

# The relationship between weight stigma, self-esteem, and life satisfaction in individuals seeking bariatric surgery\*

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## ABSTRACT

**Objective:** Stigma is a mark that defines some people, devalues, and causes them to be distinguished from others in society. Obesity is among the diseases that might cause discrimination and stigmatization. This study aimed to evaluate the relationship between weight stigma, self-esteem, and life satisfaction in people with a bariatric surgery history.

**Method:** This cross-sectional study was evaluated in 250 individuals [147 female (58.8%) and 103 male (41.2%)] with a mean age of  $34.35 \pm 7.46$  years. Descriptive characteristics, the factors leading to bariatric surgery, self-esteem, and life satisfaction scores were collected with a questionnaire. Linear regression models for the life satisfaction scale were analyzed. Statistically,  $P < 0.05$  values were considered significant.

**Results:** The postgraduates had lower life satisfaction than high school and undergraduate students ( $P=0.001$ ); the non-smokers had higher life satisfaction than smokers or who quit smoking ( $P=0.036$ ) and also non-alcoholics had higher life satisfaction than the other groups who consume alcohol or quit consuming ( $P=0.000$ ). The self-esteem of the non-smokers was higher than smokers or who quit smoking ( $P=0.000$ ). The postoperative body weight loss of the individuals was  $93.8 \pm 31.3$  kg. Accordingly, most of the individuals (98.4%) applied for surgery because of a "fear of health problems", 98.8% of the individuals were "experiencing exclusion or discrimination at school or work", 99.2% of the individuals were "feeling insecure about the opinions of others" and "being blamed by people for weight problems". The self-esteem score of the overweight group was higher than the group with normal BMI values ( $P=0.012$ ). According to the regression model, weight loss and self-esteem were among the determinants of life satisfaction ( $P=0.000$ ).

**Conclusion:** The current data suggest that strategies to reduce stigma behavior should be developed in addition to lifestyle interventions, including dietary approaches, in the treatment of obesity. It is necessary to conduct follow-up studies on this subject, which span the time before and after bariatric surgery.

**Keywords:** Bariatric surgery, weight stigma, self-esteem, life satisfaction

## INTRODUCTION

Obesity is a chronic disease characterized by the accumulation of excess fat in the body, leading to various complications<sup>1,2</sup> and has become a significant public

health problem with its increasing prevalence, health costs, and negative effect on physical and psychological health.<sup>2,3</sup> According to the World Health Organization (WHO), about 13% of the world's adult population has obesity.<sup>4</sup> In Turkey, 39% of adults are overweight, and 30.3% are with obesity.<sup>5</sup>

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Lifestyle changes, including diet and physical activity, are the basis of obesity treatment and pharmacological and surgical therapies also follow these.<sup>6</sup> Bariatric surgery has been considered a standard and an effective treatment option for morbid obesity in recent years, and it is effective in improving long-term survival and controlling obesity-related comorbidities.<sup>7</sup> Studies have indicated that bariatric surgery positively affects body image, life quality, and depressive symptoms.<sup>8,9</sup>

Self-esteem is a central construct in clinical, developmental, personality, and social psychology, and research on the subject of self-esteem's function in psychological functioning dates back many years.<sup>10</sup> Rosenberg (1965) defined self-esteem as a generally positive evaluation of the individual's self and defined high self-esteem as self-respect and self-worth.<sup>11</sup> The metabolic effects of obesity on diabetes, asthma, and cardiovascular diseases are known. However, there is less data on the impact on psychological conditions such as mental state, anxiety, depression, and self-esteem.<sup>12</sup> Literature suggests that people with obesity generally have lower self-esteem, and negative attitudes and behaviors about their body weight are a factor in studies on obesity and self-esteem.<sup>13,14</sup> Another study stated that dissatisfaction with their bodies was a factor in the low self-esteem of people with obesity.<sup>15</sup> These results suggest that self-esteem is associated with different situations in people with obesity. Life satisfaction describes an individual's general judgment that life is well.<sup>16</sup> Health conditions, work environment, and well-being affect life satisfaction.<sup>17</sup> Life satisfaction is also associated with body weight control in young adults.<sup>18</sup> Compared to individuals with average body weight, young adults with obesity have lower life satisfaction.<sup>14</sup>

Stigma is a mark that defines some people, devalues, and causes them to be distinguished from others in society.<sup>19</sup> It is described as dehumanizing those who go through socially different circumstances by making them appear different from other members of the social system.<sup>20</sup> Obesity is among the diseases that cause discrimination and stigmatization by society. Individuals with obesity are excluded and marginalized by society and judged by certain stereotypes due to their excess weight.<sup>21</sup>

### Main Points

- Individuals with obesity may be subject to stigmatization by society.
- Stigmatizing behavior can affect the success of obesity treatment, quality of life and self-esteem.
- It is very important to include stigma behavior in examining the causes and consequences of obesity.

The treatment of obesity should include weight loss, improved health and maintenance of well-being. There is a need for a holistic approach accompanied by body weight loss, which is the focal point in obesity management. In this respect, it is important to address the reasons that lead individuals to lose body weight in obesity as a whole, as well as to raise social awareness and to improve the treatment of the disease and preventive health services.<sup>2</sup> Studies on people with obesity revealed that experiences of stigmatization, shifts in self-worth, and quality of life all have an impact on people's wellbeing. Furthermore, those who experience weight stigma have lower self-esteem, which leads to body dissatisfaction and psychological stress.<sup>22</sup> Self-esteem, body dissatisfaction, a desire to be "normal", and stigma might be among the factors that encourage individuals to undergo bariatric surgery.<sup>23-27</sup>

This information suggests that self-esteem, life quality, and stigma are interrelated in people with obesity, and this interaction may affect the treatment approach of individuals with obesity. In the view of literature, we aimed to investigate the presence of stigma, self-esteem and life satisfaction in people with obesity who undergo bariatric surgery history, and present possible reasons related to stigma that conduct people to surgery.

## METHODOLOGY

### Sample Selection

This cross-sectional study was conducted between January and February 2022 among 250 participants [147 female (58.8%) and 103 male (41.2%)] living in Turkey with a history of sleeve gastrectomy. Individuals who were communication platform members including people with a bariatric surgery history, were invited to the study by a general surgeon using an online questionnaire. The purpose and method of the study were explained to the individuals online through bariatric surgery patient groups and 267 volunteers were reached. The data of 250 individuals who answered the survey questions were analyzed. Individuals who had bariatric surgery and were literate enough to answer the survey questions were included in the study.

### Data Collection

The individuals who volunteered to take part in the study gave their electronic consent. The sociodemographic characteristics of the individuals, their knowledge of health and bariatric surgery, the factors leading to bariatric surgery, the situations faced by the individuals related to stigma before applying for bariatric surgery, anthropometric measurements (body weight and height), self-esteem and life satisfaction were evaluated with a questionnaire. Based on research on the stigmatization of people with obesity in the literature, a section was

developed to identify the circumstances that people will encounter before deciding to apply for bariatric surgery.

### Rosenberg Self-Esteem Scale

The Rosenberg Self-Esteem Scale was used in this study to assess the participants' self-esteem.<sup>11</sup> The scale measures how much each person values oneself. The short form used in this study consists of 10 items (five positive statements and five negative statements) and is a 4-point Likert-type scale. The scale was developed by Morris Rosenberg (1965). The Turkish adaptation study was carried out by Çuhadaroğlu (1986).<sup>28</sup> After inverting the items, a high overall scale score denotes high self-esteem.<sup>29</sup> In this study, the Cronbach alpha value for the scale was 0.700.

### Satisfaction with Life Scale

In this study, life satisfaction was evaluated with the Satisfaction with Life Scale. The scale consists of five items on a 5-point Likert-type scale. Diener et al. established it in 1985 to evaluate life satisfaction<sup>30</sup>, and Dağlı and Baysal adapted it into Turkish in 2016.<sup>31</sup> Higher scores of the scale are associated with higher satisfaction with life. In this study, the Cronbach alpha value for the scale was 0.762.

### Statistical analysis

IBM SPSS Statistics for Windows 21.0 (IBM Corp., Armonk, NY, USA) was used to analyze statistical data. Continuous data were presented as Interquartile Range (IQR), median (minimum-maximum), and the categorical data were presented as the number (N) and percentage (%). The normality of the quantitative data was assessed using Kolmogorov-Smirnov test. For the non-parametric paired groups, Mann-Whitney U test was used, while the Kruskal-Wallis test was used to compare more than two groups. The continuous variables examined for Pearson correlation. Linear regression model was used to determine correlations between the variables of self-esteem, life satisfaction, and weight loss (kg). Statistically,  $P < 0.05$  was regarded significant.

## RESULTS

The distribution of descriptive characteristics of the individuals and the distribution of these characteristics according to their self-esteem and life satisfaction scores are given in Table 1. A total of 147 female (58.8%) and 103 male (41.2%) individuals with a mean age of  $34.35 \pm 7.46$  years (data not shown in the tables), were included in this study. Moreover, 50.4% of individuals had a bachelor's degree, and 54.8% were single. According to the participants' employment status, 31.6% were civil servants.

The high school graduates had higher life satisfaction than the undergraduates and graduates ( $P=0.001$ ); the non-smokers ( $P=0.036$ ) had higher life satisfaction than smokers and who quit smoking; non-alcoholics ( $P=0.000$ ) had higher life satisfaction than whom drink alcohol or quit drinking. The self-esteem of those who don't smoke was higher than smoker and who quit smoking ( $P=0.000$ ) (Table 1). Duration after surgery was  $8.12 \pm 5.3$  years (data not shown in the tables).

The distribution of information about the disease and surgical history of the individuals is presented in Table 2. The most common chronic diseases in the individuals were arthritis (97.2%), sleep apnea (96.8%), asthma (89.8%), and cardiovascular disease (82.8%).

"Worrying about body weight-related health problems" was among the reasons that led patients to surgery at a high rate (98.8%). Of the patients, 90.8% reported receiving professional support for diet therapy, and 99.6% stated, "if I do not follow a diet plan after surgery, they will return to my pre-surgical weight". The patient's mean postoperative body weight was  $93.8 \pm 31.3$  kg and most of the patients didn't gain weight after bariatric surgery (data not shown in the tables). Physicians (85.2%), social media (66.4%), and friends (43.2%) were the resources to refer to surgery patients (data not shown in the tables).

The distribution of the patients regarding the feeling of stigma in society before surgery is presented in Table 3. Accordingly, most of the individuals (98.4%) applied for surgery because of a "fear of health problems". The vast majority (99.2% and 98.8%, respectively) had difficulties before surgery due to "experiencing difficulties in physical environments" and "experiencing exclusion or discrimination at school or work environment". The individuals confirmed the items, "feeling insecure due to the opinions of others" (98.6%), "Being blamed by people for of weight problems" (99.2%), "not being invited to social environments such as meetings or events" (98.4%), with high percentages.

The distribution of the individual's life satisfaction and self-esteem scores according to their body mass index (BMI) class is summarized in Table 4. Accordingly, the self-esteem score of the overweight group was higher than the group with normal BMI value ( $P=0.012$ ).

Table 5 presented the relationship between life satisfaction and various variables with the regression model. Accordingly, weight loss ( $P=0.000$ ) and self-esteem ( $P=0.000$ ) were among the determinants of life satisfaction.

**Table 1. Descriptive characteristics of individuals and the distribution of these characteristics according to self-esteem and life satisfaction scores**

Variables	Total N (%)	Self-esteem			Life satisfaction		
		IQR	Median (Min-Max)	p	IQR	Median (Min-Max)	p
<b>Gender</b>							
Male	103 (%41.2)	1	4 (2-5)	0.239*	3	16 (10-21)	0.386*
Female	147 (%58.8)	0	4 (0-5)		4	17 (5-20)	
<b>Marital status</b>							
Married	78 (%31.2)	0	4 (0-5)	0.622^	3.25	16 (5-20)	0.410^
Single	137 (%54.8)	1	4 (2-5)		3	17 (6-21)	
Divorced	35 (%14.0)	0	4 (3-5)		2	16 (12-19)	
<b>Education</b>							
High school	75 (%30.0)	0	4 (3-5)	0.328^	3	17 (10-20) <sup>a</sup>	<b>0.001^</b>
Undergraduate	126 (%50.4)	0	4 (0-5)		3	17 (6-21) <sup>a</sup>	
Postgraduate	49 (%19.6)	1	4 (2-4)		4	15 (5-20) <sup>b</sup>	
<b>Smoking</b>							
Yes	24 (%9.6)	1	4 (2-5) <sup>ab</sup>	<b>0.000^</b>	2.75	16 (11-20) <sup>ab</sup>	<b>0.036^</b>
Never	74 (%29.6)	1	4 (2-5) <sup>a</sup>		3	17 (10-20) <sup>a</sup>	
Quit	152 (%60.8)	0	4 (0-4) <sup>b</sup>		4	17 (5-21) <sup>b</sup>	
<b>Alcohol</b>							
Yes	2 (%0.8)	-	3.5 (3-4)	0.274	-	9 (8-10)	0.000^
Never	163 (%65.2)	1	4 (0-5)		2	17 (5-21)	
Quit	85 (%34.0)	0	4 (2-5)		4	15 (11-20)	

p<0.05, IQR: Interquartile Range, Data are given as IQR, median (minimum-maximum) and number (N) and percent (%). \*The difference between groups was evaluated with the chi-square test. ^ Intergroup difference assessed by Kruskal Wallis. The differences between groups are shown with bold. a-b: There is no difference between groups with letters in the same column

## DISCUSSION

Obesity treatment includes different factors, such as dietary intervention, other lifestyle changes and well-being. Self-esteem, life satisfaction, and the feeling of stigma might affect well-being of individuals with obesity. The current study questioned factors related to individuals' self-esteem, life satisfaction, and weight stigma.

In this study with 147 females (58.8%) and 103 males (41.2%), there was no statistically significant difference between self-esteem and life satisfaction scores according to gender. Similar to the current study, Torre-Cruz et al. (2021) reported no difference between the self-esteem and life satisfaction scores according to gender.<sup>32</sup> In another study, males were shown to have higher life satisfaction and self-esteem scores than females.<sup>33</sup> Although, there is no relationship between gender and self-esteem in this study, there has been debate regarding the findings of a literature review that examined gender variations in

self-esteem.<sup>34</sup> It is well-established that there is a two-way relationship between marital status and self-esteem which affects social life.<sup>35</sup> According to marital status, there was no statistically significant difference between self-esteem and life satisfaction scores. While there was no difference between the self-esteem scores according to education level, the high school graduates had higher life satisfaction than the undergraduates and graduates. The non-smokers (P=0.036) had higher life satisfaction than smokers or who quit smoking and non-alcoholics (P=0.000) had higher life satisfaction than the other groups who consume alcohol or quit consuming. The self-esteem of those who don't smoke was higher than the non-smokers or who quit smoking. These outcomes aligned with the research conducted by Tesler et al. (2018), which's findings consistent with their intervention study.<sup>36</sup> Accordingly, alcohol and cigarette consumption decreased, and life satisfaction increased in individuals who were intervened with to reduce risky behaviors. There was statistically significant difference between

Table 2. Distribution of information about the disease and surgical history				
Variables	Yes		No	
	N	%	N	%
<b>Chronic diseases</b>				
Arthritis	243	97.2	7	2.8
Sleep apnea	242	96.8	8	3.2
Asthma	207	82.8	43	17.2
Cardiovascular disease	190	76.0	60	24.0
Gastro-esophageal reflux disease	198	79.2	52	20.8
Venous stasis disease	106	42.4	144	57.6
Hypertension	93	37.2	157	62.8
Non-alcoholic steatohepatitis	77	30.8	173	69.2
Urinary incontinence	32	12.8	218	87.2
Diabetes	27	10.8	223	89.2
Pickwick syndrome	21	8.4	229	90.4
Obesity-hypoventilation syndrome	1	0.4	249	99.6
	<b>Agree</b>		<b>Disagree</b>	
	<b>N</b>	<b>%</b>	<b>N</b>	<b>%</b>
<b>Reasons leading to surgery</b>				
Worrying about body weight-related health problems	247	98.8	3	1.2
Dissatisfaction with physical appearance	249	99.6	1	0.4
Thinking that surgery will be good for health	247	98.8	3	1.2
<b>Pre-surgical weight loss applications</b>				
Having a diet before surgery	246	98.4	4	1.6
Getting professional support for diet therapy	227	90.8	23	9.2
Taking medication with doctor's advice	197	78.8	53	21.2
Weight loss with exercise alone	179	71.6	71	28.4
Exercising with diet	146	58.4	104	41.6
<b>Expectations for surgery</b>				
Surgery enables weight loss without exercise	57	22.8	193	77.2
Surgery enables weight loss without diet	56	22.4	194	77.6
It is impossible to lose weight with surgery	248	99.2	2	0.8
If I do not follow a diet plan after surgery, I will return to my pre-surgery weight.	249	99.6	1	0.4
Data are given as numbers (N) and percentage (%).				

the self-esteem and life satisfaction scores according to employment status and social security categories.

Evaluating chronic diseases of the individuals almost all of the participants had arthritis, sleep apnea, asthma, and cardiovascular disease; and almost half of them had gastroesophageal reflux disease, venous stasis disease,

and hypertension. The prevalence of chronic diseases increases with obesity and people with obesity are at risk for these diseases.<sup>37,38</sup> Accordingly, the high prevalence of chronic diseases determined according to the study's results was consistent with the literature. Individuals with a BMI of >35 kg/m<sup>2</sup> must have at least one of these diseases to be candidates for bariatric surgery (Table 2).<sup>39</sup> A total

**Table 3. Distribution of body weight stigma related issues in the patients before surgery**

Variables	Agree		Disagree	
	N	%	N	%
<b>Individual attitudes</b>				
Fear of health problems	246	98.4	4	1.6
Feeling guilty about their weight	187	74.8	63	25.2
<b>Education and working life</b>				
Experiencing difficulties in physical environments (classrooms and offices etc)	248	99.2	2	0.8
Experiencing exclusion or discrimination at school or work	247	98.8	3	1.2
<b>Difficulty in communicating at work or school outside of recruitment</b>				
Experiencing the negative impact of weight on issues (applying for a job, promotion, workload or assigning important tasks etc)	246	98.4	4	1.6
Experiencing unfortunate and demoralizing situations in their education life	246	98.4	4	1.6
<b>Attitudes of healthcare providers</b>				
Inability to benefit from health services	77	30.8	173	69.2
Encountering negative attitudes	71	28.4	179	71.6
Not receiving medical support due to the attitude of healthcare professionals	29	11.6	221	88.4
<b>Social environment attitude</b>				
Benefiting from opportunities designed for people with obesity in daily life	182	72.8	68	27.2
Feeling insecure about the opinions of others	248	99.2	2	0.8
Being blamed by people for of weight problems	248	99.2	2	0.8
Calling others in different ways due to their weight other than their name	243	97.2	7	2.8
Not being invited to social environments	246	98.4	4	1.6
Having problems at the gyms while exercising	211	84.4	39	15.6
Embarrassment of being around others because of weight issues	243	97.2	7	2.8
Having problems in family and friend relationships	244	97.6	6	2.4
Data are given as numbers (N) and percentage (%).				

**Table 4. Distribution of life satisfaction and self-esteem scores according to BMI**

BMI	Self-esteem		Life satisfaction	
	IQR	Median(Min-Max)	IQR	Median (Min-Max)
Normal	0	4.00 (0-5) <sup>a</sup>	4	16.00 (7-20)
Overweight	1	4.00 (2-5) <sup>b</sup>	3	16.50 (6-20)
Obese	1	4.00 (2-4) <sup>ab</sup>	3	17.00 (5-21)
p		0.012*		0.879

\*p<0.05, IQR: Interquartile Range Data are given as IQR, median (minimum-maximum). The difference between the groups was evaluated with the Kruskal Wallis test. a-b: There is no difference between groups with letters in the same column

of 99.6% of the individuals declared that they did not experience any post-operative body weight gain. Odom et al. (2010) and King et al. (2020), draw attention for the weight regain after bariatric surgery, which poses a risk in terms of comorbidities.<sup>40,41</sup> They pointed to the weight

stigma, apart from metabolic complications, after surgery. Accordingly, individuals who had metabolic surgery or weight loss endure self-stigma in the form of internalized weight bias and stigmatizing due to the remarks from family, friends, and healthcare professionals.<sup>42</sup> In another study,

**Table 5. Linear regression model for prediction of life satisfaction scale**

	Coefficients B	Std error	STD B	p	R	R2	F
Self-esteem score	1.152	0.236	0.355	0.000	0.251	0.266	17.648
BMI (kg/m <sup>2</sup> )	-0.31	0.610	-0.32	0.605			
Weight loss (kg)	-0.34	0.005	-0.415	0.000			

Dependent: Life satisfaction, Predictors: (Constant), Age (years), Self-esteem score, duration after surgery (years), Body weight loss (kg).  
Adjusted: Age and duration after surgery

participants (n= 5, 33-59 years and n=15, 63-72 years) who have undergone bariatric surgery and the resulting body transformations reported being judged for choosing an “easy way out” to lose weight.<sup>43</sup> The follow-up of the patient’s body weight is crucial in terms of self-esteem, life satisfaction, and a sense of stigma, even if the recovery of the body weight loss was not shown in this study. Participants in the study expressed strong agreement with the factors that led to the stigma they faced prior to surgery. These factors fell into four categories: personal attitudes, education and career, attitudes of healthcare providers, and attitudes of the social environment. This indicates that individuals in society are highly exposed to the feeling of stigma. Self-esteem and life satisfaction scores, which were questioned about regarding the post-operative condition of the individuals, indicate the change in the general well-being of the individuals. Raves et al. (2016) reported that weight loss has an impact on stigma and patients who had bariatric surgery may also experience the feeling of stigma by health professionals, which worsens post-operative dietary behavior.<sup>44</sup> In this study, 11.6% of the participants declared that they gave up receiving medical support due to the “attitude of healthcare professionals” was. These findings imply that people should also consider these factors that influence their decision to have bariatric surgery. According to the Himmelstein et al. (2022) there are still a number of questions regarding patient care after bariatric surgery including how weight bias may affect the decision to seek follow-up care and whether or not patients who undergo bariatric surgery adhere to their expectation of less stigmatizing healthcare encounters.<sup>42</sup> These results and inferences suggest that healthcare professionals should be informed about stigma.

The general well-being of individuals with obesity is impacted by the interaction between life satisfaction and self-esteem.<sup>30</sup> According to a study with a large cohort (n=1,465,219) life satisfaction was lower in individuals with obesity and slightly overweight. It is also known that low self-esteem is associated with body weight.<sup>45</sup> After classifying the individuals in this study according to their self-esteem, those with high self-esteem had higher life satisfaction. In the regression model, self-esteem was

found as a determinant of life satisfaction. Li et al. (2012) similarly found a correlation, but in a different population, between life satisfaction and self-esteem in university students.<sup>46</sup> The present study results were consistent with the literature.

This study has some strengths and limitations. First, stigma is a critical issue, and this is the first study on stigma in a specific group in Türkiye. Secondly, a high sample number has been reached in a particular sample. Our limitation is that we included only people who have sleeve gastrectomy history. Another limitation is we evaluated stigma and some questions from some studies’ results, so this measurement is not a validated tool.

## CONCLUSION

The results of this study provide essential data on pre-surgery stigma, post-surgical self-esteem, and life satisfaction in individuals undergoing bariatric surgery. Based on available data, it is recommended that in addition to lifestyle interventions such as modifying dietary habits to treat obesity, strategies to lessen stigma should be developed, society should be made aware of the causes of obesity, and a thorough investigation of the sociological factors that lead people to bariatric surgery should be conducted. It is necessary to perform follow-up studies on this subject, that span the time before and after bariatric surgery.

**Ethical approval:** The study was approved by the Ethics Committee of Ondokuz Mayıs University (Number: B.30.2.ODM.0.20.08./829).

**Informed consent:** A written consent was obtained by acceptin to answer the online form.

**Author contributions:** Concept – Z.U.,M.S.M.Ç.,N.C.U.; Design – Z.U.,M.S.M.Ç.,N.C.U.; Supervision – Z.U.,M.S.M.Ç.,N.C.U.; Resources – Z.U.,M.S.M.Ç.,N.C.U.; Materials – Z.U.,M.S.M.Ç.,N.C.U.; Data Collection and/or Processing – Z.U.,M.S.M.Ç.,N.C.U.; Analysis and/ or Interpretation – Z.U.,M.S.M.Ç.,N.C.U.; Literature Search – Z.U.,M.S.M.Ç.,N.C.U.; Writing

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