

# Effect of Binge Eating Disorder on the Treatment Process of Bariatric Surgery

## Tıkınırcasına Yeme Bozukluğunun Obezite Cerrahisi Tedavi Sürecine Etkisi

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### Abstract

Obesity, which continues to be widespread from past to present, is a disease to have physical, social, environmental and psychological effects. The presence of many causes of obesity and its comorbid diseases results in serious financial consequences in the diagnostic and treatment process. The methods chosen for the treatment of obesity varies according to the person's body mass index and the presence of comorbid disease. One these methods is bariatric and metabolic surgery (obesity surgery), and it is applied in the case of having additional diseases to patient's obesity and preferences of surgeon in addition to obesity. The most important thing to know about this issue is that obesity surgery is involved in a very comprehensive treatment. After surgery, the person should be followed with a multidisciplinary approach by an internal medicine specialist, a dietician specializing in bariatric surgery, a psychiatrist or psychologist specializing in nutrition and eating disorders. One of the most important problems encountered before and after the operation, which may adversely affect the success of the operation, is binge eating disorder. This article focuses on how binge eating disorder and mood influence obesity surgery.

**Keywords:** Binge eating disorder, bariatric surgery, binge eating disorder, psychological support

### Öz

Geçmişten günümüze yaygınlığı hızla devam eden obezite, fiziksel, sosyal, çevresel ve psikolojik etkileri olan bir hastalıktır. Obezitenin birçok sebebinin olması ve eşlik eden hastalıkların bulunması, tanı alma ve tedavi sürecinde ciddi sonuçlarla karşılaşılmasına yol açmaktadır. Obezite tedavisi için seçilen yöntem kişinin beden kitle indeksine ve eşlik eden hastalığın varlığına göre değişiklik göstermektedir. Bu yöntemlerden biri olan, bariatrik ve metabolik cerrahi (obezite cerrahisi) kişinin obezitesine ek olarak sahip olduğu diğer hastalıklara ve cerrahin tercihine göre uygulanmaktadır. Bu konuda bilinmesi gereken en önemli şey; obezite cerrahisinin kapsamlı bir tedaviyi gerektirdiği ve tedavi sürecinin bir ekip ile birlikte yürütülmesi gerektiğidir. Cerrahi operasyon sonrası kişi için hastalıkları uzmanı, obezite cerrahisi alanında uzmanlaşmış diyetisyen, beslenme ve yeme bozuklukları alanında uzmanlaşmış bir psikiyatrist ya da psikolog tarafından multidisipliner bir yaklaşım ile takip edilmelidir. Operasyon öncesi ve sonrası karşılaşılan, operasyonun başarısını olumsuz yönde etkileyebilen, en önemli sorunlardan biri ise tıkınırcasına yeme bozukluğudur. Bu makalede, tıkınırcasına yeme bozukluğu ve ruhsal durumun obezite cerrahisini nasıl etkilediği üzerinde durulmuştur.

**Anahtar sözcükler:** Obezite, bariatrik cerrahi, tıkınırcasına yeme bozukluğu, psikolojik destek

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**OBESITY** is one of the most important public health problems with high mortality and morbidity rates affecting both individuals and society in developed and developing countries. Treating obesity is very crucial since it brings along many physical, psychological and social difficulties. Although modalities such as lifestyle changes, pharmacotherapy, and psychotherapy are applied for the treatment of obesity, today surgical treatment appears to be a widely preferred treatment method. Although obesity surgery results in large amounts of weight loss in a short period of time in comparison to the other weight loss methods, most surgery candidates may experience some eating-related physical and psychiatric/psychological difficulties that may contradict postoperative weight loss success. While obesity surgery's own eating-related rules (prohibition of solid nutrients, non-consumption of solids and liquids at the same time, prohibition of certain foods and acidic beverages, etc.) cause individuals to experience physical difficulties (Bosnic 2014, Marcotte and Chand 2016), preoperative psychological problems / psychiatric disorders (e.g., eating disorders, depression, anxiety disorders, etc.) lead individuals to experience social, emotional and occupational difficulties and also do not benefit from treatment sufficiently (Kinzl 2010).

In the first part of this article, information regarding obesity and its' treatment methods are provided, and the importance of the psychological evaluation for the obesity surgery candidates is addressed. However, as the main focus of the article, the importance of the psychological evaluation of binge eating disorder (BED) before and after obesity surgery and the influence of BED on the treatment process will be discussed.

## Definition of obesity

The most basic method for the obesity diagnosis is the calculation of the body mass index (BMI). The classification of BMI for adult individuals, which is a measure of adjustment of body weight according to height, is shown in Table 1.

**Table 1. BMI classification for adults (WHO 2000, TEMD 2018a)**

Classification	BMI* (kg/m <sup>2</sup> )
Underweight	18.50 and below
Normal weight	18.50-24.99
Overweight (Pre-obesity)	25.00-29.99
Obesity	30.00 and above
Obesity Class I	30.00-34.99
Obesity Class II	35.00-39.99
Obesity Class III	40.00-49.99
Obesity Class IV (Super Obese)	50.00 and above

BMI: Body Mass Index

According to the findings of the World Health Organization in 2016, 39% of the world population is estimated to be in the overweight category and 13% of them estimated to be in the obese category (TEMD 2018a). Like all over the world, there is evidence that obesity has become an important and common health problem in Turkey as well. According to the Turkish Statistical Institute (TSI)'s report released in 2016, 29.5% of adults across the country (35% of women and 23.9% of men) experience the obesity problem (TEMD 2018a).

It is known that many environmental, physical, social, and psychological factors play a role in the development of obesity. Immobile lifestyle such as long-term television

viewing, smoking, alcohol use, lack of physical activity (Dunstan et al. 2010, Robroek et al. 2011), and eating-related factors such as unhealthy eating habits, fast food consumption, having overweight and/or obese parents and friends are considered to be environmental factor causing obesity (Bodor et al. 2010, Elder et al. 2010). Low socio-economic status disabling individuals to access healthy food or high socio-economic level leading to more frequent eating out is considered to be the socio-economic factors (Goyal et al. 2010, Ogden et al. 2010). Region-specific cooking methods in some cultures, having bigger portion sizes and the abundance of consumed foods are considered a cultural effect (Teufel 1997, Bruss et al. 2005). In addition to environmental and social factors, some genetic factors such as changes in dopamine receptors and dopamine release increasing eating behaviour and metabolic problems including insulin resistance, diabetes, hypothyroidism, and hyperlipidemia also play an important role in the development of obesity (Racette et al. 2003, Silventoinen et al. 2010, Pinto et al. 2016). Additionally, psychological factors such as emotional eating, body dissatisfaction and dysfunctional eating behaviours that are reinforced by individual's cognitive distortions as well as alcohol and substance use, and other psychiatric disorders (binge eating disorder, depression and anxiety disorders, personality disorders, etc.) can have an impact on the development of obesity (Deveci 2013). These environmental, physical, social and psychological factors having an impact on the development of obesity may also cause individuals to experience various health problems. All of these health problems then negatively affect the lives of individuals with obesity in many aspects. The common health problems among these individuals are shown in Table 2.

**Table 2. Some illnesses associated with obesity** (Jarolimova et al. 2013, GBD 2015 Obesity Collaborators 2015)

Illnesses
Type 2 Diabetes
High cholesterol
Hypertension
Stroke
Severe non-alcohol liver fatty
Sleep apnea
Reflux
Bladder weakness
Infertility
Osteoarthritis and other joint diseases
Cardiovascular diseases
Migraine, headache and tinnitus
Feeding and eating disorders
Depression and anxiety disorders

## Obesity treatment

Considering that the prevalence of obesity has increased, and this health problem negatively affects various aspects of individuals' lives, it is believed that treating obesity effectively is crucial. Nowadays, obesity treatment is mainly investigated under the four main categories, that are lifestyle changes (treatment with diet and/or exercise), pharmacotherapy, psychotherapy and surgical treatment (Tam, Cakir 2012). The decision re-

garding the most appropriate treatment option for a person consulting obesity treatment may differ based on the level of obesity.

The first preferred method for obesity treatment is the lifestyle change covering diet, exercise and behaviour changes. This method is applied in cooperation with a specialist, usually for people who do not have any other disease with obesity and whose BMI is in the pre-obese or overweight range (National Institutes of Health 2000). Diets for weight loss usually consist of fibrous foods that give a feeling of fullness without nutritional value. The aim of this method is to reduce the amount of consumed energy below the spent energy with the help of the fibrous food filling up the stomach. Increased physical activity (exercise in addition to daily movement) and behavioural change accompanying the diet are considered to be the first choice for obesity treatment (Greenway and Smith 2000, National Institutes of Health 2000). In addition to behaviour change, pharmacotherapy under specialist supervision is also one of the most frequently used methods for obesity treatment. This method is generally used when lifestyle change does not show improvement over at least 6 months and in case of a comorbid illness to obesity (National Institutes of Health 2000). On the other hand, psychotherapies for obesity treatment focus on an individual's behaviours that trigger and maintain weight gain, and dysfunctional thoughts especially about eating and body which make losing weight difficult or slow down the weight loss process. Accordingly, behavioural therapies for obesity aim to reduce dysfunctional behaviours related to eating and physical activity leading to the development of obesity or to reinforce the desired behaviours for achieving a permanent change (Oğuz et al. 2016). Cognitive and behavioural therapies aim to target self-monitoring, education of healthy nutrition, increase physical activity, control stimuli that trigger eating behaviour, reinforce and strengthen desired behaviours, cognitive restructuring, low self-confidence and helping to address lost control overeating, and teaching methods for maintaining achieved and/or ideal weight (Ricca et al. 2010, Turan et al. 2015, Oğuz et al. 2016).

**Table 3. Eligibility criteria for surgical methods (TEMD 2018b, NICE 2019)**

Surgical Methods Criteria
BMI is above 40 kg / m <sup>2</sup> and above 40 kg / m <sup>2</sup>
BMI is between 35-40 kg / m <sup>2</sup> and is accompanied by at least one comorbidity such as type 2 diabetes, hypertension dyslipidemia, a sleep-apnea syndrome that can be recovered if weight is lost
Being between the age of 18 and 65 years (severe comorbidity in patients under 18 and over 65 years of age that cannot be otherwise controlled)
Absence of hormonal diseases
Absence of untreated endocrine disease-causing obesity (such as Cushing, hypothyroidism, insulinoma)
Trying all appropriate methods except surgical methods but not achieving success or failing to achieve adequate, clinically beneficial weight loss or regaining lost weight
Being suitable for anesthesia and surgery
Acceptance of the need for long-term follow-up by the individual
For female patients, not expecting pregnancy for the first 1-2 years after surgery
The patient understands the procedure
Absence of unresolved psychological/psychiatric illness
Absence of substance use/alcoholism
Note: In cases with BMI of 30-34.9 kg / m <sup>2</sup> , surgical treatment is recommended if there is insufficient glycemic control despite effective and intensive antidiabetic treatment

BMI: Body Mass Index

In addition to cognitive and behavioural therapy, interpersonal psychotherapy encourages the enhancement of coping skills for the difficulties that a person can experience in the social life (Wilson et al. 2010, Turan et al. 2015); dialectical behavioural therapy helps to improve awareness regarding eating problems, to regulate emotions, and provides support for applying acquired skills to daily life (Linehan 1993, Turan et al. 2015); motivational therapy aims to help people to act against their thoughts of giving up before and during treatment (Geller et al. 2011, Turan et al. 2015). Bariatric and Metabolic Surgery, known as Obesity Surgery, is commonly used and is considered to be one of the effective treatment methods for obesity (Kinzl 2010). This treatment method is preferred for obesity which brings many problems along since it is considered to be ways for recovering from comorbid metabolic illnesses and losing weight (Buchwald et al. 2004, Sağlam and Güven 2014, TEMD 2018a). Although obesity surgery is widely preferred, as obesity is a multifaceted illness, a comprehensive assessment is needed for determining whether a person is an eligible candidate for surgical intervention. One of the most important steps of this assessment is to calculate the person's BMI. Generally, individuals with a BMI of the Obese Class II range (35-39.9), if there is a comorbid illness and those with a BMI of Obese Class III range (40 and above) regardless of comorbid illness, are accepted as candidates for surgery. However, obesity surgery can also be recommended for individuals with BMI of Obese Class I range in case of comorbid diseases such as metabolic syndrome and insufficient glycemic control even after intensive antidiabetic treatment (National Institutes of Health 2000, TEMD 2018b). In addition to this main criterion, Table 3 presents the other criteria that should be met for determining whether the patient is an eligible candidate for surgery.

Since there is not a single factor causing obesity, it is important to determine the appropriate treatment method after the evaluation of the individual with obesity by specialists from various fields and then referring individual to the required treatment option. Research shows that inappropriate treatment methods are not effective in solving the health problems that obese individuals experience (Kramer et al. 1989, Byrne et al. 2003). It has been reported that long-term weight loss is negatively affected, particularly if individuals with a BMI of 35 or above are placed in a treatment process covering diet and exercise despite their similar history (Vogels et al. 2005).

According to the research findings, even though Bariatric and Metabolic Surgery is one of the effective intervention methods for people with morbid obesity problem (TEMD 2018b), there are various physiological and psychological factors affecting the adaptation capability of the patients to the postoperative process (Herpertz et al. 2004). For this reason, in addition to the surgery for obesity treatment, it is recommended that these individuals should be in a cooperation with an internal medicine specialist/endocrinologist throughout their lives and have repeated control examinations performed at regular intervals (Şener 2014); should consult a dietician who specializes in obesity surgery and learn a proper eating plan for the post-operative life and have nutritional controls (postoperative nutritional program, intake of oral vitamins and follow up with protein powder usage, etc.) (Şener 2014, TEMD 2018b); should work with a sport/exercise specialist to promoting weight loss, maintaining weight loss and preventing sagging due to weight loss (TEMD 2018db; should consult a psychiatrist or psychologist specialized in feeding and eating disorders regarding problematic behaviours and attitudes causing weight problems and affecting quality of life negatively and seek treatment if necessary (Kinzl 2010). To sum up, for an effective treatment, patients re-

ferred for obesity surgery should be evaluated by a multidisciplinary team and followed up with a multidisciplinary team in the postoperative process (Sağlam and Güven 2014).

## Psychological evaluation in obesity surgery

Even if the individuals with morbid obesity have some pathogenic factors in common, they are very heterogeneous regarding their genetics, comorbid physical and psychological diseases, personality structure and eating behaviours. However, in comparison to the individuals without obesity, the prevalence of disordered eating behaviours such as bingeing and snacking are reported to be more common in individuals with morbid obesity (Kinzl 2010). Studies have shown that the majority of the candidates applying for obesity surgery have unhealthy and problematic eating behaviours such as skipping breakfast, eating at night, eating small portions like snacking, consuming carbohydrate and sugar-weighted foods often, eating without hunger, continuing to eat even when feeling full, loss of control over eating. These behaviours maintain in the postoperative period if not treated (Kofman et al. 2010, Mitchell et al. 2015, Sevinçer 2016). Therefore, undergoing a psychosocial evaluation is of significance for an obesity patient as a surgery candidate.

The main purpose of psychosocial evaluation for surgical operations for weight loss is to review and identify risk factors or potential postoperative difficulties that may contribute to postoperative negative outcomes. These factors may provide suggestions for additional treatment or intervention before and after surgery, or in some cases may interfere with the success of surgery (e.g. weight regain, triggering body dissatisfaction, etc.) (Sogg et al. 2016). The preoperative psychosocial assessment also serves the purpose of obtaining important information for all health professionals (both inside and outside of the surgical program) who are going to work with the patient before and after surgery. Sogg and colleagues (2016) have suggested that patient's psychiatric history, psychosocial functionality, health-related behaviours (e.g., smoking, physical activity), a comprehensive history of weight trajectory over time, existence of emotional eating, bingeing behaviour and related problems, night eating syndrome, weight loss expectations, motivation and knowledge about treatment process should be included in the preoperative psychosocial assessment.

## Relationship between obesity and binge eating disorder

The 5th edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) defines BED as "In a discrete period of time (e.g., within any 2-hour period), eating an amount of food larger than most people would eat in a similar period of time under similar circumstances without physical hunger with a sense of loss of control, and feeling intense guilt after eating". Consuming foods quickly, continuing to eat until feeling uncomfortable, eating without hunger, eating alone, and feeling guilty or disgusted after binge eating attacks are common behaviours among individuals with BED (APA 2013).

BED is one of the highly prevalent eating-related psychopathologies among obese individuals. Studies have shown that the lifetime prevalence rate is 1.9% (Kessler et al. 2013), and between 15-50% in people who apply for obesity treatment (as cited in Yücel 2009). Comorbid BED and obesity are likely to lead to higher levels of psychiatric comorbidity and low levels of self-esteem (Vaidya, Malik 2008). This is one of the factors that negatively influence the success of the operation of surgical candidates (Van Hout et al. 2005).

## Psychological evaluation for binge eating disorder

Eating related psychopathological problems like BED, bulimia nervosa (BN), emotional eating, night eating disorder, and grazing can be observed among those who have obesity problems and consult for surgical treatment for this problem (Kinzl 2010, Sevinçer 2016). Studies have shown that obese patients with BED particularly have more severe weight problems/obesity level than obese patients without BED, and the surgical method was not found to be useful in that case (Mitchell et al. 2001). For example, in a review study investigating the prevalence of preoperative BED among obesity surgery candidates, BED rates were reported to range between 2% to 49%, and subclinical binge eating behaviour rates were reported to be between 6% and 64% (Niego et al. 2007).

Similar to the findings of studies conducted in the American and European continents, 23.1% of the applicants who applied to Haydarpaşa Numune Training and Research Hospital for bariatric surgery reported to have BED and night eating syndrome or both of them (Eroğlu et al. 2018). It was found that the candidates applying for obesity treatment also experience high psychological problems (depression, anxiety, etc.) in addition to BED (Bulik et al. 2002, Kolotkin et al. 2004, Perez, Warren 2012, Mitchell et al. 2015, Nicholls et al. 2016, Ribeiro Gana et al. 2018). Trying to cope with multiple psychological problems may also interfere with the success of the operation (Ashton et al. 2011). The researchers have indicated that it would be beneficial to address both pre and postoperative problems among patients who have difficulty in regulating emotions which particularly have deteriorating effect on eating behaviour such as excessive rage, anger, sadness, happiness and joy for decreasing binge eating behaviour and improve their health (Shakory et al. 2015). Besides, it is very important to ask all patients whether they experience a loss of control over eating during their postoperative follow-up period and to carefully investigate the presence of BED in order to determine the sustainability of well-being in the postoperative period and to conduct necessary interventions for problematic aspects. Otherwise, symptoms of BED maintain, and weight loss falls short and/or is more limited than expected after surgery (Meany et al. 2014, Sevinçer et al. 2014, Miller-Matero et al. 2018). For instance, the findings of a study on the postoperative follow-up of 782 obesity patients have shown that postoperative weight gain was increased and the rates of weight gain rate found to be in the ranges of 46% to 63.6% postoperative 24 and 48 months, respectively. The same study found that 60% of patients who have an unsuccessful outcome for the surgical method had actually never undergone a nutritional follow-up and 80% had never undergone psychological follow-up (Magro et al. 2008). According to the findings of a recent study conducted on 446 patients who underwent obesity surgery, those who met the preoperative diagnosis of BED showed higher levels of BMI 5 years after the operation than those without BED diagnosis (Marek et al. 2017). Therefore, psychological evaluation of candidates before obesity surgery, especially in terms of eating disorders, is recommended to be a part of routine health controls (Blackburn et al. 2009).

It is known that delivering treatment for eating disorders that contribute to weight loss and reaching healthy living standards in the postoperative process is equally important to the preoperative psychological evaluation and treatment for eating disorders (Shakory et al. 2015). For example, individuals who attended and responded to a four-session cognitive behaviour group therapy for binge eating problem designed for the bariatric surgery patients lost statistically significantly more weight in 6 and 12 months

follow up assessments (Ashton ve ark. 2011). Moreover, obesity surgery patients' eating behaviours were changed, depressive symptoms were improved, emotion regulation skills and compliance with treatment were increased after undergoing mindfulness-based cognitive behavioural therapy (Leahey et al. 2008). From this point of view, it is important for an individual who is a candidate for obesity surgery to undergo psychological evaluation before and after the operation and to receive treatment for the difficulties when necessary in order to be successful in weight loss, to maintain a healthy weight range and to receive maximum benefit from the surgery (Mechanick et al. 2013).

## Conclusion

Obesity is one of the most common health problems nowadays. Although the psychological, biological, social and behavioural aspects of the illness make difficulties for the person and the treatment team, the illnesses caused by obesity also increase the treatment costs. For the treatment of obesity, methods such as lifestyle change, pharmacotherapy, psychotherapy and surgery are used. There are particularly lots of scientific evidence for the possibility of losing a large amount of weight in a short period of time with the application of the surgical method. This situation makes obesity surgery more attractive to both obese individuals and professionals who deliver treatment in comparison to other methods.

Although obesity surgery is applied to people with weight problems based on certain criteria, it is necessary for operation applicants to undergo a multidimensional evaluation since a new and long period in the person's life starts following the operation. For this reason, the person should periodically go through an examination by a general surgeon, internal medicine specialist, dietitian and mental health specialist in postoperative processes as in the preoperative process. This examination is considered to be a necessary process to increase the efficiency of the surgery (to maintain weight loss and achieved weight).

Psychological difficulties, especially eating disorders, are commonly observed among the candidates for obesity surgery. For this reason, it is important to evaluate the psychological factors that may affect the success of the operation negatively and make it difficult to lose weight or maintain achieved weight and provide treatment for the necessary cases. In this evaluation, binge eating disorder (BED) is one of the most important psychiatric problems that should not be missed.

BED is generally known as a person consuming an excessive amount of food with a loss of control. Besides, it is observed that obesity surgery patients with BED lose less weight or more slowly and regain the lost weight than patients without BED. Therefore, if a person who underwent obesity surgery cannot reach the targeted weight, this situation should be investigated with help of a psychiatrist or psychologist to understand whether it is caused by BED and/or associated psychopathology.

Research has shown that psychological interventions for BED after surgery contribute positively to treatment success. In summary, it is contemplated that the evaluation of the obesity surgery candidates in terms of psychiatric problems, especially for BED, would increase the adaptation of the person to the postoperative process and help to maintain the weight loss and permanence of losing weight which are the main goals of the operation.

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**Authors Contributions:** All authors attest that each author has made an important scientific contribution to the study and has assisted with the drafting or revising of the manuscript.

**Peer-review:** Externally peer-reviewed.

**Conflict of Interest:** No conflict of interest was declared by the authors.

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

**Acknowledgement:** The authors thank all the Türkçapar Bariatrics team, including Prof. Dr. Ahmet Gökhan Türkçapar who led this article to be written.