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Coping strategies in bariatric surgery candidates: a case-control study

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ABSTRACT

Aims: The aim of this study was to examine the relationship between coping strategies and some clinical and sociodemographic characteristics of people applied for metabolic bariatric surgery.

Methods: Forty people who applied to Balıkesir University Health Training and Research Hospital, Department of General Surgery to undergo bariatric surgery between August 2023 and November 2023 and 40 healthy volunteers with normal weight were included in the study. Sociodemographic data form and Coping Attitudes Assessment Scale (COPE) were applied to all participants.

Results: COPE positive reinterpretation and development, active coping, and planning subscale scores were statistically significantly higher in individuals with obesity, whereas focusing on the problem and venting of emotions, mental disengagement, and substance use subscale scores were lower in obese individuals compared to non-obese individuals ($p<0.05$). When the sociodemographic characteristics of the participants and the COPE subscale dimension scores were compared, emotion-focused coping subscale scores werefound to be higher in non-alcoholic persons than alcohol users.

Conclusion: Although obesity itself as well as the treatment methods are quite challenging, the fact that individuals who apply for bariatric surgery frequently use coping attitudes that are oriented towards adaptation, supportsthe fact that they are actively trying to cope with obesity.

Keywords: Obesity, coping styles, metabolic bariatric surgery

INTRODUCTION

Obesity is a health problem characterized by abnormal and excessive fat accumulation in the body.[1] The main causes of obesity include increased energy intake through overeating, decreased physical activity and decreased energy expenditure caused by sedentary lifestyle.[2] The World Health Organization (WHO) considers a body-mass index (BMI) of ≥30 kg/m^2 as obesity. According to the Turkey Health Survey 2022 data, 20.2% of individuals aged 15 years and older in Turkey are struggling with the problem of obesity. In addition, it has been reported that 23.6% of women and 16.8% of men are obese, while 30.9% of women, and 40.4% of men are pre-obese.[3] Genetic, metabolic, environmental, diet-related and psychological factors are responsible for the development of obesity. Mental causes of obesity are explained according to different psychological theories. According to the psychodynamic view, inappropriate experiences in the oral period or problems in later psychosexual stages cause the individual to be stuck in the oral period and may lead the individual to try to relieve the sadness or pain in later life by eating excessively. According to learning theory, the repetition of using food as a means of comfort or reward may lead to the conditioning of the child and the development of the perception that he/she can only be comforted by eating food. For example, if a child is rewarded for eating, he/she may repeat this behavior in order to receive a reward or not to postpone the reward.[4] According to the cognitive behavioral view, it is argued that obese individuals have dysfunctional thoughts and behaviors that cause weight gain.[5]

Eating behavior associated with negative emotions such as anger, depression, distress, anxiety and loneliness is defined as emotional eating.[6] According to the psychosomatic theory associated with emotional eating, individuals do not understand internal stimuli correctly and eat in response to their emotions rather than in response to physiological hunger needs and satiety[7,8] It is also thought that emotional eating occurs due to inadequate coping skills, especially with stress, and is used as a mood regulation strategy.[4,9] The relationship between stress and obesity is considered to be bidirectional. Stress may cause overeating and consumption of foods high in

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calories, fat or sugar, and reduces physical activity. Stress can also stimulate the production of biochemical hormones and peptides such as leptin, ghrelin and neuropeptide Y.[10] People encounter stress in various phases of life (adolescence, job change, divorce, loss of relatives, etc.). At this point, coping responses to stress are considered to be very important to eliminate these negative effects of stress. The resistance of the person against the events or factors that create stress for him/her and all of the cognitive, emotional and behavioral reactions to these events are defined as coping[11] According to Lazarus and Folkman's stress and coping model, any event or situation in the environment leads the person to evaluate the meaning and importance of this event. After evaluation of the meaning and consequences of the stressors by the individual, he/she starts to apply coping strategies.[12] Coping strategies are survival mechanisms that the individual activates in order to minimize the emotional, psychological and physical damage that he/she will suffer in the face of a stressful situation. Coping attitudes can generally be divided into two categories as problem-solving-oriented and emotion-driven attitudes.[11,13] Problem-solving -oriented coping attitudes include coping attitudes towards the source of the problem, while emotion-driven oriented coping attitudes include coping attitudes towards the emotional state caused by the source of the problem. Folkman et al.[14] state that problem-focused behaviors involve active, logical, cool-headed and conscious efforts to change the situation. In contrast to problem-focused coping, emotion-focused coping involves passive methods such as distancing, self-control, accepting the situation if there is nothing to be done, seeking social support and reevaluating the situation. Coping attitudes can also be divided into active and passive attitudes. Active ones include behavioral or psychological responses that aim to intervene or eliminate the stressor (s), while passive ones include behaviors that provide distancing from the stressor(s). It is also possible to define coping attitudes as adaptive and maladaptive. Maladaptive coping attitudes are important in revealing the relationship between stressors and psychiatric disorders such as binge eating disorder, which is frequently encountered in obese patients. An individual's confidence in coping mechanisms and a sense of control over the situation leads to the activation of strategies aimed at eliminating the causes of the problem. Conversely, inadequately perceived coping resources and feelings of desperation will lead to the activation of avoidance strategies.[15] Understanding the coping attitudes used by an individual in the face of a stressful event is thought to be helpful in determining treatment goals and monitoring treatment efficacy. For this purpose, our study aimed to determine the coping strategies of metabolic bariatric surgery candidates. Our hypothesis is that coping attitudes differ in obese individuals who are candidates for bariatric surgery compared to non-obese individuals and will be related to various sociodemographic and clinical variables.

METHODS

Ethics

Before starting the study, the necessary ethics committee approval for the conduction of this research was obtained from Balıkesir University Health Sciences Non-interventional Researches Ethics Committee (Date: 15.08.2023, Decision No: 2023/81). All procedures were carried out in accordance with the ethical rules and the principles of the Declaration of Helsinki.

The Place, Time, Type and Purpose of the Study

This cross-sectional study was planned in Balıkesir University Health Practice and Research Hospital, Department of Mental Health and Diseases between August 2023 and November 2023.

Research Population and Sample

The population of the study consisted of people who applied to Balıkesir University Health Practice and Research Hospital for metabolic bariatric surgery. The sample was selected by simple random sampling method among the applicants aged between 18-65 years. Illiterate patients, patients with active psychotic episodes, dementia, alcohol and substance use disorders were not included in the study. As the control group, age-matched healthy individuals with a BMI <30 kg/m^2 who did not have any psychiatric illness and met the inclusion criteria were included in the study.

Data Collection Tools

Sociodemographic Data Form: Sociodemographic data form inquiring the age, gender, education level, height, weight, marital status, household people, history of psychiatric illness, family history of psychiatric illness, chronic diseases, alcohol use and smoking status of the participants was prepared by the researchers.

Coping Attitudes Assessment Scale (COPE): The scale developed by Carver et al. in 1989 was translated into Turkish by Ağargün et al. in 2005 and a reliability study was conducted. Cronbach's α value was found to be 0.79 and a positive, and statistically significant correlation existed between the subscale scores with the COPE total score of 51. The scale consisted of 60 questions and 15 subscales in which different coping attitudes were evaluated. Each subscale consists of four questions. The higher scores of the subscales give the possibility to comment on the coping attitude which is used more frequently by the study participant.[16,17]

Statistical Analysis

The statistical analyzes were performed using SPSS 26.0 (The Statistical Package for the Social Sciences) package program. The conformity of the numerical variables to normal distribution was evaluated according to p>0.05 in the Kolmogorov-Smirnov test and the conformity of the histogram graph to the bell curve. In descriptive analyses, number and percentage values were given for categorical data; mean and standard deviation, median, minimum and maximum values were given for continuous data. The Mann-Whitney U test was used in the analysis of independent variables with two groups that did not meet the parametric conditions, and the Kruskal Walli' test was used in the analysis of independent variables with three or more groups.

RESULTS

The mean age of the bariatric surgeryl candidates (38.60±13.66 years), and the control subjects (41.67±10.55 years) included in the study population were as indicated female, and married individuals constituted the majority of both groups. Hypertension was found to be the most common comorbid chronic disease in study participants of both groups. Sociodemographic data of the participants are presented in Table 1.

Respective percentages of obese (47.5%), and non-obese (32.5%) individuals were smokers. The 25% of the obese and 30% of non-obese participants were alcohol users. There was no statistically significant difference between the groups in terms of alcohol and cigarette use (p>0.05) (Table 2).

When the COPE subscale scores of the individuals participating in the study were compared between the groups, it was found that the sub-dimension scores of positive reinterpretation and development, active coping, and making plans among coping attitudes were higher in obese individuals

Table 1. Distribution of sociodemographic characteristics of the participants

			Bariatric surgery candidates		Control group			
			n	%	n	%	X^2	p
Gender	Female		25	62.5	23	57.5	0.21	0.64
	Male		15	37.5	17	42.5		
Marital status	Single		14	35.0	12	30.0	0.99	0.61
	Married		22	55.0	21	52.5		
	Divorced/widower		4	10.0	7	17.5		
The individual(s) living together with the study participant	Alone		5	12.5	12	30.0	3.71	0.15
	Family		33	82.5	26	65.0		
	Dormitory/roommate		2	5.0	2	5.0		
Education status	Primary school		10	25.0	5	12.5	2.38	0.30
	High school		15	37.5	20	50.0		
	University		15	37.5	15	37.5		
Psychiatric diseases	Yes	Panic disorder	2	5.0	1	2.5	1.40	0.23
		Depression	2	5.0	1	2.5		
		Anxiety disorder	1	2.5	0	0.0		
	No		35	87.5	38	95.0		
Family history of psychiatric disease	Yes	Panic disorder	2	5.0	1	2.5	0.83	0.36
		Depression	2	5.0	2	5.0		
		Bipolar disorder	1	2.5	2	5.0		
		Anxiety	0	0.0	3	7.5		
	No		35	87.5	32	80.0		
Family members with psychiatric disease (n=13)	Mother		1	2.5	3	7.5	0.74	0.65
	Father		0	0.0	2	5.0		
	Sibling		3	7.5	2	5.0		
	Son		0	0.0	1	2.5		
Comorbidity (ies)	Yes		15	37.5	12	30.0	0.50	0.48
	No		25	6..5	28	70.0		

Table 2. Characteristics of Alcohol and Cigarette Use of the Participants

		Bariatric surgery candidates		Control group		X^2	p
		n	%	n	%		
Alcohol use	Yes	10	25.0	12	30.0	0.25	0.61
	No	30	75.0	28	70.0		
Frequency of alcohol use (n=22)	Less than once a month	3	30.0	2	16.7	0.70	0.87
	2-4 times a month	5	50.0	7	58.3		
	2-3 times a week	1	10.0	1	8.3		
	≥4 times a week	1	10.0	2	16.7		
Smoking status	Smoker	19	47.5	13	32.5	1.87	0.17
	Nonsmoker	21	52.5	27	6.5		

compared to non-obese individuals, but the sub-dimension scores of focusing on the problem and venting of emotions, mental disengagement and substance use were lower in obese individuals compared to non-obese individuals (Table 3).

When the sociodemographic characteristics of the participants were compared with the COPE subscale dimension scores, it was found that the emotion-focused coping subscale score was higher in non-alcohol users than in users (Table 4).

Table 3. Intergroup comparisons of COPE subscale dimension scores

	Control group median (min-max)	Bariatric surgery candidates median (min-max)	Test value	p
Emotion-focused coping	53 (35-71)	54.5 (20-74)	-0.84	0.39
1. Seeking emotional/social support	12 (5-16)	11 (4-16)	-1.19	0.23
2. Positive reinterpretation and growth	12 (6-16)	14 (4-16)	-2.74	0.006*
3. Acceptance	10 (5-14)	10 (4-15)	-1.08	0.28
4. Humor (Hitting the joke)	8 (4-16)	9 (4-15)	-0.30	0.76
5. Turning to religion	12 (4-16)	13 (4-16)	-1.42	0.15
Problem-focused coping	55 (32-74)	57 (22-74)	-1.47	0.14
6. Active coping	11 (4-16)	13 (5-16)	-2.59	0.009*
7. Planning	12 (6-16)	13 (4-16)	-2.64	0.008*
8. Suppression of competing activities	10 (7-16)	10 (4-16)	-0.30	0.76
9. Restraint coping	9.5 (5-13)	9 (4-15)	-0.21	0.83
10. Seeking useful social support	12.5 (4-16)	12 (4-16)	-1.49	0.21
Nonfunctional coping	45 (30-66)	36.5 (26-57)	-4.34	0.001*
11. Focusing on problem and venting of emotions	12 (7-16)	10.5 (4-16)	-3.18	0.01*
12. Denial	6 (4-16)	6 (4-11)	-0.73	0.46
13. Mental disengagement	11 (6-15)	9 (4-16)	-2.73	0.006*
14. Behavioral disengagement	6.5 (4-13)	5 (4-11)	-2.30	0.02
15. Substance use	8 (4-16)	4 (4-13)	-3.19	0.001*

Table 4. Comparison of the participants' sociodemographic characteristics and COPE subscale dimension scores

		Emotion-focused coping median (min-max)	Problem- focused coping median (min-max)	Non-functional coping median (min-max)
Gender	Female	53.5 (20-73)	56 (22-72)	40 (28-62)
	Male	54.5 (27-74)	56.5 (24.74)	40 (26-66)
	Test Z value/p	Z:-0.60 p:0.55	Z:-0.26 p:0.79	Z:-0.16 p:0.87
Education status	Primary education	53 (20-71)	57 (22-74)	37 (26-56)
	High school	53 (36-74)	56 (32-74)	40 (26-66)
	University	54.5 (35-69)	55.5 (36-74)	40.5 (31-56)
	Test value/p	KW:0.81 p:0.66	KW:0.31 p:0.85	KW:2.31 p: 0.32
Marital status	Single	53 (36-74)	55 (32-74)	38 (27-66)
	Married	54 (20-73)	56 (22-74)	41 (26-57)
	Divorced/widower	56 (45-66)	56 (50-70)	38 (32-51)
	Test value/p	KW:0.60 p:0.74	KW:0.84 p:0.65	KW:1.19 p:0.55
The individual(s) living together with the study participant	Alone	55 (36-71)	53(32-70)	37(27-66)
	Family	54 (20-74)	56(22-74)	40(26-62)
	Dormitory/roommate	49 (43-67)	57(50-71)	39(37-47)
	Test value/p	KW:0.54 p:0.76	KW:2.04 p:0.36	KW:54 p:0.76
Psychiatric disease	Yes	50 (45-73)	56 (47-72)	38 (36-46)
	No	54 (20-74)	56 (22-74)	40 (26-66)
	Test value/p	Z:-1.09 p:0.27	Z:-0.13 p:0.89	Z:-0.58 p:0.55
Comorbidity	Yes	55 (27-69)	58 (24-74)	38 (26-56)
	No	53 (20-74)	55 (22-74)	40 (28-66)
	Test value/p	Z:-0.21 p:0.83	Z:-1.09 p:0.27	Z:-0.93 p:0.35
Family history of psychiatric disease	Yes	48 (36-61)	56 (44-60)	41 (26-56)
	No	55 (20-74)	56 (22-74)	40 (26-66)
	Test value/p	Z:-2.67 p:0.008	Z:-0.75 p:0.45	Z:-0.07 p:0.94
Smoking status	Smoker	54.5 (27-74)	56 (24-74)	39.5 (26-56)
	Nonsmoker	53 (20-71)	55.5 (22-74)	40 (28-66)
	Test value/p	Z:-0.67 p:0.49	Z:-0.42 p:0.67	Z:-0.39 p:0.69
Alcohol use	Yes	51 (35-67)	56 (32-71)	42 (26-66)
	No	55 (20-74)	56 (22-74)	39.5 (26-62)
	Test value/p	Z:-2.16 p:0.03*	Z:-0.52 p:0.60	Z:-1.37 p:0.17

DISCUSSION

This study examined the characteristics of obese individuals, the coping strategies they use to cope with obesity, and the relationship between coping strategies and some sociodemographic characteristics. Our main results showed that individuals applied for bariatric surgery used more frequently emotion-focused and problem-focused functional coping strategies.

Considering our sociodemographic and clinical data; our study participants are in the middle age group consisting mainly of female candidates similar to what is reported in the literature.[18,19] Compared to men, women are more likely to be diagnosed with obesity and to seek and receive all types of obesity treatment, including behavioral, pharmacological interventions and bariatric surgery.[20] In addition, in many studies, the proportion of women applying for bariatric surgery was found to be higher than men.[21] In terms of education level, primary school graduates are more common among bariatric surgery candidates. Most studies in developed countries have reported that education level is negatively correlated with risk of obesity in both men and women.[22,23]

Hypertension was found to be the most common comorbidity observed in both male and female study participants. Several studies have shown a clear relationship between increased blood pressure and weight gain.[24] It has been shown that obese people are 3.5 times more likely to develop hypertension and 60% of cases of hypertension can be attributed to an increase in fat stores in the body.[25] In this study, 47.5% of obese and 32.5% of non-obese individuals were smokers. Smoking has been shown to induce the distribution of body fat and may be associated with central obesity.[26,27] It has also been reported that the impact of obesity is not evenly distributed in the society and that smokers constituted the group that may be prone to obesity-related problems.[28]

According to our results, the sub-dimension scores of positive reinterpretation and development, active coping, and making plans from coping attitudes were higher in obese individuals compared to non-obese individuals, but the sub-dimension scores of focusing on the problem and venting emotions, mental disengagement, and substance use were lower in obese individuals. In summary; in our study, it was found that individuals who applied for bariatric surgery used emotion-focused and problem-focused functional coping strategies more frequently. In another study, it was found that patients who volunteered for bariatric surgery used problem-solving style to manage their stress.[29] Similarly, a study showed that the most common coping strategies of morbidly obese individuals were planning, active coping and positive reinterpretation.[30] In our study, focusing on the problem and venting emotions, mental distraction and substance use, which are among the sub-headings of dysfunctional coping strategies, were observed less frequently in bariatric surgery candidates. When the coping strategies relative to obesity are evaluated, it is expected that the frequency of using dysfunctional attitudes increases in parallel with the level of obesity. However, the authors associated this situation with the fact that the participants were morbidly obese but were able to make the decision of undergoing surgery during the treatment process and were actively seeking a solution to the problem. However, longer-term studies evaluating levels and duration of obesity, and treatment interventions are needed to determine this relationship. It was also stated that using active coping strategies may be a determinant for better weight loss outcomes after bariatric surgery.[31] Therefore, establishment of a multidisciplinary approach, requring interactive cooperation among bariatric surgeon, dietician, mental healthcare workers, and other healthcare professionals is recommended.

Our study has some limitations including its single center design, relatively small sample size, and the use of self-report scales, where participants having approval anxiety attempt to be healthy which may cause bias in the preoperative psychiatric evaluation.

CONCLUSION

In conclusion, obesity is not only a metabolic disorder but also a multisystem disorder with psychological components. Considering mental components of obesity should be regarded as an important step in facilitating patient compliance with treatment and preventing recurrences. It is thought that determining the general characteristics of bariatric surgery candidates, evaluating their mental status and revealing the differences between genders, determining coping skills and applying therapeutic techniques to improve their health status will help to predict the success and possible outcomes of surgery when supported by postoperative follow-up studies in the future. For this purpose; setting specific and achievable goals in the preoperative and postoperative period, diet and exercise plans, developing solutions by identifying the obstacles encountered, and including social supports in the process may increase the motivation of the patienta and reduce their stress in the postoperative period.

ETHICAL DECLARATIONS

Ethics Committee Approval
The study was carried out with the permission of Balıkesir University Health Sciences Non-interventional Researches Ethics Committee (Date: 15/08/2023, Decision No: 2023/81).

Informed Consent
All patients signed and free and informed consent form.

Referee Evaluation Process
Externally peer-reviewed.

Conflict of Interest Statement
The authors have no conflicts of interest to declare.

Financial Disclosure
The authors declared that this study has received no financial support.

Author Contributions
All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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