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ARAŞTIRMA MAKALESİ **RESEARCH ARTICLE**

Assessment of the Quality of Life of Patients Who Have Had Obesity Surgery

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Abstract

Objective: This study was performed to determine the postoperative quality of life of patients who had received obesity surgery.

Materials and methods: The study was conducted with 151 patients who underwent obesity surgery in the gastroenterology surgical service of a training and research hospital. Data related to the patients were collected using a Patient Information Form and the Quality of Life Following Obesity Surgery Scale (QoL-OS). The online survey method was used for data collection.

Results: Among the patients who had obesity surgery, 83.4% were female, the mean age was 38.91±10.58 years, and 69.5% were married. The mean total score of the participants in the Biopsychosocial Dimension of QoL-OS was 71.93±14.25 (min: 31, max: 90). Among the sub-dimensions, the mean scores were 29.10 in the Psychosocial Area sub-dimension 23.93 in the Physical Function sub-dimension and 18.90 in the Sexual Life sub-dimension. The mean total score in the Complications Dimension of QoL-OS was 18.48±5.164 (min: 7, max: 31).

Conclusion: In this study where the quality of life and complications of the patients were assessed in the postoperative period by using the Quality of Life Following Obesity Surgery Scale, it was observed that the quality of life of the patients increased with weight loss.

Key Words: bariatric surgery, complication, quality of life, weight loss

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INTRODUCTION

Obesity has become the chronic disease of our age by increasing in the entire world, and the number of obese individuals in the world has reached 3-fold in almost half a century (1). According to the data of 2019, the rate of individuals over the age of 15 with obesity problems has risen to 21.1% (2). Obesity negatively affects all aspects of the individual with many chronic diseases it brings about. Additionally, the increase in the excess fat accumulating in the body and body dimensions leads to functional restrictions in individuals. These restrictions lead to experiencing inadequacy in performing several daily life activities such as wearing clothes, personal care, sexual life and physical movement (3). They also cause a decrease in health-related quality of life in the psychological (depression, anxiety, eating disorders) and social (ostracizing, weight-related stigma) areas (4-6).

Health-related quality of life is a broad, subjective concept encompassing physical and mental health, which is in complex relationships with other external factors such as health, socio-economic status, environment, and other factors (3). While mortality rates, recovery rates and healthcare costs are important outputs in provision of healthcare services, improvement in quality of life is now also being assessed as a primary outcome (7). In connection to this issue, surgical options used in treatment of obesity have emerged as the most effective and permanent weight loss treatment in loss of excess weight, reduction or elimination of obesity-related comorbidities and achievement of lower mortality rates and healthcare costs (8). Therefore, the purpose in obesity surgery is to free the patient from their excess weight in a healthy way and increase their quality of life in all areas. In the literature, a significant increase has been shown in quality of life with the weight loss and recovery of comorbid conditions achieved after bariatric surgery (9-10).

In the literature, it is seen that there are many measurement instruments based on the principle of self-reporting developed for general purposes, uniquely for obesity or uniquely for obesity surgery, towards assessing the quality of life after obesity surgery (4). In the study where de Vries et al. (2018) investigated quality of life scales that are used in relation to obesity surgery, it was determined that there was no measurement instrument that received complete scores in terms of validity, reliability, easiness of use and significance (11). In 2020, researchers developed a reliable measurement instrument which assesses quality of life with both complication-related and biopsychosocial aspects of obesity surgery for the Turkish society (12). This study aimed to assess quality of life in patients who had received obesity surgery by using the Quality of Life Following Obesity Surgery Scale.

METHODS

This study was to determine the postoperative quality of life of patients who had received obesity surgery. The study was carried out with the descriptive research method. The population of the study consisted of patients who had obesity surgery at the Sakarya Research and Training Hospital (SEAH) in the province of Sakarya in Turkey between January 2016 and July 2019 (N=395), while the sample included those among these patients who agreed to participate in the study, were at or over the age of 18, literate and did not have a cognitive or mental problem. The study was conducted with 151 patients who had obesity surgery at the Gastroenterology Surgery Clinic of SEAH. The method used for data collection was an online survey conducted through Google Forms on 1-30 December 2019.

Data Collection Instruments:

The data collection instruments consisted of two parts. The first part of the questionnaire form included a Patient Information Form, while the second part included the Quality of Life Following Obesity Surgery Scale (QoL-OS).

Patient Information Form: The form that was prepared by the researchers by reviewing the relevant literature consisted of questions on the patients' age, sex, individual and medical information, obesity-related experiences and dietary habits.

Quality of Life Following Obesity Surgery Scale (QoL-OS): QoL-OS consists of two main dimensions and a total of 25 items. The first dimension named "Biopsychosocial Area" consists of 18 items and three sub-dimensions of Psychosocial Area, Physical Function and Sexual Life, while the second dimension of "Complications" consists of seven items. The scale is a 5-point Likert-type scale whose items are scored as 'Absolutely agree', 'Somehow agree', 'Neither agree nor disagree', 'Somehow disagree' or 'Absolutely disagree'. The possible scores in the first dimension of QoL-OS vary in the range of 18-90, where higher scores indicate higher levels of quality of life after obesity surgery. The Physical Function sub-dimension of the scale is inversely scored. The possible scores in the second dimension named Complications vary in the range of 7-35, where lower scores indicate lower rates of complications experienced by the patient. The Cronbach's alpha value for the Biopsychosocial Area dimension of the scale is 0.884, while that of the Complications dimension is 0.702.

Statistical Analysis

The data were analyzed by transferring to the IBM SPSS Statistics 23 and IBM SPSS AMOS 23 software. In the results of the analyses, frequency distribution (frequency, percentage) is given for the categorical variables, while descriptive statistics (mean, standard deviation) are given for the numerical variables. Independent-samples t-test was used to determine whether or not there was a difference between two groups, while one-way analysis of variance (ANOVA) was used to determine differences among more than two groups. As a result of the one-way ANOVA, first of all, Levene's test was conducted to test the homogeneity of the variances, and then, "multiple comparison tests" (Bonferroni or Tamhane's T2) were used to check the source of the difference. Bonferroni test was conducted to examine the differences among the groups in the variables that satisfied variance homogeneity, whereas Tamhane's T2 test was used to examine the differences among the groups in the variables that did not satisfy variance homogeneity. A p value <0.05 was considered statistically significant.

Ethical Approval

Ethics Board approval dated 26.06.2019 and numbered 02 was obtained from the Ethics Board of Sakarya School of Medicine. All procedures involving participants were in accordance with the ethical standards of the institutional and national research committee and with the 1964 Helsinki Declaration and later amendments.

RESULTS

Among the patients who had obesity surgery, 83.4% were female, the mean age was 38.91±10.58 years, and 69.5% were married. 37.1% of the patients were high school graduates, 35.1% had primary and/or secondary school degrees, and 25.8% had university degrees. The BMI of 34.4% was 30-34.9, while the BMI of 32.5% was 25-29.9. There was obesity in the families of 78.8%, 36.4% were smokers, 6.6% were alcohol consumers, and 29.8% had a diagnosed medical disorder. The mean age of the start of obesity in the patients was determined as 20.05±11.33 years. The mean weight of the patients before surgery was 127.6±16.77 kg, while their current mean weight was 85.14±15.89.

Tablo 1. HGKÖ ve Alt Boyutlarının Cronbach's Alfa Güvenirlik Katsayıları

	X	SD	Min.	Max.
Quality of Life Following Obesity Surgery Scale [Biopsychosocial Dimension]	71.93	14.25	31	90
*Psychosocial Area	29.10	7.19	7.0	35.0
*Physical Function	23.93	6.39	6.0	30.0
*Sexual Life	18.90	5.20	5.0	25.0
Quality of Life Following Obesity Surgery Scale [Complications Dimension]	18.48	5.16	7.0	31.0

The mean total score of the participants in the Biopsychosocial Dimension of QoL-OS was 71.93±14.25 (min: 31, max: 90). Among the sub-dimensions, the mean scores were 29.10 in the Psychosocial Area sub-dimension, 23.93 in the Physical Function sub-dimension and 18.90 in the Sexual Life sub-dimension. The mean total score in the Complications Dimension of QoL-OS was 18.48±5.164 (min: 7, max: 31) (Table 1).

Tablo 2. Quality of Life Following Obesity Surgery Scale: Complications Dimension

	Never		Rarely		Sometimes		Usually		Always	
	n	%	n	%	n	%	n	%	n	%
I had difficulty in swallowing after surgery.	110	72.8%	19	12.6%	14	9.3%	7	4.6%	1	0.7%
I had nausea-vomiting after surgery.	53	35.1%	44	29.1%	31	20.5%	10	6.6%	13	8.6%
I had hair loss after surgery.	25	16.6%	15	9.9%	20	13.2%	48	31.8%	43	28.5%
I experienced being cold after surgery.	16	10.6%	18	11.9%	21	13.9%	34	22.5%	62	41.1%
I had constipation after surgery.	17	11.3%	26	17.2%	34	22.5%	31	20.5%	43	28.5%
I had weakness, difficulty in walking after surgery.	37	24.5%	53	35.1%	38	25.2%	12	7.9%	11	7.3%
I had foul breath after surgery.	82	54.3%	31	20.5%	24	15.9%	10	6.6%	4	2.6%

When the problems experienced by the patients after obesity surgery were examined, it was determined that the patients always experienced being cold after surgery (41%), usually experienced hair loss (31.8%) and constipation (20.5%) and rarely experienced nausea-vomiting (29.1%), difficulty in swallowing (12.6%), weakness/difficulty in walking (35.1%) and foul breath (20.5%) (Table2).

Table 3. Differences in Scale Scores Based on Demographic Variables

		Quality of Life Following Obesity Surgery Scale Biopsychosocial Dimension		Psychosocial Area		Physical Function		Sexual Life		Complications Dimension	
		X±SD	Test/p	X±SD	Test/p	X±SD	Test/p	X±SD	Test/p	X±SD	Test/p
Sex[t]	Male	74.64±14.35	1.042	29.28±6.43	0.137	24.92±5.11	0.850	20.44±5.6	1.628	16.56±4.073	**-2.061**
	Female	71.39±14.23	0.299	29.06±7.35	0.891	23.73±6.62	0.397	18.6±5.09	0.106	18.87±5.284	**0.041**
Education status[F]	Primary-Secondary and below	68.7±15.67	2.204	28.61±7.4	0.539	22.13±7.37	**3.447**	17.96±5.86	1.714	18.2±4.692	0.304
	High School	73.96±12.37	0.114	29.89±6.34	0.584	25.02±5.63	**0.034**	19.05±5.05	0.184	18.91±5.626	0.739
	Undergraduate and above	73.39±14.29		28.66±8.04		24.8±5.54		19.93±4.32		18.27±5.187	
Marital status[t]	Single	74.98±13.04	1.753	29.78±7.24	0.772	25.02±6.55	1.397	20.17±3.43	**2.427**	18.76±5.347	0.436
	Married	70.59±14.61	0.082	28.8±7.18	0.441	23.45±6.29	0.164	18.34±5.74	**0.017**	18.36±5.103	0.664
BMI[F]	18.5-24.9	81.25±5.48	**15.193**	33.6±1.67	**15.897**	26.4±3.91	**8.422**	21.25±3.14	2.507	18.85±4.955	0.838
	25-29.9	77.37±9.71		31.92±4		26.45±4.84		19±5.18		17.67±5.214	
	30-34.9	69.67±14.74	**0.000**	28.13±7.52	**0.000**	22.65±6.61	**0.000**	18.88±5.5	0.061	19.25±4.926	0.475
	35 or higher	60.73±15.63		23.17±8.61		20.37±7.39		17.2±5.41		18.23±5.643	
Satisfaction with weight[F]	Low/Ideal	79.19±9.69	**30.833**	33±3.23	**34.905**	26.4±5.25	**8.790**	19.79±5.26	**8.840**	18.33±4.669	0.241
	High	72.85±11.88		29.53±5.97		23.79±6.08		19.53±4.62		18.38±5.171	
	Too high	54.96±16.11	**0.000**	20.22±9.13	**0.000**	19.83±7.44	**0.000**	14.91±5.54	**0.000**	19.17±6.125	0.786

t: independent-samples t-test, F: one-way ANOVA

As a result of the independent-samples t-test that was applied, while there was no significant difference in the QoL-OS, Psychosocial Area, Physical Function and Sexual Life scores based on sex ($p>0.05$), there was a significant difference in the Complications scores ($p<0.05$). Accordingly, the mean score of the women was higher than that of the men in the Complications dimension of the scale, and this may be interpreted as that the women experienced more complications (Table 3).

Based on education statuses, there was no significant difference in the QoL-OS, Psychosocial Area, Sexual Life and Complications scores ($p>0.05$), but there was a significant difference in the Physical Function scores ($p<0.05$). As the groups causing the difference, the Physical Function sub-dimension mean score of the high school graduates was higher than that of those with primary education or lower degrees, and it was determined that those with high education levels experienced more problems in their physical functions (Table 3).

As a result of the independent-samples t-test that was applied, there was no significant difference in the QoL-OS, Psychosocial Area, Physical Function and Complications scores based on marital statuses ($p>0.05$). There was a significant difference only in the Sexual Life scores ($p<0.05$), and accordingly, the mean Sexual Life sub-dimension score of the single individuals were higher than that of the married individuals. That is, it was determined that the single individuals experienced less problems in their sexual lives (Table 3).

It was found that the Sexual Life and Complications scores of the patients did not differ significantly based on their BMI groups (one-way ANOVA, $p>0.05$), but their QoL-OS, Psychosocial Area and Physical Function scores differed significantly ($p<0.05$). Accordingly, the QoL-OS, Psychosocial Area and Physical Function scores of those with a BMI of 18.5-29.9 were higher than those with a BMI of 30 or higher, whereas the scores of those with a BMI of 25-29.9 were again higher than those with a BMI of 30 or higher. In this case, it may be stated that there was an increase in quality of life as the body mass index got closer to normal (Table 3).

There was no significant difference in the Complications scores based on the participants' statuses of satisfaction with weight ($p>0.05$). On the other hand, there were significant differences in the QoL-OS, Psychosocial Area, Physical Function and Sexual Life scores of the participants ($p<0.05$). The QoL-OS and Psychosocial Area, Physical Function and Sexual Life scores of those who found their weight low/ideal were higher than those who found their weight high or too high. That is, the quality of life of the patients with weights within normal limits was better (Table 3).

DISCUSSION

The severe increase in the prevalence of obesity worldwide and the failure of conservative treatments have led to a significant increase in the practice of bariatric surgery (9,10). Bariatric surgery, which reduces general mortality and the incidence of diabetes and cardiovascular diseases, provides effective outcomes in cases where diet and exercise programs bases on long-term weight loss fall inadequate. Weight loss with bariatric surgery helps improvement in quality of life in addition to alleviation of comorbidities (13). Several studies have shown that weight loss after surgery has a positive effect on quality of life (8,9,14,15). In studies, it has been reported that outcomes in quality of life start to change three months after surgery, and a noticeable change is observed at the end of the 1st year (8,16). However, although reduction in body weight, stabilization in weight and reduction in obesity-related comorbidities in the assessments of patients after bariatric surgery are considered as tangible outcomes, there is still no standard in determining changes in health-related quality of life (15.16). It is seen that, in the literature, the Short Form (SF-36) Health Questionnaire and Impact of Weight on Quality of Life-lite (IWQoL-lite) have been frequently used in assessing the quality of life of patients having obesity surgery.

This study was conducted to determine the quality of life levels of 151 obese individuals who agreed to participate in the study after bariatric surgery. Considering the highest scores that can be obtained from the Quality of Life Following Obesity Surgery Scale (QoL-OS), it was determined that the QoL-OS and dimension/su-

b-dimension scores of the patients after obesity surgery were high. In similarity to the findings of our study, in the systematic review were Raaijmakers et al. (2017) examined 40 studies regarding quality of life following obesity surgery, it was determined that all studies generally reported a significant increase in quality of life after obesity surgery (16). In the study by Poelemeijer et al. (2020) which examined patients who received operations with two different surgical techniques in terms of quality of life, it was reported that low differences were obtained, and thus, more studies are needed in terms of quality of life (9). In another study, 666 cases among 1184 cases constituted the group that received sleeve gastrectomy, the quality of life of the cases was assessed, and as a result, significant increases were reported in the quality of life of the patients after bariatric surgery (15). The purpose of obesity surgery is to increase the quality of life of the patient by having them lose weight healthily. In this context, the finding in our study that the QoL-OS and dimension scores were high suggested that the obesity surgery was successful, and the surgical intervention affected the quality of life of the individuals in the positive direction.

It has been frequently observed that quality of life in obese individuals is lower in comparison to the society average due to significant disruption in own physical functions, and they experience noticeable difficulties in daily life activities (18). It was reported that, after bariatric surgery, there were significant improvements in individuals' gastrointestinal symptoms and quality of life in the physical, emotional and social aspects (19). A similar study stated that patients reached better physical functions and quality of life after bariatric surgery (20). In this study, similarly, it was found that the mean QoL-OS Physical Function sub-dimension score (23.93) related to weight loss after bariatric surgery was high.

In addition to the physical and metabolic problems it causes, obesity also has negative effects on individuals in the psychosocial sense. In obese individuals, the probability of encountering depression, anxiety, irregular dietary habits, body image dissatisfaction and disruption in quality of life is higher (13,21). In their study examining psychological determinants in quality of life and mental health after obesity surgery, Sevinçer et al. (2014) observed that, with improvement of inappropriate eating behaviors after the operation, similar psychiatric symptoms decreased (22). In the study where they investigated the effects of obesity surgery on quality of life and comorbid diseases, Altınok et al. (2014) reported that there were statistically significant differences between the pre-operation and post-operation values of the patients in the physical and mental dimensions among the main dimensions of quality of life (23). In our study, considering that the maximum score that can be obtained from the Psychosocial Area sub-dimension is 35, it may be stated that the mean score of the patients (29.10) was high. In this case, it is thought that the patients' reaching the weight they wanted to have by weight loss after the surgery had positive effects on the Psychosocial Area.

Another important subscale in the study was Sexual Life. It was observed that, with the weight loss of the patients after the operation, their mean score in the Sexual Life sub-dimension (18.90) was high. It may be stated that having a decrease in the sexual problems of the patients after the operation affected their healthy lifestyle behaviors and quality of life in the positive direction. The information in the literature also supported this finding of our study. In comparison to the normal population, psychosocial problems like dissatisfaction with body image, unhappiness in marriage and difficulties in sexual life are encountered more frequently in obese individuals (22). In the study they examined changes in sexual satisfaction and body perceptions after morbid obesity surgery, Karabuğa et al. (2014) monitored patients in their 3rd month after the operation and reported that the sexual problems they experienced in the preoperative period decreased, and their body perceptions and sexual functions were positively affected (24). Studies have stated that significant weight losses reached with bariatric surgery are typically associated with improvements in quality of life, body image and sexual functionality (25,26).

While all surgical interventions have some risks, obesity may lead patients of bariatric surgery

to become high-risk. While the risk of major complication development after surgery varies based on different factors, it is approximately in the range of 0.2-10%. In the early postoperative period, complications like hemorrhage, atelectasis, venous thromboembolism, anastomotic leak and rhabdomyolysis may be observed, while in the late period, complications such as dumping syndrome, marginal ulcers and nutrition and vitamin deficiencies may be encountered. Complications that may arise after bariatric surgery are effective on the quality of life of patients (9,27,28). When the problems experienced by the patients after surgery were examined in this study, it was determined that problems of hair loss, getting cold and constipation were the most frequent. Knowing complications and providing appropriate interventions and care for these is important in terms of preventing complications. Preventing complications or intervening with them at the early stage will also positively affect the quality of life of patients.

While obesity is a possibility for both sexes, it is seen more prevalently in women (29). The heavy roles taken on by women within the family and society lead them to not sufficiently care about their individual health and health-related behavior styles (30). In our study, it was seen that most of the patients who had obesity surgery were women, more complications developed in the women, and the women were more inadequate in comparison to the men in managing the process after obesity surgery.

According to the results of our study, we may state that obesity surgery contributed positively to the quality of life of the patients from all educational levels. Despite this, in our study, it was determined that those with a high educational level experienced more problems in the physical function sub-dimension. An increase in the education levels of individuals may lead them to look for a new solution regarding obesity, and this has a positive effect in more responsible compliance with and management of the adaptation process after obesity surgery. Therefore, as educational level increases, clear revelation of expectations from surgery and a more responsible expectation of lifestyle changes after surgery are in question. It is thought that the quality of life levels of the patients with high educational levels in this study were affected due to the fact that they were aware of their problems. Dagsland et al. (2018) concluded that, as the education level of individuals increases, postoperative quality of life is affected positively in the physical and mental aspects (31). In another study, it was reported that the postoperative quality of life of individuals increased independently of sociodemographic data (e.g., age, sex, educational status, marital status) (32).

Several studies have determined that weight loss after surgical intervention has a significant effect on quality of life (25,33-35). A study on cases who received bariatric surgery used the Short Form (SF-36) and reported that there were noticeable improvements in the quality of life of patients who experienced a weight loss of approximately 25% of their body weight 20 weeks after surgery (35). Kiewieta et al. (2008) observed that there was a significant reduction in BMI values in patients who received stomach bands, and as a result, this increased quality of life in the positive direction (36). In our study, it was determined that the quality of life of the patients with a BMI of 18.5-24.9 was better than those with a BMI of 30 or higher. Moreover, the mean scores of the patients who found their postoperative weight ideal in QoL-OS and dimensions/sub-dimensions were higher, which meant that their quality of life was higher in all aspects. It was observed that the success of the individuals who participated in the study in weight management and their satisfaction status with their weight positively affected their quality of life.

CONCLUSION

Consequently, Sleeve Gastrectomy, which is a bariatric surgery method applied on morbidly obese patients, is an effective method in terms of weight loss. In assessment of the success of surgery, in addition to weight loss and improvement in comorbidities, improvement in quality of life should also be kept in mind. The positive changes created in the life of the individual by reduction in weight have an undeniably important place in determining the benefits of bariatric surgery. To determine the changes in

the quality of life of individuals, multi-dimensional and objective measurement instruments should be utilized.

In this study where the quality of life and complications of the patients were assessed in the postoperative period by using the Quality of Life Following Obesity Surgery Scale, it was observed that the quality of life of the patients increased by weight loss. Furthermore, we are of the opinion that it would provide significant contributions to the literature and the clinic to conduct multicenter studies with a sufficient sample size by forming patient groups on whom both the method applied in this study and different bariatric surgery procedures are applied and investigating the effects of these methods on postoperative quality of life, where patients will be also followed up at 1 year and 2 years after surgery, and long-term outcomes will be combined.

AUTHORS' CONTRIBUTION

Idea – DA, HCA, AÇY, KK

Design – DA, HCA, AÇY, EU, ÖD, KK

Materials - HCA, AÇY

Data Collection and/or Processing –HCA, AÇY, EU, ÖD

Analysis and/or Interpretation - HCA, AÇY, EU, ÖD

Literature Review - DA, HCA, AÇY, EU, ÖD, KK

Critical Review – DA, KK

CONFLICT OF INTEREST

No potential conflict of interest was reported by the authors.

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