aynı zamanda ruhsal-toplumsal işlevselliğin yordayıcılarını saptamaktır.* ***Yöntem:*** *Çalışma örneklemi Kocaeli Üniversitesi Tıp Fakültesi Hastanesi'nde diyet ve egzersiz ile kilo verme programına katılan 110 şişman kadından oluşmuştur. Beck Depresyon Ölçeği, Rosenberg Benlik Saygısı Ölçeği, Beden Bölgelerinden ve Özelliklerinden Hoşnut Olma Ölçeği ve Şişmanlıkla İlgili Sorunlar Ölçeği kullanılmıştır. Kalibrasyonu yapılmış dijital tartı ve boy ölçerle, kilo ve boy ölçümü yapılmıştır.* ***Sonuçlar:*** *Katılımcıların ruhsal-toplumsal işlevselliğinin orta düzeyde bozuk olduğu görülmüştür. Ruhsal-toplumsal işlevsellik depresyon, benlik saygısı ve beden hoşnutluğu ile anlamlı bir ilişki içindeyken BKG ile arasında bir ilişki saptanmamıştır. Lineer regresyon modelinde benlik saygısı ve beden hoşnutluğuna ek olarak şişman kadınların öğrenim durumunun ruhsal-toplumsal işlevselliği yordadığı saptanmıştır.* ***Tartışma:*** *Şişman kadınlarda benlik saygısı ve beden imgesi iç içe geçmiş kavramlardır. Sonuç olarak bu çalışma beden kitle göstergesinden çok, beden hoşnutluğu ve öz saygının ruhsal-toplumsal işlevsellik açısından daha önemli olduğunu göstermiştir. Eğitim durumu daha yüksek şişman kadınlarda ruhsal-toplumsal işlevselliğin daha bozuk olması toplumdaki aktif rolleri nedeniyle daha fazla damgalama ve ayrımcılığa maruz kalmayla ilişkili*

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*olabilir. Damgalamanın beden imgesi ve düşük benlik saygısını tetikleyerek yaşam kalitesinde düşmeye neden olup olmayacağını araştıran ileri çalışmalara gerek vardır.* ***(Anadolu Psikiyatri Derg 2019; 20(2):145-152)***

***Anahtar sözcükler:*** *Obez kadınlar, şişman kadınlar, ruhsal-toplumsal işlevsellik, yaşam kalitesi, beden hoşnutluğu, benlik saygısı, obezitede damgalama*

## INTRODUCTION

Obesity is one of the most important health issues in the world with increasing prevalence despite the availability of weight loss treatments. More recently, not only the developed Western countries but also the developing ones are beginning to experience an epidemic of excess body weight as peoples' life styles and diet became more westernized. According to World Health Organization, there are about 400 million obese people and approximately 1.6 billion overweight people in the world.[1] Prevalence of adult obesity in women was found to be 30-45% in Turkey.[2] The link of obesity to increased risk of morbidity and mortality is well established. While quality of life is increasingly regarded as an important measure of the impact of disease, there are relatively fewer published research regarding the influence of obesity on health-related quality of life, especially on the mental domains. Besides, studies investigating this area showed discordant results, on the contrary to the consistent decrements in physical domains.[3]

There has been an increasing interest in literature regarding the effects of obesity on mental health and quality of life is one of the important outputs from these studies. Development of many measures (covering physical, mental and social areas in a series of scales) to evaluate quality of life in obese individuals demonstrates the importance given to this topic.[4] Psychosocial functionality which defines the mental and social wellbeing of an individual is one of the sub-topics of life quality. The relationship between both the physical and psychosocial functionality domains of life quality and obesity is apparent. It is known that quality of life is also related with stigma, body satisfaction, self-esteem and mental health in obese individuals.[5-7]

It was found that obese individuals, who are being discriminated against in the workplace, in their social life, when accessing health care and even by their family will then feel ashamed when they are eating in a restaurant, when swimming, shopping for food and clothes, applying to health institutions for treatment and going to gyms.[8,9] This negatively affects their psychosocial functionality. In a study by Mond et al. weight and appearance were shown to be important mediators that negatively influence psychosocial functionality in obese people.[10] Studies investigating psychosocial functionality in obese people reports that deterioration in functionality is more evident in females.[11] One of the important reasons for this is dissatisfaction with their own body as a result of the common 'ideal woman image', the following decrease in self-esteem, and subsequent depression. This is a vicious circle causing mental and social problems in obese women, and deterioration in life quality becomes inevitable. Therefore, there is a strong and direct relationship between body image and life quality.

Biological factors and psychosocial factors caused by gender roles imposed on women unfortunately leave women in a riskier situation than men when facing obesity and physical and mental complications arising there. Compared to men, it was reported that the burden of disease is disproportionately higher in women, and this was caused by the difference in their quality of life.[12] Our aim therefore is to identify the predictors of health-related quality of life in obese women in order to determine the high-risk groups in treatment planning.

## METHODS

The sample for this study consisted of the cohort of obese women included in the study 'Investigation of psychological, social and medical risk factors that determine weight in obese and non-obese women and its consequences'. A multidisciplinary research team at Kocaeli University (KOU) carried out this study. The earlier study was announced to women by banners and during hospital appointments. Those wishing to lose weight through diet and exercise programs could apply for the study. After the necessary medical examinations, diet and exercise programs were arranged for the participants. The research team in terms of quality of life and related variables assessed volunteer obese women who applied for the diet and exercise program during their first visit for the study. Three out of 113 subjects were excluded because of incorrectly filled questionnaires. KOU Faculty of Medicine Ethics Board granted ethical approval.

### Data gathering tools

***Sociodemographic Data Form:*** On the Sociodemographic Data Form prepared by the researchers age, level of education, marital status, working status, number of living children, and the amount of monthly income were recorded.

***Body Mass Index (BMI):*** Before interviewing the participants, height (meters) and weight (kilograms) were measured using digital weight and height measuring devices. BMI (kg/m$^2$) value was then calculated.

***Beck Depression Inventory (BDI):*** Developed by Beck et al., BDI consists of 21 items, 15 of which covers psychological symptoms and six of which covers somatic symptoms. The lowest score that can be obtained from the scale is 0, and the highest score is 63. A higher total score indicates a higher level of depressive symptoms. Turkish validity and reliability of BDI was conducted by Hisli.[13]

***Rosenberg Self-Esteem Scale (RSES):*** This self-assessment scale was developed by Rosenberg in order to measure the cognitive and emotional structure of self-esteem.[14] It consists of 12 sub-scales with 63 items and. High scores indicate high self-esteem. It is also possible to use the RSES subscales separately. The validity and reliability study of the scale in Turkish was conducted by Çuhadaroğlu in 1986.[15] In the current study, the self-esteem subscale of the RSES, consisting of ten items, is used.

***Body Satisfaction Scale (BSS):*** Originally developed by Berscheid et al.,[16] the Turkish adaptation and validation of BSS was carried out by Gökdoğan.[17] There are 25 items for girls, and 26 items for boys in this scale. A high score indicates more satisfaction with body image.

***Obesity-Related Problems Scale (OP):*** OP is developed from the Health-Related Quality of Life Questionnaire (HRQoL) in order to measure the effects of the psychosocial functionality section of life quality in obese people.[18] The OP scale contains eight Likert-type items. It measures the effects of obesity on psychosocial functionality. Higher scores indicate that psychosocial functionality is negatively affected in the individual, and life quality has deteriorated. The highest total scale score is 32, and the lowest score is 8. Total scale score is converted to a value between 0-100 and a standard score (OP-S) is obtained. According to OP-S, psychosocial functionality level is separated into three subgroups. According to this, if OP-S is <40 there is slight deterioration in functionality, if it is between 40-59 there is intermediate deterioration, and if OP-S ≥60 there is severe deterioration.[18] Turkish validity and reliability of this scale was conducted by Polat et al.[19]

### Data analysis

Data were analyzed using Statistical Program for Social Sciences (SPSS) version 20. Normality of distribution of quantitative variables (numerical data) was investigated by Kolmogorov-Smirnov test. In the first phase, the scores obtained from the scales used in the study were subjected to Pearson correlation analysis to see the relationship between variables. In the second phase, chi-square test was administered to compare the relationship of OP with socio-demographic data. In the third phase, in order to determine which of the variables (depression, self-esteem, body satisfaction, age, BMI, marital status, education level and the amount of monthly income) is a predictor for quality of life, linear regression analysis was performed. Research data was evaluated considering $p<0.05$ to be significant.

## RESULTS

A total of 110 obese (80%) and morbidly obese (20%) women with a mean BMI of 35.42±5.48 and a mean age of 37.53±8.75 participated in the study. 72.7% of the participants were married, 40% were university graduates, and 31.2% were working outside their homes. Sociodemographic characteristics of the group are shown in Table 1. The mean BDI scores was 15.27±9.43 and thus the group was generally not depressed. The mean RSES score was found to be 19.52±4.83 and the mean BSS score was reported as 78.70±14.85. The mean OP-S score was 19.70±5.43 and the mean OP-S score was calculated as 48.75±22.64 revealing a moderate deterioration of psychosocial functionality.

When participants were divided into sub-groups according to their OP-S scores, 45 women (40.9%) had mild deterioration, 29 women had moderate (26.4%), and 36 women (32.7%) had severe deterioration of psychosocial functionality (Table 2).

Pearson Correlation Analysis has been performed to investigate the relationship of OP-S, BDI, RSES, BSS scores and BMI of the participants. All scale scores but BMI showed significant moderate correlation with OP-S score (Table 3). The strongest correlation has been observed between self-esteem and level of depression ($r=-0.55$, $p<0.01$).

**Table 1.** Sociodemographic data of the participants

| | n | % |
|---|---|---|
| Body Mass Index (BMI) | | |
| Obese (BMI=30-39) | 88 | 80.0 |
| Morbid obese (BMI≥40) | 22 | 20.0 |
| Marital status | | |
| Married | 80 | 72.7 |
| Single | 30 | 27.3 |
| Educational status | | |
| Primary | 34 | 30.9 |
| High School | 32 | 29.1 |
| College | 44 | 40.0 |
| Employment status | | |
| Employed | 42 | 38.2 |
| Unemployed | 68 | 61.8 |
| Total monthly income | | |
| <1000 TL | 27 | 24.5 |
| 1000-1499 TL | 33 | 30.0 |
| 1500-2499 TL | 27 | 24.5 |
| >2499 TL | 23 | 29.0 |
| Number of the living children | | |
| None | 32 | 29.1 |
| One | 19 | 17.3 |
| Two | 38 | 34.5 |
| Three | 17 | 15.5 |
| Four | 4 | 3.6 |

**Table 2.** Distribution of Obesity Related Problems Scale scores

| | n | % |
|---|---|---|
| Mild (OP-S<40) | 45 | 40.9 |
| Moderate (OP-S<40) | 29 | 26.4 |
| Severe (OP-S<40) | 36 | 32.7 |

*OP-S:Obesity Related Problems Scale standardized scores*

**Table 3.** Correlation of OP-S, BDI, RSES, BSS scores and BMI

| | BDI | RSES | BSS | BMI |
|---|---|---|---|---|
| OP-S | 0.29** | -0.36** | -0.27** | -0.03 |
| BDI | - | -0.55** | -0.22* | -0.01 |
| RSES | -0.55** | - | -0.26** | -0.05 |
| BSS | -0.22** | 0.26** | - | -0.09 |

**: p<0.05; **: p<0,01; OP-S: Obesity Related Problems Scale Standardized Scores; BDI: Beck Depression Inventory; BSS: Body Satisfaction Scale; RSES: Rosenberg Self Esteem Scale; BMI: Body Mass Index*

### Linear regression analysis

In order to determine the variables, which predict psychosocial functionality in obese women, a linear regression analysis was per-formed where OP-S was taken as the dependent variable. In addition to BDI, RSES, and BSS scores, the clinically important variables such as age and BMI and the socially important variables such as educational status, marital status and amount of monthly income were selected as independent variables (Table 4).

A statistically significant negative relationship between OP-S scores and RSES and BSS scores was found, and a statistically significant positive relationship was found between OP-S and educational status. As self-esteem and body satisfaction increase in obese women, psycho-social functionality also increases. However, increase in educational status negatively affects psychosocial functionality in this group. Thus, RSES, BSS, and educational status were found to be predictors of psychosocial functionality in obese women.

## DISCUSSION

The purpose of this research was to identify predictors of the psychosocial functionality in obese women. Although the study group were generally not depressed, the level of depression was related to body satisfaction and self-esteem. This finding is similar to that of the literature from Turkey and abroad.[20-26] When stigmatization and negative attitudes related to obesity are taken into consideration, it is somewhat surprising that mental wellbeing of this group has been less effected on the contrary to our expectations. This might be explained with this particular group's voluntary participation in a diet and exercise program, which already shows motivation. Apparently the relationship between obesity and mental health in the literature is quite complex due to the heterogeneity of the group.[20,27]

In our study, average OP revealed intermediate deterioration in psychosocial functionality of obese women (48.75). This is similar to the findings of Karlsson et al., who developed OP.[18] In the study of Lee, where patients applying for bariatric surgery are included, average OP score was found to be 66.5 (severely deteriorated). OP-S score of a mixed group participating in a weight loss program similar to ours was reported to be 61.9 (severely deteriorated) but the aver-age BMI of those were higher than that of our

**Table 4.** Linear Regression Model for the predictors of psychosocial functionality

| | B | Ss | β | p |
|---|---|---|---|---|
| Beck Depression Inventory | 0.17 | 0.26 | 0.07 | 0.502 |
| Rosenberg Self Esteem Scale | -1.45 | 0.51 | -0.31 | 0.006 |
| Body Satisfaction Scale | -0,31 | 0.15 | -0,21 | 0.04 |
| Age | -0.15 | 0.27 | -0.06 | 0.57 |
| Body Mass Index | 0.37 | 0.41 | 0.08 | 0.38 |
| Marital status | -0.90 | 4.98 | -0.02 | 0.86 |
| Total monthly income | 0.09 | 1.88 | 0.004 | 0.96 |
| Educational status | 6.19 | 2.92 | 0.23 | 0.04 |

*(F=3.51, df=8, p=0.001)*

our group (42.8 vs 35.42).[28] In many studies where physical and psychosocial domains of life quality are separately investigated, BMI was found to be related to the physical domain but not to the psychosocial domain.[3,9,10,29-31]

Forty percent of the participants in our study were university graduates. Although obese people with higher levels of education are expected to demonstrate more appropriate attitudes towards weight control, it is reported that the attitude and weight control behavior of the group with higher education levels can be insufficient.[32] In the group with higher levels of education who would be expected to have a higher awareness; being unable to comply with the behaviors and attitudes towards weight control could have a more negative affect on psychosocial functionality. For example, being more active in work environments women with higher levels of education might well be more susceptible to negative social impacts. In a study conducted by Averett and Korenman, it was found that the wages of obese women were lower compared to that of their non-obese colleagues.[33] Moreover, workplace stigmatization and discrimination have also been reported.[34,35] While increase in social relationships result in an increase in exposure to stigmatization and discrimination, cognitive awareness at higher levels of education may also increase the sensitivity of obese women to this exposure. This may be the beginning of the vicious cycle and may cause further deterioration in psychosocial functionality.[27,36]

It is well known that quality of life in obese individuals is related to mental health, body satisfaction and self-esteem.[35] In many studies depression also appears as an important predictor of life quality in obese individuals.[14,38] However, in our study, depression was not found as a predictor of psychosocial functionality per se. Low self-esteem and body image dissatisfaction in obese individuals are often accompanied by depression and anxiety, together with social refrainment.[27] BDI interrogates aspects of depression related to changes in self-perception with a direct impact on self-esteem and cognitive aspects, instead of physiological symptoms of depression. Even though the depression levels in our sample were not pronounced, a strong correlation between depression and self-esteem was reported. For this reason, it can be assumed that only self-esteem is identified as a predictor of psychosocial functionality in the model where both depression and self-esteem are evaluated at the same time.

Subjective experiences of individuals related to their appearances, are psychosocially much more powerful than the objective or social reality of their appearance. These subjective experiences are defined as body image.[39] The concept of body image refers to the psychological experiences related to the body, and particularly the physical appearance.[39] For this reason, while a positive body image facilitates social trust, a negative body image may cause social refrainment and anxiety.[40] In addition women, irrespective of age, have much more concerns about body image compared to men.[41,42] In many studies, a statistically significant relationship between life quality and body image satisfaction has been reported which is consistent with our findings.[32,43-48]

## CONCLUSION AND RECOMMENDATIONS

Evidence shows that there is a complex relation-

ship between obesity, stigmatization, body satisfaction, self-esteem, and mental health. Greater understanding of this relationship will facilitate the development of more effective treatments. BMI not appearing as a predictor in our model, may be explained by psychosocial functionality being related not to an arbitrary measure of 'fatness' but to the way people perceive their own bodies, how and to what extent they accept themselves, revealing their degree of self-stigmatization. In obese women, deterioration in psychosocial functionality is becoming more and more common particularly in Western societies. Body satisfaction might be the link between obesity and mental disorders. Self-esteem, depression and body satisfaction are all concepts that are intertwined in obese individuals. Low self-esteem and body satisfaction is socially restrictive for obese individuals. Depression and low self-esteem is in turn caused by body dissatisfaction. Body dissatisfaction, on the other hand, appears as a result of stigmatization and discrimination related to obesity. The desire to possess the 'ideal woman' body can lead to a vicious cycle consisting of not being satisfied by body features, decrease in sell-esteem, and subsequent depression. Stigmatization and discrimination towards obese individuals feeds and perpetuates this cycle. The psychosocial function of women whose mental health is affected by this cycle also deteriorates.

In conclusion, this study shows that body satisfaction and self-esteem were more important for psychosocial function of obese women, rather than BMI per se. There is a need for future studies where stigmatization is also investigated as a triggering cause of body dissatisfaction and low self-esteem, thus leading to a decrease in quality of life. The severe deterioration of psychosocial functionality of obese women with a higher educational status might well be related to more exposure to stigmatization and discrimination as a result of taking a more active role in society.

### Limitations of the study

This study has limitations that need to be taken into consideration when interpreting the results. The sample was comprised solely of adult women, which prevents from generalizing these results to adolescent girls and men with obesity. All data were collected via self-report which can also be biased. Moreover, voluntary admission might explain the higher level of motivation in addition to lower level of psychopathology.

Additionally, because of the physical and psychological effects created artificially by the experimental environment, test subjects may have developed some reactions that would not normally be visible (Hawthorne effect).

***Authors's contributions:*** *A.P.: Finding topic, planning, statistics, writing manuscript; H.T.: Examinating sample, literature, writing manuscript; N.G.: Literature; F.A.: Literature; Ü.T.: Statistics.*

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