

T.C.
YEDİTEPE UNIVERSITY
INSTITUTE OF HEALTH SCIENCES
DEPARTMENT OF NUTRITION AND DIETETICS

**THE EFFECTS OF NIGHT EATING, EMOTIONAL
EATING, RESTRICTIVE EATING, EXTERNAL
EATING AND DEMOGRAPHIC
CHARACTERISTICS OF ADULT PATIENTS WHO
UNDERGO SLEEVE GASTRECTOMY AFTER 3
YEARS**

MASTER THESIS

Dyt. Yaşar Efe Balı

İSTANBUL-2022

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APPROVAL

This thesis has been deemed by the jury in accordance with the relevant articles of Yeditepe University Graduate Education and Examinations Regulation and has been approved by Administrative Board of Institute with decision dated and numbered

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Director of Institute of Health Sciences

DECLARATION

I hereby declare that this thesis is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person nor material which has been accepted for the award of any other degree except where due acknowledgment has been made in the text.

2022, 07 July

Yaşar Efe Balı



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TABLE OF CONTENTS

THESIS APPROVAL FORM	ii
DECLARATION	iii
ACKNOWLEDGEMENTS	iv
TABLE of CONTENTS	v
LIST of TABLES	vii
LIST of ABBREVIATIONS	viii
ABSTRACT	ix
ABSTRACT (Turkish)	x
1. INTRODUCTION	1
2. GENERAL INFORMATION	2
2.1. Obesity Prevalence Around the World And In Turkey	2
2.2. Obesity Treatment.	3
2.2.1. Nutritional Treatment	3
2.2.2. Treatment with Exercise	4
2.2.3. Psychological Treatment	4
2.2.4. Surgical Treatment	5
2.2.4.1. Sleeve Gastrectomy	5
2.2.4.2. Roux-en-Y Gastric Bypass	6
2.2.4.3. Botox and Gastric Balloon	6
2.3. Post-Gastric Sleeve Nutrition	7
2.3.1. Nutrition in the First Month Following Gastric Sleeve	7
2.3.2. Nutrition 1 Month After Gastric Sleeve	7
2.3.2.1. Importance Of Protein Consumption After Surgery	8
2.3.2.2. Carbohydrate Consumption After Gastric Sleeve	8
2.3.2.3. Vitamins and minerals	9
2.3.2.4. The Importance of Water Consumption Following Gastric Sleeve Surgery	9
2.4. The Importance of Sleep in Gastric Sleeve For Weight Loss	10
2.5. Regaining Body Weight After Gastric Sleeve	11
2.5.1. The Role of Nutrition in Body Weight Regain	12
2.5.1.1. Night Eating	12

2.5.1.2. Emotional Eating	13
2.5.1.3. Restricted Eating	13
2.5.1.4. External Eating	13
2.5.2. Sleep's impact on weight regain	14
3. MATERIALS and METHOD	15
3.1. Research Model	15
3.2. Study Patients	15
3.3. Measuring Tools	15
4. RESULTS	18
5. DISCUSSION	30
6. CONCLUSION	33
7. REFERENCES	34
8. APPENDICES	46
8.1. Night Eating Questionnaire	46
8.2. Dutch Eating Behavioral Questionnaire	47
8.3. Demographic Data Collection Form	49
8.4. Ethics Committee Approval Form	50
9. CURRICULUM VITAE	52

LIST OF TABLES

Table 2.1 Categorization of BMI	2
Table 4.1. Distribution of patients by age and descriptive statistics	18
Table 4.2. Distribution of patients according to gender, marital status, education and comorbid characteristics	18
Table 4.3. Distribution of patients height, body weight, BMI and operative time before and after surgery	19
Table 4.4. Distribution of patients' night eating scores	20
Table 4.5. Distribution of patients' DEBQ scores	20
Table 4.6. Difference between night eating scores by gender	20
Table 4.7. Difference between night eating scores by marital status	21
Table 4.8. Difference between night eating scores by education level	21
Table 4.9. Difference between night eating scores according to preoperative comorbid status	22
Table 4.10. Difference between night eating scores according to postoperative comorbid status	22
Table 4.11. Difference between DEBQ scores by gender	22
Table 4.12. Differences in DEBQ scores by marital status	23
Table 4.13. Differences between DEBQ scores by education level	24
Table 4.14. Differences between DEBQ scores according to preoperative comorbid status.	25
Table 4.15. Differences between DEBQ scores according to postoperative comorbid status	25
Table 4.16. Relationship between night eating score and DEBQ	26
Table 4.17. Correlation between operation duration and body weight increase	27
Table 4.18. Correlation between comorbidity and body weight increase	27
Table 4.19. Correlation between body weight increase and age, gender, night eating and DEBQ	28
Table 4.20. Body weight gaining differences according to marital status	29

LIST OF ABBREVIATIONS

BMI	Body Mass Index
dL	Decilitre
g	Gram
IU	International Unit
Kcal	Kilocalories
kg	Kilogram
m ²	Square meter
mg	Milligram
mL	Milliliter
WHO	World Health Organization

ABSTRACT

Balı, Y.E. (2022). The effects of night eating, emotional eating, restrictive eating, external eating and demographic characteristics of adult patients who undergo sleeve gastrectomy after 3 years. Yeditepe University, Institute of Health Sciences, Department of Nutrition and Dietetics, the MSc Thesis, İSTANBUL

In this study, it was aimed to examine the effects of demographic characteristics such as age, gender, comorbidities before and after surgery, the time elapsed after surgery, emotional, restrictive, extrinsic and night eating conditions on postoperative body weight regain in adults who had undergone sleeve gastrectomy. Research was performed with 337 adult individuals who had surgery in Prof. Dr. Koray Tekin Obesity and Metabolic Surgery clinic, at least 3 years after the operation. In the study, the Night Eating Questionnaire and Dutch Eating Scale were applied to the participants. All the data obtained as a result of the research were analyzed with the SPSS 25.0 statistical program. There are demographic characteristics that affect body weight regain after sleeve gastrectomy. It was observed that body weight regain was statistically higher in single and younger individuals, who had a longer time since the surgery ($p<0.05$). No statistically significant correlation was observed between people's body weight regain and presence of comorbidities before or after surgery, night eating, emotional eating, restrictive eating, and external eating behavior ($p>0.05$). However, there is a need for multicenter, long-term studies with more participants to better understand the factors affecting postoperative body weight regain, and it is clear that the success of the surgery depends not only on the intervention but also on close dietitian follow-up and education of the next process.

Keywords: sleeve gastrectomy, weight regain, emotional eating, night eating, external eating, restrictive eating

ÖZET

Balı, Y.E. (2022) Sleeve Gastrektomi Geçirmiş Yetişkin Bireylerin 3. Yıl Sonrasında Gece Yeme, Duygusal Yeme, Kısıtlayıcı Yeme, Dışsal Yeme ve Demografik Özelliklerinin Kilo Geri Alımına Etkisi. Yeditepe Üniversitesi, Sağlık Bilimleri Enstitüsü, Beslenme ve Diyetetik Bölümü, Yüksek Lisans Tezi, İstanbul

Bu çalışmada sleeve gastrektomi geçirmiş yetişkin bireylerin operasyon sonrası kilo geri alımına yaş, cinsiyet gibi demografik özellikleri ile ameliyat önce ve sonrası eşlik eden hastalıkları, cerrahi sonrası geçen süre, duygusal, kısıtlayıcı, dışsal ve gece yeme durumlarının etkisinin incelenmesi amaçlanmıştır. Araştırma, Prof. Dr. Koray Tekin Obezite ve Metabolik Cerrahi kliniğinde ameliyat olmuş, ameliyat üzerinden en az 3 yıl geçmiş 337 yetişkin birey ile yapılmıştır. Araştırmada katılımcılara Gece Yeme Anketi ve Hollanda Yeme Ölçeği uygulanmıştır. Araştırma sonucunda elde edilen tüm veriler, SPSS 25.0 istatistik programı ile analiz edilmiştir. Sleeve gastrektomi sonrası kilo geri alımını etkileyen demografik özellikler mevcuttur. Ameliyat üzerinden daha uzun süre geçmiş, bekar ve daha genç bireylerde kilo geri alımının istatistiksel olarak daha yüksek olduğu gözlemlenmiştir ($p<0.05$). Kişilerin kilo geri alımları ile ameliyat öncesi veya sonrası eşlik eden hastalığının bulunması, gece yeme, duygusal yeme, kısıtlayıcı yeme ve dışsal yeme davranışı göstermeleri arasında istatistiksel olarak anlamlı bir korelasyon gözlemlenmemiştir ($p>0.05$). Ancak operasyon sonrası kilo geri alımına etkili faktörlerin daha iyi anlaşılması için çok merkezli, daha fazla sayıda katılımcı içeren uzun süreli çalışmalara ihtiyaç vardır ve ameliyatın başarısının sadece girişime değil sonraki sürecin yakın diyetisyen izlemine ve eğitime bağlı olduğu açıktır.

Anahtar Kelimeler: sleeve gastrektomi, kilo geri alımı, duygusal yeme, gece yeme, dışsal yeme, kısıtlayıcı yeme

1. INTRODUCTION

Sleeve gastrectomy is a golden ratio in all of these surgery types. Unless surgeries can not solve this obesity problem too. Body weight regains can be seen years after surgeries. Postoperative body weight regains can happen because of endocrinological or metabolic disorders, wrong food choices, psychological disorders, and lack of physical activity (1,2).

Studies about body weight regain are mostly done after RnY Bypass or an older procedure called the gastric band. Long-term studies about sleeve gastrectomy are limited.

The aim of this study is to evaluate the effects of factors such as night eating, emotional eating, restrictive eating, external eating, increase in age, gender differences, co-morbidities such as type 2 diabetes experienced before or after surgery, and the time elapsed after surgery on body weight regain.

2. GENERAL INFORMATION

Obesity is a complicated condition characterized by an excess of body fat. Obesity isn't only a cosmetic problem. It's a medical condition that increases one's chance of developing heart disease, diabetes, hypertension, and even some types of cancer (1).

Body mass index, BMI, is the most widely utilized metric for demographic and clinical obesity screening. BMI requires body weight and height, which is often calculated using measured body weight and height in clinical settings and self-reported body weight and height in broader population health research. BMI is computed by dividing a person's body weight in kilograms by their height in meters (kg/m^2). While the technique used to detect the presence of obesity (i.e. BMI, waist circumference) affects the definition of obesity we utilize the WHO's worldwide BMI categorization (Table 2.1)(2).

Table 2.1: Categorization of BMI (2).

Classification	BMI(kg/m^2)	
	Principal cut-off points	Additional cut-off points
Underweight	<18.50	<18.50
Severe thinness	<16.00	<16.00
Moderate thinness	16.00 – 16.99	16.00 – 16.99
Mild thinness	17.00 – 18.49	17.00 – 18.49
Normal range	18.50 – 24.99	18.50 – 22.99
		23.00 – 24.99
Overweight	≥ 25.00	≥ 25.00
Pre obese	25.00 – 29.99	25.00 – 27.49
		27.50 – 29.99
Obese	≥ 30.00	≥ 30.00
Obese class I	30.00 – 34.99	30.00 – 32.49
		32.50 – 34.99
Obese class II	35.00 – 39.99	35.00 – 37.49
		37.50 – 39.99
Obese class III	≥ 40.00	≥ 40.00

2.1. Obesity Prevalence Around the World And In Turkey

A total of 1.9 billion people aged 18 and older were considered obese in 2016. There were more than 650 million individuals who were overweight. 39 percent of adults aged 18 and older were obese in 2016 (39 percent of males and 40 percent of women). 13 % of the world's adults (11% of males and 15 % of women) were obese in 2016, according to the World Health Organization. Obesity has almost doubled in worldwide frequency since 1975 (3).

Overweight and obese children under the age of five are anticipated to total 38.2 million in 2019. Previously regarded to be an issue exclusively in high-income countries, obesity is now on the rise in low- and middle-income countries, particularly in urban areas. Africa has seen a 24% increase in overweight kids under the age of five since 2000. Over half of the children under the age of five in Asia were either overweight or obese in 2019. There were about 340 million overweight or obese children and adolescents between the ages of 5 and 19. From 4% in 1975 to slightly more than 18% in 2016, childhood and teenage overweight and obesity have skyrocketed. Both boys and girls are becoming more overweight: in 2016, 18 percent of girls and 19 percent of boys were overweight. It is estimated that in 1975, just 1% of children and teenagers aged 5 to 19 were overweight; by 2016, this number had risen to 124 million (6.5% for girls and 8.5% for boys). Obesity and overweight have been linked to more deaths than underweight in the worldwide population. Except for parts of sub-Saharan Africa and Asia, the number of obese people outnumbers the number of overweight people everywhere (3).

Obesity prevalence and trend have grown dramatically between 1990 and 2010, according to national and local epidemiological research. Obesity prevalence in adults was roughly 2.0 times greater in 2010 than it was in 1990, according to WHO standards (18.8 percent vs 36 percent). Adult obesity prevalence in Trabzon city was 19.2% and 34.4 percent (unpublished data) in general between 1995 and 1997 and 2012, according to local research. In Trabzon, the frequency has grown by 1.8 times in the previous 15 years (4). Obesity prevalence has grown dramatically in both women and men in the last 20 years, notably in males, according to a series of national epidemiological studies.

Obesity is a major and severe public health concern in Turkey, according to these findings from various historical periods. Indeed, in Turkey, the rise in the incidence of overweight and obesity has turned into an epidemiological emergency. In Turkey, the prevalence of overweight and obesity is rising faster than in Europe, where obesity rates for males vary from 4.0 percent to 28.3 percent and for women from 6.2 percent to 36.5 percent (5). However, the incidence of obesity among Turkish adults is comparable to that in the United States, where 35.6 percent of individuals aged 20 and over were obese in 2010 (6).

2.2. Obesity Treatment

There are a number of reasons why some people find it difficult to shed body weight. Mostly obesity is caused by a mix of genetic, physiological, and environmental factors as well as a person's food, exercise, and physical activity (7). A little loss of body weight may improve or even prevent obesity-related health problems. Dietary adjustments, exercise, and behavioral changes may help people lose body weight. Prescription medications and body weight loss therapies may also be used to treat obesity (7).

2.2.1. Nutritional Treatment

Diets that claim to help people lose body weight have attracted a lot of interest and stirred a lot of debate. Despite the fact that controlling one's intake of calories is still the most effective way to lose body weight, new regimes and books offering body weight loss by limiting a person's intake of specific foods or macronutrients are constantly hitting the bestseller lists. Their names and techniques may vary over time, but their fundamental assumption remains the same. They define "success" as a significant body weight reduction in a short period of time with little exertion. Because of the temptation of a fast remedy, overweight and obese people are often on the lookout for the next "best" diet. The public's readiness to adopt a variety of dietary options, some of which have been inadequately studied, highlights their long-standing problem with body weight management and the need for more effective techniques to assist generate an energy deficit. Understanding the effectiveness, health impacts, and

long-term sustainability of existing nutritional methods for weight management is critical for developing more successful solutions (7).

2.2.2. Treatment with Exercise

Most studies show that exercise has a little impact on body weight loss when combined with calorie restriction. Exercise has a synergistic impact when paired with food restriction, enhancing body weight reduction beyond the effect of diet alone. Independent of actual body weight reduction, exercise has been demonstrated to have considerable favorable impacts on cardiovascular and metabolic risk factors, and even a little amount of body weight loss may have a major beneficial effect. Individuals that include physical exercise in their lifestyle have been proven to favorably modify genetic variables linked to obesity. Sitting time seems to be an independent risk factor for the development of metabolic risk factors; even if they do the recommended amount of physical exercise each week, those who spend more time sitting and watching television have lower metabolic profiles. Adding moderate-intensity aerobic activity to the diet may help you lose body weight. As a safe, efficient, and well-tolerated modality of exercise for the obese population, high-intensity interval training may be superior to continuous moderate length exercise in terms of compliance. Independent of body weight reduction, resistance exercise has considerable cardiovascular and metabolic consequences. In the obese population, high-intensity interval training is effective, time-efficient, and well-tolerated (8).

2.2.3. Psychological Treatment

Obesity is a multifaceted illness with a genetic component that interacts with individual, family, behavioral, cultural, and environmental variables to produce a wide range of symptoms and outcomes (9).

Medical and lifestyle treatments, psychological support, self management programs, pharmacological approaches, as well as bariatric surgery, are all necessary components of a biopsychosocial approach to obesity treatment (10).

A multidisciplinary team's assistance is crucial in helping patients who are overweight or obese make lifestyle changes and lose body weight via the use of psychotherapeutic psychological treatments and psychotherapies. Among other medical protocols and rehabilitation treatments, old and modern cognitive-behavioral approaches are effective tactics. Clinical and health psychology may assist patients in participating in long-term, effective body weight reduction regimens (11).

2.2.4. Surgical Treatment

After failure of conventional therapy, bariatric procedures or body weight reduction surgeries should be considered for all patients with a BMI of more than 40 kg/m² and those with a BMI of more than 35 kg/m² with concurrent obesity-related diseases (12). This therapy is divided into two categories. The first is a procedure known as gastric sleeve that limits your food intake. Other one is malabsorptive operations, such as the Roux-en-Y gastric bypass. Endoscopic techniques such as a gastric balloon or botox are other surgical options (12).

2.2.4.1. Sleeve Gastrectomy

This procedure removes the bulk of the stomach's greater curvature, resulting in a tube-like stomach with significantly reduced gastric capacity (12).

It's a first-line procedure for those with a very high BMI (60 kg/m²) who need to lose body weight before undergoing more difficult and complicated procedures like gastric bypass or biliopancreatic diversion. However, following the body weight reduction and metabolic consequences, it was begun to be utilized as the main operation. It is now the most often utilized operation because to its effectiveness in body weight reduction and technical simplicity (13).

2.2.4.2. Roux-en-Y Gastric Bypass

The stomach is split, resulting in a tiny gastric pouch (about 30 mL) that is linked to a distal segment of jejunum through a gastrojejunostomy, forming the Roux limb of the surgery. The remains of the stomach is known as the 'gastric remnant,' and it empties into the biliopancreatic limb, a bypassed part of the colon. A jejunojejunostomy restores bowel continuity for the biliopancreatic limb, resulting in the 'Y' shape of the procedure. In the lack of bile and pancreatic secretions, ingested nutrients pass through the stomach pouch quickly and enter the jejunal Roux limb. The biliopancreatic limb drains bile and pancreatic secretions, which mingle with the chyme/nutrients at the jejunojejunostomy's point (13).

2.2.4.3. Botox and Gastric Balloon

Gastric balloons are implanted endoscopically in the stomach for up to 6-12 months to lower gastric capacity, increase sensations of fullness, and aid weight reduction. Gastric mechanoreceptor stimulation triggers short-acting vagal impulses to brain areas involved in satiety, according to the mechanism of action. The balloon volume, the patient's stomach capacity, and the length of therapy may all impact balloon effectiveness (12).

Botulinum toxin type A (BTX-A), a neurotoxin, is utilized in the treatment of disorders marked by persistent muscle contraction. Because of its inhibitory actions on stomach smooth muscles, it might be used to treat obesity by delaying gastric emptying and increasing satiety (12).

2.3. Post-Gastric-Sleeve Nutrition

2.3.1. Nutrition in the First Month Following Gastric Sleeve

Dietary guidelines for 1 to 2 months after surgery are based on a steady improvement in food consistency and texture (14). After 24 hours, patients are recommended to start with clear beverages at room temperature. They will be in the hospital for three days. They may drink liquids in modest amounts as tolerated over the next three days, no more than a half cup each serving, such as fruit juices, sugar-free compote, and beef or chicken broth. Patients may begin adding liquid meals after leaving the hospital, such as light or lactose-free dairy products, vegetable milks, and grainless soups that do not include wheat, oil, or tomato paste. They should begin taking protein supplements on the fifth or seventh day following surgery. They sample mild, soft, and salt-free soft boiled eggs and cheeses on Day 10. Patients should move to mashed or puréed meals at two weeks after surgery. They're told to start with smooth meals and work their way up to less homogenous mashed items. It's best to keep liquids away from meals during this time by not drinking anything 15 minutes before or after eating. Patients begin eating soft solid meals like fish and minced meat at three weeks. Patients begin eating solid meals like meatballs at four weeks (15).

2.3.2. Nutrition 1 Month After Gastric Sleeve

Patients are recommended to begin eating solid meals one month after surgery, such as legumes, fresh vegetables, fresh fruit, bread, and so on. Patients on the 40th day may eat poultry and green leafy vegetables. Patients may consume lentils and red meat after 45 days. Patients may eat a regular balanced solid diet two months after surgery (14,16). Meat, poultry, fish, and eggs should be the most frequent meals after surgery since they preserve muscle weight and promote better satiety and improved nutritional composition. Patients who are hesitant to advance to solid meals after surgery for fear of gaining body weight, discomfort, nausea, or vomiting should be given special care (17). Individual meetings with a bariatric dietician are required because to the considerable variety among patients' eating trends (18).

2.3.2.1. Importance of Protein Consumption After Surgery

Protein deficiency (albumin levels lower than 3.5 mg/dL) is the most serious macronutrient problem linked with body weight reduction surgery, primarily appearing in the initial months following malabsorptive procedures but also observed in gastric sleeve, and is largely related to developed protein sensitivity (19). Protein deficiency manifests as hair loss, edema, delayed healing of wounds, and a decrease in lean body mass (20). After surgery, the protein needed is 60–80 g/d. Protein-rich foods (e.g., dairy products, eggs, fish, lean meat and legumes) should be chosen above carbs and lipids to attain these goals. The quality of the protein supply is also crucial, especially in terms of the amount of leucine, which aids in the maintenance of lean tissue (20). Meals vary greatly in their leucine concentration, however certain foods, such as soy products, eggs, beef, lentils, and hard cheese, are naturally rich in leucine (21). Whey protein is generally the best option for improving leucine intake if a protein supplement is recommended (20).

2.3.2.2. Carbohydrate Consumption After Gastric Sleeve

Simple carbs should be avoided, and meals high in dietary fiber should be consumed more often. After gastric sleeve surgery, simple carbs are readily tolerated. Patients who consume protein sources feel fuller with less food and remain full for longer periods of time. Carbohydrate sources, particularly simple ones like sweets and crackers, might be taken in larger volumes and cause hunger to strike fast.

Another issue that may arise after consuming simple carbs is dumping syndrome, and fiber-rich meals, including fruit, vegetables, and whole grains, should be ingested beginning one month following surgery to permit proper body weight reduction and improve good eating habits (22).

2.3.2.3. Vitamins and minerals

Nutritional deficits are prevalent following bariatric surgery (22), and the kind of surgery done has an impact. In compared to gastric sleeve surgery, deficiencies are more common following malabsorptive surgery (16).

Preoperative deficits, the occurrence of vomiting, food intolerance, and poor eating habits are all variables that impair nutritional status (23). Furthermore, nutritional deficits might worsen "food drives" or cravings, which are linked to body weight gain after surgery, causing patients to need crucial nutrients (17). As a result, lifelong supplementation and regular vitamin and mineral tests are required after surgery (16). Supplementation should begin after you leave the hospital, generally 5 days after surgery (24). Chewable or suckable tablets or liquid multivitamins should be utilized in the first month due to changes in absorption capacity. Oral supplements may then be employed (25).

Following bariatric surgery, daily nutritional supplementation should include 1–2 adult multivitamin-mineral supplements, 1200–2400 mg calcium, 3000 IU vitamin D (titrated to therapeutic doses), and 250–350 g vitamin B-12/d or 1000 g vitamin B-12/wk, depending on the operation (25).

2.3.2.4. The Importance of Water Consumption Following Gastric Sleeve Surgery

Water is necessary for survival (26). We cannot exist for more than two to four days without water, which makes up approximately 60% of our body weight (27). According to new recommendations on beverage intake, water is the beverage of choice for optimal health because of the dramatic rise in unhealthy body weight trends in America over the last two decades (28). Body weight reduction has been linked to an increase in water intake. Even so, there isn't a lot of evidence that it works (29). The results of epidemiological and clinical studies suggest that those who drink water do so at a lower energy expenditure than those who do not, and that this might aid in the fight against obesity (28). Drinking water has been speculated to boost energy expenditure

and the rate at which fat is broken down (30). When compared to caloric beverages, drinking water seems to lower total calorie intake (31). People who drink a lot of water may be able to lose weight by altering their metabolism and increasing their satiety. There is limited evidence for the long-term effects of water consumption on body weight changes (28).

2.4. The Importance of Sleep in Gastric Sleeve For Weight Loss

Depriving the body of sleep results in decreased leptin levels, increased ghrelin and cortisol levels, altered glucose homeostasis, and activation of the orexin system, all of which impair appetite control and may restrict the efficacy of dietary interventions. While typical body weight loss plans may have a wide range of results for different people, the need for more customized approaches is clear. The failure of traditional therapy may be due to factors that are less visible. The relationship between body weight gain and sleep deprivation is becoming more well established.

Chronic sleep deprivation is ubiquitous in modern society (32), and there is considerable evidence that lack of sleep contributes to the current obesity epidemic (33). A growing body of evidence suggests that sleep deprivation enhances the brain's ability to interpret hedonic impulses, which is connected to an increased desire for eating (34). Depriving the body of sleep results in decreased leptin levels, increased ghrelin and cortisol levels, altered glucose homeostasis, and activation of the orexin system, all of which impair appetite control and may restrict the efficacy of dietary interventions (35).

More evidence of the advantages of sleep is provided by a recent crossover study with obese participants (36). More evidence of the advantages of sleep is provided by a recent crossover study with obese participants. This study found that participants who had just 5.5 hours of sleep each night lost 55 percent of their total body fat and 60 percent of their fat-free mass and that their metabolic hormone levels, substrate, and energy use were less favorable as well. Despite losing roughly 3 kg of body weight in each treatment, the 8.5-hour group lost twice as much energy (1039 kcal/d) as the 5.5-hour group (573 kcal/d). Participants in the study were more adamant about their energy balance when they didn't get enough sleep (i.e., they saved energy-dense fat at the price

of a higher loss of lean body mass). Furthermore, individuals in the shorter sleep group reported feeling more hungry (along with higher ghrelin levels) than those in the longer sleep group. If you don't get enough sleep, you may not be able to stick to a calorie-restricted diet since your ghrelin levels will be higher and you'll be more likely to overeat (37).

2.5. Regaining Body Weight After Gastric Sleeve

Body weight regain after bariatric surgery is becoming an increasingly common clinical issue as the number of procedures increases. (38). Unfortunately, body weight rebound is typical when patients achieve their nadir weight, with 20–25 percent of patients experiencing significant body weight gain after bariatric surgery (39).

Individuals who are predisposed to rapid body weight gain have not been identified, even though behavioral and biological reasons have been proposed by a number of authors (40). Some patients may benefit from improved counseling on how to minimize body weight gain if they identify certain features (41). As previously mentioned, increasing body weight may lead to health problems such as high blood pressure and type 2 diabetes, which need ongoing monitoring and treatment (42).

Uncertainty, multiplicity, and lack of a consistent definition of body weight rebound contribute to insufficient reporting and knowledge of the therapeutic significance of body weight rebound (42-44).

According to research which 132 people attended, there is no consensus on what constitutes body weight regain. It's been questioned whether physicians should use percentages that take into account a subsequent body weight gain of 10 kg or more over the lowest body weight attained since people's first body weight gains vary so widely. But there isn't a set percentage. Some studies classify a body weight rise of 15% as body weight regain (42,43), while others classify a body weight gain of 25% as a body weight return (43,44).

2.5.1. The Role of Nutrition in Body Weight Regain

Bariatric surgery reduces calorie consumption in the early postoperative period because of reduced stomach volume, decreased hunger, and increased satiety. Nonetheless, the calorie intake of some individuals steadily rises, resulting to body weight gain. In Swedish research, mean daily calorie intake rose from 1500 kcal at 6 months to 2000 kcal at 4–10 years after bariatric surgery, leading to long-term body weight gain (45). Patients who regained body weight following bariatric surgery had more food indiscretion, such as eating too many calories, snacks, sweets, oils, and fatty meals (46). To graze is to consume little quantities of food over an extended period of time while feeling helpless (47,48). Because of the restrictions imposed by bariatric surgery, frequent little meals are easier to achieve physiologically than frequent large ones. After bariatric surgery, grazing has been associated with poor body weight loss success. When 994 mostly female post-bariatric surgery patients were pooled for a meta-analysis, the prevalence of grazing was found to be anywhere between 16.6% and 46.6%, while the prevalence of body weight loss was found to be 47 % (49). With 60 % of patients who had body weight regain failing to sustain post-bariatric nutritional follow-up, body weight gain was linked to a lack of nutritional follow-up. (13,46). A good diet after bariatric surgery is essential to minimize body weight gain and for long-term success in body weight control (38).

2.5.1.1. Night Eating

Obesity is a common complication of this eating disorder. After bariatric surgery, night eating is an important problem that affects body weight recovery and is one of the possible causes of obesity, according to the literature (50). Even the definitions of night-eating vary, and the prerequisites aren't always clear. As a result, inquiries into similar circumstances provide a wide range of conclusions and evaluations. According to literature, the term "night eating" refers to those who eat more at night than during the day, eat more than 25% of their daily intake at night, or eat at least twice a week at night (51). Overeating is what they call it. There should be a decline in functionality, awareness of eating episodes, and at least three months'

presence in order for a person to be diagnosed with night eating syndrome according to the authors (52).

2.5.1.2. Emotional Eating

Emotional eating also referred to as emotional overeating, is described as overeating in reaction to positive or negative emotions, regardless of hunger or meal time (54). Body weight regains after body weight loss surgery appears to be due in part to emotional eating. It has been suggested that those who don't put on body weight after surgery use more direct responses than emotional eating when faced with stressful events (54). As a result, they're considered to be better at keeping track of their food intake (55).

2.5.1.3. Restricted Eating

In order to prevent or induce body weight loss, restricting one's food intake is known as "restrictive eating" (56). The Restraint Scale (RS), the restraint subscales of the Three-Factor Eating Questionnaire (TFEQ), and the Dutch Eating Behavior Questionnaire are the three most commonly used self-report instruments for the assessment of restrained eating (DEBQ). These scales, on the other hand, are not always accurate in determining a person's dietary restrictions, or they do it in such a convoluted manner (57-60). Restricted eaters tend to be more like "weight watchers" than "dieters," since they are concerned about their food intake and want to limit it, particularly in energy-dense foods (61).

2.5.1.4. External Eating

"External eating" has been shown to increase one's risk of overeating. The smells and sights of food might trigger a strong urge to eat (62,63). No connection has been found between the amount of food consumed outside of one's body and one's overall body weight. There is a correlation between food cues and intake, but studies of eating

habits and body weight status in children and adolescents have revealed no such correlation (64-66).

2.5.2. Sleep's impact on weight regain

"Sleep is a restorative process of the brain, by the brain, and for the brain," according to the National Sleep Foundation (67), however, it is now obvious that sleep is essential for overall wellness. Chronic sleep deprivation has been linked to a variety of health problems, including both physical and mental health problems (68), and this is a growing concern in modern society (69).

Obesity is a serious public health issue. Over the last several decades, the obesity epidemic has been mirrored by a trend toward decreased sleep duration in modern society (68). Poor sleep quality has also been a common concern (68), which is typically linked to total sleep loss. Obesity and its comorbidities are becoming more linked to a lack of sleep, according to findings from laboratory and epidemiological studies (70,71). Lack of sleep has been related to metabolic and endocrine abnormalities, including reduced glucose tolerance and alterations in the appetite-regulating hormone. Sleep is an essential controller of neuroendocrine activity and glucose metabolism (69). For adults and children, a number of epidemiological studies have examined the relationship between sleep and obesity. According to the majority of research, sleep deprivation is linked to an increased risk of developing obesity. (72,35). A meta-analysis of 18 studies including 604 adults found a pooled obesity odds ratio of 1.55 (1.43–1.68; P 0.0001) for fewer than 5 hours of sleep and a dosage effect of sleep length, with BMI decreasing by 0.35 kg/m² for each extra hour of sleep (69).

The relationship between sleep deprivation and body weight gain is likely to be complicated by a variety of factors. Increased orexin neuron activity, as well as changes in appetite-regulating hormones, might have an impact on how much food we eat. Increases in ghrelin, the hormone that increases hunger, and decreases in leptin have been linked to sleep deprivation (70,71). Ghrelin secretion is inhibited during sleep, according to a study that looked at the 24-hour ghrelin profile of 14 healthy young males. (69,73).

3. MATERIALS and METHODS

3.1. Research Model

The application time of the scales lasts between 10 minutes on average. All participants answered the questions online via Google Docs. In order to reach patients who have undergone bariatric surgery all patients are called via phone and a link for survey was sent. In this way, the data of a total of 344 patients were obtained. It was studied with the data of 337 patients who met the research criteria. The dependent variable of the study is weight regain. The independent variables are night eating, emotional eating, restrictive eating, external eating, age, and time after surgery.

3.2. Study Patients

It is conducted with adults aged 18-65 years who have undergone surgery in Prof. Dr. Koray Tekin Metabolic and Bariatric Surgery Clinic and have spent at least 3 years after surgery. All patients who achieve these criteria are included in our study. Patients who are under 18 years old and over 65 years old were not included in our study. Patients whose surgery time is less than 3 years after surgery were not included in the study.

3.3. Measuring Tools

As part of our research, we gathered demographic information from patients in order to better understand their present health state as well as their pre-and post-surgical health statuses. Additional questionnaires were used in this study, including the Night Eating Questionnaire (NEQ) and the Dutch Eating Questionnaire (DEBQ). The body weight regain variable is calculated as the gap between the lowest body weight acquired after surgery and the maximum body weight before surgery is more than 15% (74,75). If more than 15% of the body weight lost was regained after the surgery, that person was considered as an individual with body weight regain, with this formula all of the patients are considered as gain weight. All the data obtained as a result of the research analyzed with the SPSS 25.0 statistical program. numeric variables; mean, standard deviation (SD), median, lower and upper values, and categorical variables shown with

numbers (S) and percentage (%). One-way ANOVA or Mann Whitney U used for comparisons of 3 or more groups according to the normal distribution of quantitative parameters, and Student t-test or Kurskall Wallis tests used for 2-group comparisons. The correlation coefficient calculated to determine the direction and level of the relationship between the dependent and independent variables. In all analyzes, the confidence interval determined as 95% and the results considered statistically significant for $p < 0.05$.

Night Eating Questionnaire (NEQ): In 2006, Allison et al. produced a 14-item screening questionnaire, which Atasoy et al. adapted into Turkish in 2014 (76,77). Evening and nighttime eating, frequency of food intake after dinner, hunger and sleep disturbances, trouble falling asleep and frequent nighttime awakenings are all covered in the survey. Also included are questions on awareness and mood when indulging in late-night snacks. The final result might range from 0 to 52.

Dutch Eating Questionnaire: Developed in 1986 by Van Strein et al., the Dutch Eating Behavior Questionnaire (DEBQ) is a 33-item scale that measures emotional eating habits, as well as those related to external eating behaviors and restricted eating. 13 question measures emotional eating habit. 10 question measures external and other 10 question measures restrictive eating habit. All of these questions are mixed in the questionnaire. In 2009, Bozan adapted the scale to the Turkish one (60,78).

Calculation of Body Weight Regain: A patient's body weight increase or loss was assessed using the formula below (74,75). If the gap between the lowest weight acquired after surgery and the maximum body weight before surgery is more than 15%. In such a situation, it's termed body weight increase. For example, if the individual who underwent surgery with 100 kg dropped to 70 kg after the operation, and gained more than 4,5 kg, which is 15% of $(100-70) = 30$ kg, then it is considered as a patient have body weight regain.

BMI (Body Mass Index): BMI is the most often used metric for determining whether or not someone is obese. The BMI is computed by dividing the body weight in kilograms by the square of the height (kg/m^2) (54). The World Health Organization's

2004 categorization of BMI levels and classification is as follows: The normal range between 18.50-24.99 kg/m²; Overweight of 25.0 kg/m² or more; 30.0 kg/ m² or more obese; 30.0-34.99 kg/m² obese (class 1); 35.0 to 39.99 kg/m² obese (class 2) and 40.0 kg/m² and more obese (class 3).

Demographic Information Form: In demographic information form we asked to patients their ages, gender, marriage and education status, current body weight, height, surgery year, body weight before surgery, lowest body weight after surgery, co-morbidities before surgery and current co-morbidities.



4. RESULTS

The youngest of the patients participating in the study was 18, the oldest was 65 years old, and the mean age of all patients was 39.42 ± 10.17 (Table 4.1).

Table 4.1. Distribution of patients by age and descriptive statistics

	Minimum	Maximum	Mean	Std. Deviation
Age	18	65	39.42	10.17

75.4% of the patients were female and 24.6% were male. 37.5% of the patients were single and 62.5% were married. 4.2% had primary education, 28.5% had high school, 56.2% had university and 11.1% had postgraduate education. There was comorbid disease in 38.1% of the patients preoperatively and 18.0% of them postoperatively (Table 4.2).

Table 4.2. Distribution of patients according to gender, marital status, education and comorbid characteristics

	Frequency (n)	Percent (%)
Gender		
Female	251	75.4
Male	82	24.6
Marital status		
Single	125	37.5
Married	208	62.5
Education		
Primary	14	4.2
High	95	28.5

University	187	56.2
Postgraduate	37	11.1
Preoperative comorbid		
No	198	59.5
Yes	127	38.1
No answer	8	2.4
Postoperative comorbid		
No	256	76.9
Yes	60	18.0
No answer	17	5.1

The lowest of the patient body weight was 47, the highest weight was 149 kg, and their heights ranged from 143 to 195 cm. Preoperative body weights ranged from 75 to 225 kg, and the lowest post-operative body weight ranged from 42 to 138 kg. The BMI value was between 15.52 and 48.68 (Table 4.3).

Table 4.3. Distribution of patients height, weight, BMI and operative time before and after surgery

	Minimum	Maximum	Mean	Std. Deviation
Body weight	47.00	149.00	79.96	17.41
Height	143.00	195.00	168.16	9.14
Body weight before operation	75.00	225.00	121.42	25.47
Lowest body weight after operation	42.00	138.00	71.03	14.63

BMI (kg/m2)	15.52	48.68	28.16	5.00
Operation year	2.00	15.00	4.62	2.15

The night eating scores of the patients ranged from 14 to 52 and had a value of 31.19 ± 9.07 (Table 4.4).

Table 4.4. Distribution of patients' night eating scores

	Minimum	Maximum	Mean	Std. Deviation
NE total	14.00	52.00	31.19	9.07

NE: Night Eating

Emotional eating mean scores were 21.69 ± 15.58 , restrictive eating scores were 18.10 ± 7.93 , and external eating scores were 17.09 ± 7.90 (Table 4.5).

Table 4.5. Distribution of patients' DEBQ scores

	Minimum	Maximum	Mean	Std. Deviation
DEBQ Emotional eating	.00	52.00	21.69	15.58
DEBQ Restrictive Eating	.00	40.00	18.10	7.93
DEBQ Extrinsic Eating	.00	37.00	17.09	7.90

Women's night eating scores were higher than men's night eating scores. According to the results of the difference analysis, these differences between the groups were not statistically significant ($p < 0.05$) (Table 4.6).

Table 4.6. Difference between night eating scores by gender

Gender	Mean	Std. Deviation
Female	31.89	9.36
Male	29.33	8.08

p=0.119

Singles night eating scores were higher than married people's night eating scores. These differences between the groups were statistically significant ($p<0.05$) (Table 4.7).

Table 4.7. Difference between night eating scores by marital status

Marital status	Mean	Std. Deviation
Single	33.01	9.97
Married	29.83	8.13

p=0.031

The highest night eating score was in university graduates, followed by graduate and high school. According to the results of the difference analysis, these differences between the groups were not statistically significant ($p<0.05$) (Table 4.8).

Table 4.8. Difference between night eating scores by education level

Education	Mean	Std. Deviation
Primary	25.12	6.92
High	29.84	8.48
University	32.37	9.46
Postgraduate	31.62	8.43

p=0.108

Night eating scores of those with comorbid preoperatively were higher than those without. These differences between the groups were statistically significant ($p<0.05$) (Table 4.9).

Table 4.9. Difference between night eating scores according to preoperative comorbid status

Preop comorbid	Mean	Std. Deviation
No	29.82	9.21
Yes	33.09	8.56

$p=0.026$

Night eating scores of those with comorbid postoperatively were higher than those without. These differences between the groups were statistically significant ($p<0.05$) (Table 4.10).

Table 4.10. Difference between night eating scores according to postoperative comorbid status

Postop comorbid	Mean	Std. Deviation
No	30.04	8.77
Yes	34.39	9.13

$p=0.011$

According to gender, emotional eating, restrictive eating and external eating scores were statistically significantly higher in women ($p<0.05$) (Table 4.11).

Table 4.11. Difference between DEBQ scores by gender

Gender		DEBQ Emotional Eating	DEBQ Restrictive Eating	DEBQ Extrinsic Eating
Female	Mean	23.80	18.75	17.71
	Std. Deviation	16.08	8.01	7.87
Male	Mean	14.92	16.06	15.15
	Std. Deviation	11.55	7.35	7.73
	p value	0.000	0.012	0.035

The difference between married and single patients in all scores of DEBQ scale according to marital status was not statistically significant ($p>0.05$) (Table 4.12).

Table 4.12. Differences in DEBQ scores by marital status

Marital status		DEBQ Emotional Eating	DEBQ Restrictive Eating	DEBQ Extrinsic Eating
Single	Mean	23.31	18.13	17.27
	Std. Deviation	16.51	8.69	8.37
Married	Mean	20.75	18.08	16.98
	Std. Deviation	14.97	7.50	7.63
	p value	0.292	0.996	0.851

The difference between emotional eating and external eating scores according to education level was statistically significant ($p < 0.05$). However, the mean restriction eating score difference was not statistically significant ($p > 0.05$) (Table 4.13).

Table 4.13. Differences between DEBQ scores by education level

Education		DEBQ Emotional Eating	DEBQ Restrictive Eating	DEBQ Extrinsic Eating
Primary	Mean	18.15	15.67	16.14
	Std. Deviation	15.85	8.16	9.26
High	Mean	16.26	16.65	14.26
	Std. Deviation	13.89	7.15	7.10
University	Mean	24.49	18.79	18.49
	Std. Deviation	15.71	7.90	7.80
Postgraduate	Mean	22.91	19.06	17.31
	Std. Deviation	15.67	9.47	8.17
	p value	0.001	0.194	0.001

The differences between all DEBQ scores of patients with and without preoperative comorbidity were not statistically significant ($p>0.05$) (Table 4.14).

Table 4.14. Differences between DEBQ scores according to preoperative comorbid status

Preoperative comorbid		DEBQ Emotional Eating	DEBQ Restrictive Eating	DEBQ Extrinsic Eating
No	Mean	20.43	17.78	16.69
	Std. Deviation	14.77	7.52	7.32
Yes	Mean	24.40	19.02	18.09
	Std. Deviation	16.67	8.49	8.57
	p value	0.058	0.172	0.179

The differences between all DEBQ scores of patients with and without postoperative comorbidity were not statistically significant ($p>0.05$) (Table 4.15.).

Table 4.15. Differences between DEBQ scores according to postoperative comorbid status

Postoperative comorbid		DEBQ Emotional Eating	DEBQ Restrictive Eating	DEBQ Extrinsic Eating
No	Mean	21.37	18.62	17.13
	Std. Deviation	15.53	7.80	7.79
Yes	Mean	24.96	16.79	18.38
	Std. Deviation	16.11	8.55	8.31
	p value	0.120	0.126	0.246

According to the results of the correlation analysis, there was a statistically significant relationship between night eating score and emotional eating ($r=0.266$; $p<0.01$) and external eating ($r=0.245$; $p<0.01$). The relationship between DEBQ restrictive eating and night eating was not statistically significant ($p>0.05$) (Table 4.16).

Table 4.16. Relationship between night eating score and DEBQ

		NE total	DEBQ Emotional Eating	DEBQ Restrictive Eating	DEBQ Extrinsic Eating
NE total	r	1	0.266**	-0.004	0.245**
	p		0.001	0.967	0.003
	n	154	143	135	142
DEBQ Emotional Eating	r	0.266**	1	0.142*	0.578**
	p	0.001		0.019	0.000
	n	143	308	274	291
DEBQ Restrictive Eating	r	-0.004	0.142*	1	0.137*
	p	0.967	0.019		0.024
	n	135	274	290	272
DEBQ Extrinsic Eating	r	0.245**	0.578**	0.137*	1
	p	0.003	0.000	0.024	
	n	142	291	272	310

* $p<0.05$ ** $p<0.01$

Correlation analysis results showed that there was a significant and positive relation between body weight increase and operation duration ($r=0.201$; $p<0.01$) (Table 4.17).

Table 4.17. Correlation between operation duration and body weight increase

		Weight increase	Operation duration
Body weight increase	r	1	.201**
	p		.000
	n	337	337
Operation duration	r	.201**	1
	p	.000	
	n	337	337

**. Correlation is significant at the 0.01 level (2-tailed).

There was not a significant correlation between body weight increase and preoperative and postoperative comorbidity ($p>0.05$) (Table 4.18).

Table 4.18. Correlation between comorbidity and body weight increase

		Weight increase	Preoperative comorbid	Postoperative comorbid
Body weight increase	r	1	.062	-.007
	p		.268	.899
	n	333	325	316
Preoperative comorbid	r	.062	1	.454**
	p	.268		.000

	n	325	325	316
Postoperative comorbid	r	-.007	.454**	1
	p	.899	.000	
	n	316	316	316

** . Correlation is significant at the 0.01 level (2-tailed).

Body weight increase was negatively correlated with age ($r=-0.235$; $p<0.01$). However, there was not significant correlation between body weight increase and gender, night eating and DEBQ ($p>0.05$) (Table 4.19).

Table 4.19. Correlation between body weight increase and age, gender, night eating and DEBQ

		Weight increase	Age	Gender	NE total	DEBQ Emotional Eating	DEBQ Restrictive Eating	DEBQ Extrinsic Eating
Weight increase	r	1	-.235**	.025	-.044	.028	.049	.003
	p		.000	.649	.587	.631	.401	.961
	n	333	333	333	154	308	290	310
Age	r	-.235**	1	.084	-.143	-.120*	.106	-.073
	p	.000		.126	.077	.036	.072	.201
	n	333	333	333	154	308	290	310
Gender	r	.025	.084	1	-.126	-.243**	-.145*	-.139*
	p	.649	.126		.119	.000	.013	.014
	n	333	333	333	154	308	290	310

NE total	r	-.044	-.143	-.126	1	.266**	-.004	.245**
	p	.587	.077	.119		.001	.967	.003
	n	154	154	154	154	143	135	142
DEBQ Emotional Eating	r	.028	-.120*	-.243**	.266**	1	.142*	.578**
	p	.631	.036	.000	.001		.019	.000
	n	308	308	308	143	308	274	291
DEBQ Restrictive Eating	r	.049	.106	-.145*	-.004	.142*	1	.137*
	p	.401	.072	.013	.967	.019		.024
	n	290	290	290	135	274	290	272
DEBQ Extrinsic Eating	r	.003	-.073	-.139*	.245**	.578**	.137*	1
	p	.961	.201	.014	.003	.000	.024	
	n	310	310	310	142	291	272	310

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Independent sample t-test results showed that body weight increase in single patients were significantly higher than married patients ($p < 0.05$) (Table 4.20).

Table 4.20. Weight gaining differences according to marital status

Marital status	Mean	Std. Deviation	p
Single	42.40	7.90	0.006
Married	40.08	7.20	

5. DISCUSSION

We found that post-operative co-morbidities are reduced in this study. Comorbidities were present in 38.1 % of our patients before to surgery, compared to 18.0 % after surgery. Other studies might provide similar findings (79, 80). For example, in a study of 103 patients in Brazil. Nearly half of the patients (42.4 %) had hypertension, followed by sleep apnea (24.1%), and diabetes (18.2%) as the most frequent comorbidities. There was a 70.8 % success rate in resolving hypertension, 80,7 % for diabetes and 68,8 % for dyslipidemia, as well as 90.2 % for sleep apnea (79). According to another study, the percentage of those suffering from sleep apnea has dropped from 43% to 23% among 211 participants. There was a drop in HbA1c from 5.9 to 5.3. From 210 to 186, the overall cholesterol level has decreased. (80).

Before and after surgery, nighttime eating has an impact on comorbidities. Higher night-eating scores were shown to be linked with comorbidities, but we could not discover significant results for emotional, external, or restricted eating. According to a review of literature, eating disorders may induce comorbidities like diabetes and hypertension, but they are more likely to cause mental problems like worry, insomnia, and depression (81).

A study with 31.690 Korean adults (12.270 men and 18.970 women) came to the conclusion women eat more at night than men (82). We find the same result but it is not statistically significant in our study.

In some studies body weight regain after bariatric surgery has previously been studied without regard to a patient's marital status. In contrast, several studies have examined the relationship between obesity and marital status in great detail. For instance, one study in Iran looked at 89,404 people and found that married people were twice as likely as singles to be overweight and three times as likely as singles to be obese (83). Over 43,000 Danish adults were studied during 2004 and 2007, and the prevalence of obesity among married men was found to be particularly high (84). Many of the 498 overweight persons surveyed for the 2010 study by the Ankara Research Center said that they gained body weight because of their marriage (85). No studies have examined the effects of bariatric surgery on marital status, which is a hotly debated subject when it comes to obesity-related factors. According to our findings, body weight

regain in single patients is significantly higher than body weight regain in married individuals.

When it comes to nighttime eating, marital status was proven to be statistically significant ($p=0.034$). People who are single have a higher nighttime eating score than those who are married.

Higher emotional, restrictive and external eating evaluations were given to women than men ($p=0.000$ for emotional eating, 0.012 for restrictive eating, and 0.035 for external eating). According to a separate study, women were shown to be more likely than men to turn to food as a way to cope with stress (86).

According to our findings, there is a statistically significant link between night eating score and emotional as well as external eating, and not with restricted eating. Another study including 729 students revealed a similar correlation between emotional eating and nighttime food consumption (87). Based on the severity of their night-eating condition, 246 university students were classified into four groups. These include "normal," "mild" and "moderate" as well as "complete" in terms of night eating habits. The study revealed that the night eating syndrome groups had substantially different emotional eating ratings, $F(3, 40) = 4.49$, $p = .004$. The Tukey HSD test indicated that individuals with complete syndrome night eating syndrome had substantially higher emotional eating scores than those with moderate ($p = .027$), mild ($p = .025$), and normal ($p = .002$) emotional eating scores. Similarly, there were significant differences in external eating scores among the night eating syndrome groups, $F(3, 240) = 7.85$, $p.001$; the Tukey HSD test revealed that the full syndrome night eating syndrome category had higher external eating scores than the moderate ($p = .008$), mild ($p.001$), and normal ($p.001$) categories. In addition, moderate night eaters scored considerably higher on external eating than normal eaters ($p = .023$). For emotional eating, the trend paralleled increasing mean scores including both emotional and external eating as night eating intensified. Restrained eating was also different across the night eating syndrome groups, $F(3, 240) = 4.80$, $p = .003$. The trend for controlled eating was less clear: the moderate group scored lower on restraint than the normal ($p = .020$) and complete syndrome ($p = .041$) categories. Normal and full syndrome patients showed no apparent differences. (88).

Additionally, body weight regain rises with the time passed after the operation. Body weight regain and insufficient body weight loss are common as in the long-term post-operative phase, according to a separate study comprising 212 people (89). Other studies have shown similar outcomes after the third year, a little amount of body weight starts to gain, and this trend persists beyond five years postoperatively, according to a study that included 865 patients (90). In the second one, 148 patients participated in the study and the body weight regain percentage was 30.4% five years after surgery and 51.4% seven years after surgery, respectively (91). The proportion of people who regain body weight is increasing, as previously reported.

Comorbidity pre or post-surgery has no effect on body weight recovery, according to our data. Gender, night-eating, emotional eating, restricted eating and external food intake have little effect on body weight increase. When it comes to body weight gain, age is the one factor that has an adverse effect.

6. CONCLUSION

In conclusion, this study raises awareness about body weight regain after sleeve gastrectomy and showed us the success of the surgery in the treatment of obesity depends not only on the surgical success but also on the close follow-up of the dietitian and training in the postoperative period. Up to our calculation of body weight regain every patient seems like they gain body weight but in literature calculation of weight regain is unclear. Patients seem to gain weight but in BMI calculations some of our patients are still in the normal range so the calculation of body weight gain needs to be clear.

This kind of studies are limited in our country. Our results can help medical staff about which patients need to be more careful for preventing body weight regain. Another thing which we really need to consider is long-term patients should be more careful about their body weight status. They should always be under the dietitian follow-up. In order to achieve more productive results in such studies, longer-term studies with more centers and more participants are needed.

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8. APPENDICES

8.1. APPENDIX 1. Night Eating Questionnaire

Gece Yeme Anketi

1. Sabahları ne kadar aç oluyorsunuz?
Hiç / Çok az / Biraz / Orta derecede / Aşırı
 2. İlk yemeğinizi genelde ne zaman yersiniz?
Saat 9'dan önce / 9-12 arası / 12-15 arası / 15-18 arası / 18'den sonra
 3. Akşam yemeğinden yatana kadar aşırı yeme veya atıştırma isteğiniz olur mu?
Hiç / Çok az / Biraz / Oldukça çok / Aşırı
 4. Akşam yemeğinden yatana kadarki zamanda yemeniz üzerinde ne kadar kontrolünüz var?
Hiç / Çok az / Biraz / Çok / Tamamen
 5. Günlük besin alımınızın ne kadarını akşam yemeğinden sonra tüketirsiniz?
%0 / %1-25 / %26-50 / %51-75 / %76-100
 6. Son zamanlarda hüzünlü veya kederli hissediyor musunuz?
Hiç / Çok az / Biraz / Oldukça çok / Aşırı
 7. Hüzünlü hissettiğiniz zaman, duygudurumunuz _____ daha çökkün oluyor.
Gün içinde değişme olmuyorsa X işareti koyunuz. _____ sabah erken / sabah / öğleden sonra / akşam üzeri / akşam / gece
 8. Uykuya dalmakta hangi sıklıkta zorluk yaşıyorsunuz?
Hiç / Bazen / Zamanın yarısında / Genelde / Her zaman
 9. Tuvalet gereksinmesi dışında, gece hangi sıklıkta en az bir kez kalkarsınız?
Hiç / Haftada birden az / Haftada bir / Haftada birden çok / Her gece
Not: 9. soruda cevabınız hiçse, burada durun.
 10. Gece uyanınca yeme isteği veya atıştırmanız oluyor mu?
Hiç / Çok az / Biraz / Oldukça çok / Aşırı
 11. Gece uyanınca tekrar uyuyabilmek için yeme ihtiyacı duyar mısınız?
Hiç / Çok az / Biraz / Oldukça çok / Aşırı
 12. Gece yarısı uyanınca hangi sıklıkta atıştırırsınız?
Hiç / bazen / zamanın yarısında / sıklıkla / her zaman
Not: 12'ye hiç yanıt verdiğinizde, burada durun.
 13. Gece yarısı atıştırdığınızda, yediğinizin ne kadar farkındasınız?
Hiç / Çok az / Biraz / Çok / Tamamen
 14. Gece kalktığınızda yemenizi ne kadar kontrol edebiliyorsunuz?
Hiç / Çok az / Biraz / Çok / Tamamen
- Gece yemeyle ilgili sorunuz ne kadar zamandır sürüyor? ---- ay ---- yıl
15. Gece yemeniz sizi ne kadar rahatsız ediyor?
Hiç / Çok az / Biraz / Orta derecede / Aşırı
 16. Gece yemeniz hayatınızı ne kadar etkiliyor? Hiç /
Çok az / Biraz / Orta derecede / Aşırı

8.2. APPENDIX 2. Dutch Eating Behavioral Questionnaire

Yeme Alışkanlıkları Anketi (DEBQ)

Lütfen her bir soruyu dikkatlice okuyunuz ve tüm sorulara cevap veriniz. Hiçbir sorunun doğru ve yanlış cevabı yoktur. Her bir soru için size uygun cevabın altındaki daireyi işaretleyin.

1. Eğer kilo aldıysanız, her zaman yediğinizden daha az mı yersiniz?	Hiçbir zaman ☐	Nadiren ☐	Bazen ☐	Sık ☐	Çok sık ☐
2. Yemek zamanlarında, yemek istediğinizden daha az yemeye çalışır mısınız?	Hiçbir zaman ☐	Nadiren ☐	Bazen ☐	Sık ☐	Çok sık ☐
3. Kilonuzdan endişe duyduğunuz için size sunulan yiyecek yada içeceği ne sıklıkla reddedersiniz?	Hiçbir zaman ☐	Nadiren ☐	Bazen ☐	Sık ☐	Çok sık ☐
4. Ne yediğinize tam olarak dikkat eder misiniz?	Hiçbir zaman ☐	Nadiren ☐	Bazen ☐	Sık ☐	Çok sık ☐
5. Bilinçli olarak zayıflatıcı besinler mi yersiniz ?	Hiçbir zaman ☐	Nadiren ☐	Bazen ☐	Sık ☐	Çok sık ☐
6. Çok fazla yediğinizde, ertesi gün daha az yer misiniz?	Hiçbir zaman ☐	Nadiren ☐	Bazen ☐	Sık ☐	Çok sık ☐
7. Kilo almamak için az yemeye dikkat eder misiniz?	Hiçbir zaman ☐	Nadiren ☐	Bazen ☐	Sık ☐	Çok sık ☐
8. Kilonuza dikkat ettiğiniz için ne sıklıkla yemek aralarında bir şey yememeye çalışırsınız?	Hiçbir zaman ☐	Nadiren ☐	Bazen ☐	Sık ☐	Çok sık ☐
9. Kilonuza dikkat ettiğiniz için ne sıklıkla akşamları yemek yememeye çalışırsınız?	Hiçbir zaman ☐	Nadiren ☐	Bazen ☐	Sık ☐	Çok sık ☐
10. Ne yiyeceğinize karar verirken kilonuzu hesaba katar mısınız?	Hiçbir zaman ☐	Nadiren ☐	Bazen ☐	Sık ☐	Çok sık ☐
11. Bir şeyden rahatsız olduğunuzda daha fazla yemek yemek ister misiniz?	Hiçbir zaman ☐	Nadiren ☐	Bazen ☐	Sık ☐	Çok sık ☐
12. Yapacak bir şeyiniz olmadığında yemek ister misiniz?	Hiçbir zaman ☐	Nadiren ☐	Bazen ☐	Sık ☐	Çok sık ☐
13. Depresyonda olduğunuzda yada hayal kırıklığına uğradığınızda yemek ister misiniz?	Hiçbir zaman ☐	Nadiren ☐	Bazen ☐	Sık ☐	Çok sık ☐
14. Kendinizi yalnız hissettiğinizde yemek ister misiniz?	Hiçbir zaman ☐	Nadiren ☐	Bazen ☐	Sık ☐	Çok sık ☐
15. Biri sizi üzdüğünde yemek ister misiniz?	Hiçbir zaman ☐	Nadiren ☐	Bazen ☐	Sık ☐	Çok sık ☐
16. Sinirleriniz bozuk olduğu zaman yemek ister misiniz?	Hiçbir zaman ☐	Nadiren ☐	Bazen ☐	Sık ☐	Çok sık ☐
17. İstemediğiniz bir şey olduğu zaman yemek ister misiniz?	Hiçbir zaman ☐	Nadiren ☐	Bazen ☐	Sık ☐	Çok sık ☐
18. Kaygılı, endişeli olduğunuz zaman yemek ister misiniz?	Hiçbir zaman ☐	Nadiren ☐	Bazen ☐	Sık ☐	Çok sık ☐
19. Bir şeyler ters yada yanlış gittiğinde yemek ister misiniz?	Hiçbir zaman ☐	Nadiren ☐	Bazen ☐	Sık ☐	Çok sık ☐
20. Korktuğunuz zaman yemek ister	Hiçbir zaman ☐	Nadiren ☐	Bazen ☐	Sık ☐	Çok sık ☐

misiniz?	☐	☐	☐	☐	☐
21. Hayal kırıklığına uğradığınız zaman yemek ister misiniz?	Hiçbir zaman ☐	Nadiren ☐	Bazen ☐	Sık ☐	Çok sık ☐
22. Duygusal olarak üzüntülü olduğunuzda yemek ister misiniz?	Hiçbir zaman ☐	Nadiren ☐	Bazen ☐	Sık ☐	Çok sık ☐
23. Huzursuz olduğunuzda yada canınız sıkın olduğunda yemek ister misiniz?	Hiçbir zaman ☐	Nadiren ☐	Bazen ☐	Sık ☐	Çok sık ☐
24. Yediğiniz şey lezzetliyse, genelde yediğinizden daha çok yer misiniz?	Hiçbir zaman ☐	Nadiren ☐	Bazen ☐	Sık ☐	Çok sık ☐
25. Yediğiniz şey güzel kokuyor ve güzel görünüyorsa, genelde yediğinizden daha çok yer misiniz?	Hiçbir zaman ☐	Nadiren ☐	Bazen ☐	Sık ☐	Çok sık ☐
26. Lezzetli bir şey gördüğünüzde yada kokladığınızda onu yemek ister misiniz ?	Hiçbir zaman ☐	Nadiren ☐	Bazen ☐	Sık ☐	Çok sık ☐
27. Eğer yemek için lezzetli bir şeyler varsa doğrudan onu yer misiniz?	Hiçbir zaman ☐	Nadiren ☐	Bazen ☐	Sık ☐	Çok sık ☐
28. Eğer bir fırının önünden geçerseniz, lezzetli bir şeyler satın almak ister misiniz?	Hiçbir zaman ☐	Nadiren ☐	Bazen ☐	Sık ☐	Çok sık ☐
29. Eğer bir kafe yada büfenin önünden geçerseniz, lezzetli bir şeyler satın almak ister misiniz?	Hiçbir zaman ☐	Nadiren ☐	Bazen ☐	Sık ☐	Çok sık ☐
30. Başkalarını yerken görürseniz, sizde yemek yemek ister misiniz?	Hiçbir zaman ☐	Nadiren ☐	Bazen ☐	Sık ☐	Çok sık ☐
31. Lezzetli yiyeceklere karşı koyabilir misiniz?	Hiçbir zaman ☐	Nadiren ☐	Bazen ☐	Sık ☐	Çok sık ☐
32. Başkalarını yerken gördüğünüzde, genelde yediğinizden daha fazla yer misiniz?	Hiçbir zaman ☐	Nadiren ☐	Bazen ☐	Sık ☐	Çok sık ☐
33. Yemek hazırlarken bir şeyler yemeye meyilli misiniz?	Hiçbir zaman ☐	Nadiren ☐	Bazen ☐	Sık ☐	Çok sık ☐

1-10 kısıtlayıcı (restraint) yeme

11-23 duygusal (emotional) yeme

24-33 dışsal (external) yeme

Puanlama

Hiçbir zaman 1	Nadiren 2	Bazen 3	Sık 4	Çok sık 5
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Değerlendirme alt ölçeklerin toplamaları üzerinden yapılıyor. Herhangi bir cut-off puanı yok.

31.madde ters soru

8.3. APPENDIX 3. Demographic Data Collection Form

Veri Toplama Formu

Ad-soyad:

Cinsiyet:

Yaş:

Ameliyat tarihi:

Ameliyat öncesi kilo:

Ameliyat sonrası görülen en düşük kilo:

Şu an ki kilo:

Boy:

BKI (Beden Kitle İndeksi):

Ameliyat öncesi yandaş hastalıkları var mıydı? Varsa neler?

Şu an yandaş hastalıkları var mı? Varsa neler?

Medeni durum:

Eğitim durumu:

8.4. APPENDIX 4. ETHICS COMMITTEE APPROVAL FORM



YEDİTEPE ÜNİVERSİTESİ
GİRİŞİMSSEL OLMAYAN KLİNİK ARAŞTIRMALAR
ETİK KURULU

Versiyon No 2.0
13.02.2022
Sayfa 1 / 2

KARAR FORMU

27.04.2022

ETİK KURUL BİLGİLERİ	Etik Kurulun Adı	Yeditepe Üniversitesi Girişimsel Olmayan Klinik Araştırmalar Etik Kurulu
	Açık Adres	Yeditepe Üniversitesi Kayışdağı Kampüsü, Tıp-Mühendislik Binası, Sağlık Bilimleri Enstitüsü, İnönü Mah. Kayışdağı Cad. 326A, 26 Ağustos Yerleşimi 34755 Ataşehir, İstanbul
	İnternet Sayfası	http://goetik.yeditepe.edu.tr/
	Telefon	0216 578 00 00
	E-posta	goetik@yeditepe.edu.tr

DEĞERLENDİRİLEN BELGELER	Islak imzalı başvuru dosyası, CD'si ve elektronik başvuru	☒
	Araştırma başlığı ve araştırmacıların isimleri	☒
	Başvuru dilekçesi	☒
	Başvuru Formu- Araştırmanın;	☒
	• Niteliği	☒
	• Önemi ve özgün değeri	☒
	• Amaç ve hedefleri	☒
	• Yöntemi	☒
	• Yönetimi	☒
	• Yaygın etkisi	☒
	• Araştırma bütçesi (Mevcutsa)	☒
	• Süresi ve uygunluğu (Zaman cetveli)	☒
	• Kaynakları	☒
	Bilgilendirilmiş Gönüllü Olur Formu (yapılan araştırmaya özel olarak hazırlanmış)	☒
	Taahhütname-1 Araştırmanın yapılacağı kurumdaki izin alma sorumluluğunun araştırmacılara ait olduğuna dair taahhüt	☒
	Taahhütname-2 Dünya Tıp Birliği Helsinki Bildirgesinin son versiyonunun ve Sağlık Bakanlığı'nın ilgili tüm kılavuzlarının okunmasına dair taahhüt	☒
	Taahhütname-3 Daha önce yapılmış etik kurul başvuruları mevcut olup olmadığına dair taahhüt	☒
	Taahhütname-4 Araştırma sırasında araştırma bütçesinde yer almayan ve gönüllünün kendisine veya Sosyal Güvenlik Kurumuna ek yük getirecek hiçbir işlem uygulanmayacağına dair taahhüt	☒
	Taahhütname-5 COVID-19 hastalarında tedavi yaklaşımları ve bilimsel araştırmalar genelgesi okunmasına dair taahhüt	☒
	Taahhütname-6 Milli Eğitim Bakanlığı Araştırma Uygulama İzinleri konulu yazının okunmasına dair taahhüt	☒
	Araştırmacıların her birisine ait özgeçmiş formu	☒
	Ek belgeler (Varsa kullanılan ölçek izinleri vb.)	☒

KARAR BİLGİLERİ	Başvuru Numarası	202202Y0186
	Toplantı Tarihi	11.03.2022
	Toplantı Yeri	Çevirim içi (Google Meet)
	Karar No	1

Araştırmanın Başlığı
Araştırmacılar

Sleeve Gastroektomi Uygulanmış Yetişkin Bireylerde Kilo Geri Alımı
Diyetisyen Yaşar Efe Balı , Prof. Dr. Serdar Öztezcan , Prof. Dr. Koray Tekin



YEDİTEPE ÜNİVERSİTESİ
GİRİŞİMSEL OLMAYAN KLİNİK ARAŞTIRMALAR
ETİK KURULU

Versiyon No 2.0
13.02.2022
Sayfa 2 / 2

BAŞVURU NUMARASI: 202202Y0186

27.04.2022

KARAR

☒ KABUL	☐ RET ☐ KAPSAM DIŞI (GİRİŞİMSEL) ☐ BİLİMSEL VE/VEYA ETİK KURALLARA AYKIRI ☐ BİR SORUMLU ARAŞTIRMACININ (TEZ İSE DANIŞMAN), BİR TOPLANTIYA İKİ (2) ADETTE FAZLA ÇALIŞMA BAŞVURUSUNDA BULUNMASI ☐ KURUM İÇİ BAŞVURULARINDA KURUMSAL E-POSTA HESABI İLE GİRİŞ YAPILMAMIŞ OLMASI ☐ ŞARTLI KABULDE BELİRTİLEN REVİZYONLARIN ZAMANINDA VE/VEYA İSTENİLDİĞİ ŞEKİLDE YAPILMAMIŞ OLMASI
--	--

Yeditepe Üniversitesi Girişimsel Olmayan Klinik Araştırmalar Etik Kurulu adına
Prof.Dr.Didem Özdemir ÖZENEN
Başkan

Araştırmamanın Başlığı
Araştırmacılar

Sleeve Gastroektomi Uygulanmış Yetişkin Bireylerde Kilo Geri Alımı
Diyetisyen Yaşar Efe Balı , Prof. Dr. Serdar Öztezcan , Prof. Dr. Koray Tekin

9. CURRICULUM VITAE

Kişisel Bilgiler

Adı	YAŞAR EFE	Soyadı	BALI
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Öğrenim Durumu

Derece	Alan	Mezun Olduğu Kurumun Adı	Mezuniyet Yılı
Doktora			
Yüksek Lisans			
Lisans	BESLENME VE DİYETETİK	YEDİTEPE ÜNİVERSİTESİ	2016
Lise	SAYISAL	TED ANKARA KOLEJİ	2012

Bildiği Yabancı Dilleri	Yabancı Dil Sınav Notu (#)

Başarılmış birden fazla sınav varsa (KPDS, ÜDS, TOEFL; EELTS vs), tüm sonuçlar yazılmalıdır

İş Deneyimi (Sondan geçmişe doğru sıralayın)

Görevi	Kurum	Süre (Yıl - Yıl)
DİYETİSYEN	PROF. DR. KORAY TEKİN OBEZİTE VE METABOLİK CERRAHİ MERKEZİ	2017-AKTİF
		-

Bilgisayar Bilgisi

Program	Kullanma becerisi
WINDOWS OFFICE	ORTA

*Çok iyi, iyi, orta, zayıf olarak değerlendirin

Bilimsel Çalışmaları

SCI, SSCI, AHCI indekslerine giren dergilerde yayınlanan makaleler

Diğer dergilerde yayınlanan makaleler

Uluslararası bilimsel toplantılarda sunulan ve bildiri kitabında (*Proceedings*) basılan bildiriler

Hakemli konferans/sempozyumların bildiri kitaplarında yer alan yayınlar

Diğer (Görev Aldığı Projeler/Sertifikalari/Ödülleri)

