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Research

Examining the Quality of Life and Healthy Lifestyle Behaviour Before and After Bariatric Surgery

Obezite Cerrahisi Öncesi ve Sonrası Yaşam Kalitesi ve Sağlıklı Yaşam Biçimi Davranışlarının İncelenmesi

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ABSTRACT

Objective: In this study, we aimed to examine the impact of healthy lifestyle behavior and quality of life scale of patients undergoing bariatric surgery and their demographic and disease-related features before and after bariatric surgery.

Methods: The research was completed with a total of 33 patients who had undergone bariatric surgery, and it was carried out according to the descriptive cross-sectional research in İstanbul. The data were collected using the Descriptive Information form, Healthy Lifestyle Behaviour, and Quality of Life scales.

Results: Of the patients, 75.8% were female, and their mean age was 37.9±13.1 years. Of the patients, 27.2% had sexual problems before operation, 6% had quite sexual problems after operation, had no limitation of movement after operation, 78.7% before operation were 3rd class obese, and 15.2% were found to be 3rd grade obese. It was observed that the physical and mental main scores of the quality of life scale and the total score of the healthy lifestyle behaviors scale increased significantly after the operation compared with the pre-operative period ($p<0.05$).

Conclusion: The body mass indexes of the patients decreased after the operation, and the symptoms of the disease and sexual problems decreased. In the study, it was concluded that the reduction of body weight provided by bariatric surgery is effective in increasing the quality of life of patients.

Keywords: Bariatric surgery, healthy lifestyle behaviour, quality of life

ÖZ

Amaç: Çalışma obezite cerrahisi uygulan hastalarda, demografik ve hastalığa ilişkin özellikleri sağlıklı yaşam biçimi davranışları ve yaşam kalitesine operasyon öncesi ve sonrasında oluşan etkilerini belirlemek amacıyla yapıldı.

Gereç ve Yöntem: Çalışma; obezite cerrahisi uygulanan toplam 33 hasta ile tanımlayıcı kesitsel araştırma tipine göre İstanbul ilinde gerçekleştirildi. Veriler Tanıtıcı Bilgi formu, Sağlıklı Yaşam Biçimi Davranışları ve Yaşam Kalitesi ölçekleri kullanılarak toplandı.

Bulgular: Araştırmaya katılan hastaların, %75,8'i kadın, ve yaş ortalamaları 37,9±13,1'dir. Hastaların operasyon öncesi %27,2'sinin oldukça cinsel sorun yaşadığı sonrasında ise, %6'sının oldukça cinsel sorun yaşadığı, operasyon sonrasında hareket kısıtlılığı yaşamadıkları, öncesi %78,7'sinin 3. sınıf obez, sonrası %15,2'sinin 3. sınıf obez olduğu saptandı. Hastaların, operasyon sonrasında operasyon öncesine göre yaşam kalitesi ölçeği fiziksel ve mental ana skor puanlarının ve sağlıklı yaşam biçimi davranışları ölçeği toplam puanının anlamlı ölçüde arttığı görüldü ($p<0,05$).

Sonuç: Hastaların operasyon sonrasında vücut kitle indekslerinin azaldığı, hastalık semptomları ve seksüel problemlerinin azaldığı görüldü. Çalışmada, bariatrik cerrahinin sağladığı vücut ağırlığının azalmasının hastaların yaşam kalitesini artırmada etkili olduğu sonucuna varılmıştır.

Anahtar Kelimeler: Obezite cerrahisi, sağlıklı yaşam biçimi davranışları, yaşam kalitesi

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INTRODUCTION

Obesity is a complex disease characterized by an abnormal or excessive amount of body fat (1). Obesity appears to be an increasing problem in Türkiye and in developed countries. The main reasons for the increase in obesity prevalence are, especially with the developing technology in transportation, entertainment, production, and agriculture sectors, the decrease in physical activity secondary to the facilitation of the lifestyle and the increase in energy intake because of the rapid change in dietary habits.

According to the World Health Organization (WHO) report (2022), 59% of adults in the European region reported that one-third of every child complained of being overweight or obese. Data have shown that it increases obesity rates in the coronavirus disease-2019 pandemic. The prevalence of obesity in the adult population in Türkiye exceeds 30%. Although the prevalence of obesity is higher in women, the recent rapid increase in male obesity is also noteworthy. According to the WHO European Region, according to the Obesity Report 2022. It has been reported that the country with the highest prevalence of obesity is Türkiye in the European. In Türkiye, 66.8% of the adult population is overweight and 32.1% is obese (2,3). The fact that obesity is such a significant problem and has a high prevalence makes both obese individuals and experts in search of treatment. In obesity treatment, surgical methods including new techniques and diet, exercise, medicine, and similar methods have been started to be used. When the reason directing obese individuals to surgery is examined, it is observed that a great majority of the obese and overweight individuals are not ready for the treatment programs that may get their weight under control and provide continuance of their diets or cannot maintain their treatment, many of them are deprive of the exercise programs and the behavioral change therapies and the psychological problems that have a significant effect on eating behaviors are not treated (4,5).

The daily lives, physical activities, and sleep quality of obese individuals are significantly affected. Obesity affects the social and psychological balance of the individual negatively by causing them to stay away from social life (6). It has been reported that recovery has been observed in the quality of life (QOL) and mental health after bariatric surgery (7). Individuals with high QOL maintain their lives independently and meet their requirements and daily life activities. It has been reported that individuals with healthy lifestyle behaviors have a high QOL and display health preventive and promotion behaviors more easily (8). This study aimed to examine the effect of surgical operation on healthy lifestyle behaviors and QOL in Turkish patients who underwent bariatric surgery.

METHODS

The study was conducted with 33 Turkish patients who were willing to participate in the study, among 51 patients who applied to a Private Clinic in İstanbul for bariatric surgery after the approval of the Haliç University Non-invasive Clinical Research Ethics Committee was received (decision no: 3, date: 24.10.2018). All patients were informed about the study, and written informed consent was obtained for the protocol. This was a descriptive and cross-sectional study. Laparoscopic Roux-en-Gastric bypass was performed in the patients. The research was conducted using face-to-face interview technique in the pre-operative period and at the 6th month postoperative follow-up. The introductory information form, including personal characteristics and disease-related information in the pre-operative period and in the postoperative 6th month, "Healthy Lifestyle Behaviours" scale and "SF-36 Quality of Life" questionnaire were used in the study to collect the data.

Introductory Information Form

The introductory information form includes questions for determining age, gender, marital status, educational level, pre-operative and postoperative body mass index (BMI), profession, family history of the disease, duration of the disease, smoking use, chronic illness (i.e., hypertension, diabetes,.), receiving psychological support, pre-operative and postoperative problems, and pre-operative and postoperative sexual behaviors. Weight and height measurements of each patient were recorded to measure BMI using the standard BMI formula (kg/height^2). Persons with BMIs between 18.5 and 24.9 were considered to have normal weight and were included in the first group. The second group comprised persons who presented BMIs between 30.0 and 39.9, which are considered degrees I and II of obesity. The obesity third group was composed of BMI greater than or equal to 40 (9).

Healthy Lifestyle Behaviours Scale

The Health Promoting Lifestyle Measurement Instrument was advanced by Walker et al. (10) (1987) and derived from the health promotion model of Pender to measure the health promotion behaviors of individuals. The Turkish validity and reliability study of the Healthy Lifestyle Behaviours scale was conducted by Bahar et al. (11). The scale is composed of 52 items and six factors. These include spiritual growth, interpersonal relations, nutrition, physical activity, health responsibility, and stress management. The scale is rated

and scored as never (1) and regularly (4). The lowest possible score is 52, and the highest score is 208.

SF-36 Quality of Life Questionnaire

The Short Form-36 (SF-36) QOL questionnaire was developed by Ware (12) to assess the QOL. The Turkish validity and reliability study of SF-36 was conducted by Koçyiğit et al. (13). The questionnaire consists of 36 items and measures 8 dimensions of health: physical functionality (10 items), social functioning (2 items), role limits due to physical problems (4 items), role limits due to emotional problems. problems (3 items), mental health (5 items), energy/vitality (4 items), pain (2 items), and general health perception (5 items). It assesses health between 0 and 100 with the subscales. There is no total scoring calculation. Zero points signify bad health and 100 points signify well-being. The weighted sum of the scores of the questions, including the subscales of the SF-36 QOL scale, is calculated so that the physical and mental health summary score is obtained.

Statistical Analysis

The assessment of the data was performed using IBM SPSS Statistics 22 software. To assess the conformity of the data to the normal distribution, the Kolmogorov-Smirnov test was used. Descriptive statistics (mean, standard deviation, percentage, frequency), paired t-test, and Pearson's correlation test were used for normally distributed data. The data were examined at a significance level of $p<0.05$.

RESULTS

It was detected that 39.3% of the patients were between the ages of 19 and 30 years, 75.8% were female, 57.5% had graduate and postgraduate education, and 66.7% were employed. (Table 1). It was determined that there were obese people in the families of 54.5% of the participants, 63.6% had a weight problem for 4-21 years, 60.6% had an additional disease, 33.3% of the patients were smoker before the operation, 18.2% reduced smoking after the operation, 21.2% had psychological support, all of them stopped having psychological support after the operation, and when the BMI values were examined before the operation, it was observed that 78.7% of them were class 3 obese and 57.5% were class I obese after the operation. It was observed that 36.4% of the patients had shortness of breath before the operation, 27.3% had joint pains, 39.4% had social isolation, 51.5% had a limitation of movement, and they did not experience these problems after the operation. It was determined that 57.6% of them did not experience any sexual problem before the operation and 84.8% did not have any sexual problem after the operation, 24.2% of them felt that they lost sexual attraction before the operation, 21.2% felt that their sexual drive reduced/disappeared and after the operation, 6.1% of them felt that they lost sexual attraction, and 9.1% felt that their sexual desire reduced/disappeared (Table 2).

It was observed that the main dimension of healthy lifestyle behaviors and the QOL questionnaire subscale and total scores of the patients increased at a statistically significant level in the postoperative period compared with the pre-operative period ($p<0.01$) (Table 3). When the scores of the patients taken from the subscales of the healthy lifestyle behaviors scale in the preoperative and postoperative periods were examined, it was observed that they had higher scores from all the subscales of the scale in the postoperative period compared with the pre-operative period ($p<0.01$) (Table 4). Before the operation, a positive moderate correlation was found between the score of healthy lifestyle behaviors and the physical main dimension of the QOL questionnaire ($r=0.41$; $p<0.05$) and a positive moderate significant correlation was found between the score of healthy lifestyle behaviors and the mental main dimension ($r=0.42$; $p<0.05$). After the operation, a positive moderate significant correlation was found between the

Table 1. The sociodemographic characteristics of the patients (n=33)

Variable	Variable categories	Number	Percentage
Age	19-30	13	39.3
	31-50	15	45.5
	51-67	5	15.2
Gender	Female	25	75.8
	Male	8	24.2
Marital status	Married	17	51.5
	Single	16	48.5
Educational status	Primary education	5	15.2
	High school	9	27.3
	Graduate and postgraduate	19	57.5
Employment status	Employed	22	66.7
	Unemployed	11	33.3
The presence of obese family member	Yes	18	54.5
	No	15	45.5
The duration of weight problem	4-21 years	21	63.6
	22-39 years	10	30.3
	40-56 years	2	6.1
Chronic illness (i.e., hypertension, diabetes, ...)	Yes	20	60.6
	No	13	39.4

Table 2. The disease-related characteristics of the patients (n=33)

Variable	Before operation		Variable	After operation	
	Number	Percentage		Number	Percentage
Smoking					
Yes	11	33.3	Decreased	6	18.2
No	17	51.5	Increased	1	3.0
Quitting	5	15.2	Same	26	78.8
Psychological support					
Yes	7	21.2	Yes	-	-
No	26	78.8	No	33	100
BMI					
Class I obese	2	6.1	Normal weight	2	6.1
Class II obese	5	15.2	Class I obese	19	57.5
Class III obese	26	78.7	Class II obese	7	21.2
	-	-	Class III obese	5	15.2
Problems of the patients*					
Shortness of breath	12	36.4	Shortness of breath	-	-
Joint pains	9	27.3	Joint pains	-	-
Social isolation	13	39.4	Social isolation	-	-
Limitation of movement	17	51.5	Limitation of movement	-	-
Sexual problems					
Never	19	57.6	Never	28	84.8
Little	5	15.2	Little	3	9.2
Quite	9	27.2	Quite	2	6.0
The reasons for preoperative sexual problems*					
The feeling of losing sexual attraction	8	24.2	The feeling of losing sexual attraction	2	6.1
The feeling of decreasing/losing sexual desire	7	21.2	The feeling of decreasing/losing sexual desire	3	9.1
The attitude of the partner	2	6.1	The attitude of the partner	2	6.1
Positional difficulty	3	9.1	Positional difficulty	-	-
Failing to tolerate effort	2	6.1	Failing to tolerate effort	2	6.1

*More than one answer was given, BMI: Body mass index

score of healthy lifestyle behaviors and the physical main dimension of the QOL questionnaire (r=0.37; p<0.05) and a positive moderate significant correlation was found between the score of healthy lifestyle behaviors and the mental main dimension (r=0.40; p<0.05) (data not shown in the table).

DISCUSSION

In obesity treatment, bariatric surgery, as well as diet, exercise, medicine, and traditional methods, is one of the methods used recently to recover, recover completely related to the other problems caused by obesity and to prevent the emergence of new problems caused by obesity (4). In addition to weight loss, metabolic and bariatric surgery leads to clinically significant improvements in obesity-related complications, cardiometabolic risk factors, musculoskeletal pain, and functional mobility (14).

It was observed that the main dimension of the QOL questionnaire and all subscales and total scores of the healthy lifestyle behaviors scale increased in the patients in the postoperative period. In addition, a positive significant moderate correlation was found between healthy lifestyle behaviors and the QOL questionnaire. Ustundag et al. (15) obtained similar results in their study. In another study, it was determined that obese individuals had higher scores on the healthy lifestyle behaviors scale after the operation compared with healthy individuals (16). In the study of Yaralı et al. (17) the mean healthy lifestyle behaviors scale total score of the patients who had bariatric surgery was found to be moderate. de Zwaan (18) showed results on QOL assessed based on the SF-36 questionnaire in the group of patients operated on with bariatric surgery only. Similar to our study, the

Table 3. The findings on the quality of life questionnaire overall and subscale scores of the patients before and after the operation (n=33)

Main dimensions and subscales	Before the operation		After the operation		t	p-value
	Mean	Standard deviation	Mean	Standard deviation		
Physical functioning	17.61	5.70	28.36	2.35	11.43	0.00**
Social functioning	6.06	2.39	9.09	1.07	7.20	0.00**
Physical role	5.09	1.60	7.48	1.00	7.86	0.00**
Mental role	4.21	1.29	5.89	1.94	4.04	0.00**
Mental health	15.55	4.92	24.45	3.88	8.94	0.00**
Vitality	11.24	4.54	18.97	4.05	7.89	0.00**
Pain	6.54	2.80	9.96	2.04	6.99	0.00**
General health perception	11.76	4.09	20.68	3.15	10.67	0.00**
Physical main dimension	40.99	9.70	66.48	6.33	14.14	0.00**
Mental main dimension	37.06	11.53	58.40	8.29	9.27	0.00**

**p<0.01, t: Paired t-test value

Table 4. The findings on the healthy lifestyle behaviours scale subscale scores of the patients before and after the operation (n=33)

Subscales	Before the operation		After the operation		t	p
	Mean	Standard deviation	Mean	Standard deviation		
Spiritual growth	24.27	5.03	29.97	3.73	6.86	0.00**
Health responsibility	18.21	4.76	23.24	5.14	6.01	0.00**
Physical activity	14.18	5.34	22.24	4.81	7.84	0.00**
Nutrition	19.27	4.07	23.48	3.75	6.79	0.00**
Interpersonal relations	25.39	4.72	28.61	4.44	5.06	0.00**
Stress management	17.97	3.26	21.97	3.97	6.54	0.00**
Total score	119.30	19.68	149.52	18.27	8.84	0.00**

**: p<0.01, t: Paired t-test value

author observed a significant improvement in all studied parameters (18).

It was determined that the patients undergoing bariatric surgery were mainly female. All over the world, the prevalence of obesity is higher in women. The reason for this is that women store fatter (19). It has been determined that the prevalence of obesity is 29.9% in women and 12.9% in men (20). It was observed that the patients undergoing bariatric surgery were mostly married and most of them were employed. All of the unemployed patients were housewives (19). Beyond weight loss, the benefit of bariatric surgery is also improved QOL for patients, as shown by the present study 2 years after surgery (21). Pirinçci et al. (22) showed that housewives were more obese than other occupations.

It was found that the patients undergoing bariatric surgery were mostly in the age group of 31-50 years. Ustu et al. (23) showed that among Turkish adults, obesity is positively associated with age. In the study by Loux et al. (24) it was determined that there was an enhancement in the QOL in young patients after bariatric surgery.

It was detected that 15.2% of the patients undergoing bariatric surgery were in the primary school group, 27.3% in the high school group, and 57.5% in the graduate and postgraduate group. The increasing educational level of the individuals may prompt them to seek new solutions, and this positively affects the adaptation period after bariatric surgery to be maintained and managed more consciously.

It was shown that 54.5% of the patients participating in the study had an obese family member. In another study, it was determined that most of the individuals had overweight parents and that there were other overweight individuals in their families (25). When the genetic factors causing the formation of obesity are examined, it has been determined that children with obese parents or children raised away from their biological parents tend to be obese. In particular, in studies with adopted children, it was observed that the BMI of the children was more similar to that of their biological parents (26).

When the duration of the weight problem of the patients in the sample group was examined, it was found that 63.6% of them had a weight problem for 4-21 years, 30.3% had this problem for 22-39 years, and 6.1% had this problem for 40-56 years. As the duration of the weight problem increased, they accepted this situation, and accordingly their adaptation process and life conditions were shaped.

It was observed that 21.2% of the patients had psychological support and 78.8% did not. It was determined that the patients who had psychological support did not need psychological support in the postoperative period. Obese women were found to be more depressed than normal women, and there was a significant relationship between BMI and depression (22). In the study by Wimmelmann et al. (7), it was observed that the psychiatric symptoms decreased after bariatric surgery similar to the improvement of inappropriate eating behaviors of the patients.

When the pre-operative BMI values of the patients were examined, it was observed that 6.1% of them were class I obese, 15.2% of them were class II obese, and 78.7% were class III obese. When their postoperative BMI values were examined, it was determined that 6.1% of them had normal weight, 24.2% were pre-obese, 57.5% were class I obese, 21.2% were class II obese, and 15.2% were class III obese. When the pre-operative and postoperative BMI values of the patients were examined, it was determined that the QOL and healthy lifestyle behaviors of all the groups were positively affected after the operation. A significant decrease was observed in the BMI values of patients who underwent vertical banded gastroplasty (27).

In our study, 60.6% of the patients were found to have an additional chronic disease. Kuyucu (2018) (28) determined that 56.7% of the individuals had an additional disease before the operation (diabetes, hypertension etc.). Zhang et al. (29) showed that insulin resistance improved 3 months after surgery in 37 obese patients who underwent laparoscopic sleeve gastrectomy.

It was found that before the operation, 36.4% of the patients had shortness of breath, 27.3% had joint pains, 39.4% had social isolation, and 51.5% had a limitation of movement. It was observed that after the operation, 12.1% of the patients had nausea and vomiting, 9.1% had pain in the wound site, and 15.2% had weakness. It was determined that the patients did not have the problems that they had before the operation or after the operation. In another study showed that weight loss associated with bariatric surgery improves dyspnea in daily living (30).

Psychosocial problems such as dissatisfaction with body images, unhappiness in marriages, and difficulties in sexual life are more frequent in obese people (31). When the condition of having sexual problems before and after the operation was examined, it was determined that 57.6% of the patients did not have any sexual problems before the operation, 15.2% had little sexual problems, and 27.5% had any significant sexual problems before the operation. It was determined that 84.8% of the patients did not have any sexual problems, 9.2% had little sexual problems, and 6% had significant sexual problems after the operation. When the reasons for having sexual problems before the operation were examined, it was determined that 24.2% had feelings of losing sexual attraction, 21.2% had feelings of decreased/lost sexual desire, and 9.1% had positional difficulty. When the conditions of having sexual problems after the operation were examined, it was determined that 6.1% of them had the feeling of losing sexual attraction, and 9.1% had the feeling of a decreased/lost sexual desire. Aras et al. (32) observed that sexual problems experienced before morbid bariatric surgery decreased and body perceptions and sexual functions were positively affected 3 months after the operation. Berino et al. (33) proposed that long-term follow-up is necessary to evaluate the behavior of people who have undergone bariatric surgery to limit weight gain and damage the perception of QOL.

Panella et al. (34) proposed that pre-surgical BMI might play a role in weight regain in the long term, and this should be considered in surgical decision-making.

This study had some limitations. The small number of participants is one of them. The results obtained from the research are limited to the answers of patients who applied to a private practice in İstanbul for bariatric surgery.

CONCLUSION

The results of the study can be generalized to patients in the examination where the data were collected. Another limitation is that the data of the patients, at least for the first few years after the operation, were not evaluated.

According to the results of the study, it was observed that the surgical operation enhanced the QOL of the patients, improved their healthy lifestyle behaviors significantly, and significantly decreased the problems due to being overweight. Maintaining weight after surgery is closely related to maintaining diet, exercise, and healthy lifestyle behaviors. It can be recommended to provide training programs to patients for the protection of weight loss at certain intervals and to improve healthy lifestyle behaviors after the operation.

ETHICS

Ethics Committee Approval: Haliç University Non-invasive Clinical Research Ethics Committee approval was received (decision no: 3, date: 24.10.2018).

Informed Consent: All patients were informed about the study, and written informed consent was obtained for the protocol.

Authorship Contributions

Surgical and Medical Practices: D.A., E.Y., Concept: D.A., H.Y., Design: D.A., H.Y., Data Collection or Processing: D.A., E.Y., B.K., Analysis or Interpretation: H.Y., Literature Search: D.A., E.Y., Writing: D.A., H.Y.

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