T.C.
ANKARA YILDIRIM BEYAZIT UNIVERSITY
THE INSTUTUTE OF SOCIAL SCIENCES

PSYCHOLOGICAL FACTORS PREDICTING WEIGHT CYCLING AMONG TURKISH ADULT WOMEN

MASTER'S THESIS

AYŞE MUTLU

DEPARTMENT OF PSYCHOLOGY

Ankara, 2023

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ONAY SAYFASI

Ayşe MUTLU tarafından hazırlanan "Psychological Factors Predicting Weight Cycling Among Turkish Adult Women" adlı tez çalışması aşağıdaki jüri tarafından oy birliği / oy çokluğu ile Ankara Yıldırım Beyazıt Üniversitesi Sosyal Bilimler Enstitüsü Psikoloji Anabilim Dalı'nda Yüksek Lisans tezi olarak kabul edilmiştir.

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Sosyal Bilimler Enstitüsü Müdürü Prof. Dr. Yaşar YİĞİT

……

I hereby declare that all information in this thesis has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work; otherwise, I accept all legal responsibility.

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Ayşe MUTLU

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ABSTRACT

Psychological Factors Predicting Weight Cycling Among Turkish Adult Women

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Today, in the struggle towards obesity, weight cycling is a significant obstacle since most people tend to experience weight regain in the long term even though they accomplish weight loss in a short-term. This thesis has two objectives: the main objective is to investigate the relationship between a group of psychological factors (food-related impulsivity, emotion regulation difficulty, perceived social support, female gender-role stress, and self-worth) and the number of lifetime weight cycles (WC); and the second objective is to investigate the differentiation of psychological factors depending on demographic variables (age, marital status, working status, education level, household income, and body mass index (BMI)). Accordingly, a total of 311 Turkish adult women between the ages of 19 to 63 completed the Power of Food Scale, Difficulties in Emotion Regulation Scale, Multidimensional Scale of Perceived Social Support, Psychological Maltreatment of Women Inventory, and Self-Esteem Rating Scale. After checking for the statistical assumptions, a hierarchical regression analysis, including age and BMI as control variables, was performed. In the analysis, age, BMI, food-related impulsivity, and self-worth significantly predicted the number of lifetime weight cycles, while emotion regulation difficulty, perceived social support, and female gender role stress did not have a significant prediction value. Findings were discussed in light of existing literature with the aim of providing better and more comprehensive building of strategies for coping with the development and maintenance of obesity.

Keywords: Body Mass Index, Emotion Regulation Difficulty, Female Gender Role Stress, Impulsivity, Obesity, Perceived Social Support, Self-Worth, Weight Cycling

ÖZET

Yetişkin Türk Kadınları Arasında Kilo Döngüsünü Yordayan Psikolojik Faktörler

Mutlu, Ayşe
Yüksek lisans, Psikoloji

Tez Danışmanı: Prof. Dr. Hüdayar CIHAN

Günümüzde obezite ile mücadelede kilo döngüsü önemli bir engeldir, çünkü insanların çoğu kısa vadede kilo vermeyi başarsa da uzun vadede tekrar kilo alma eğilimindedir. Bu tezin iki amacı bulunmaktadır: temel amaç, bir grup psikolojik faktör (dürtüsellik, duygu düzenleme güçlüğü, algılanan sosyal destek, kadın cinsiyet rolü stresi ve benlik saygısı) ile yaşam boyu kilo döngüsü sayısı arasındaki ilişkiyi araştırmaktır; ikinci amaç ise, psikolojik faktörlerin demografik değişkenlere (yaş, medeni durum, çalışma durumu, eğitim düzeyi, hanehalkı geliri ve beden kitle endeksi (BKE)) bağlı olarak farklılaşmasının araştırılmasıdır. Buna göre, 19-63 yaş arası toplam 311 yetişkin Türk kadın, Besin Gücü Ölçeği, Duygu Düzenleme Güçlükleri Ölçeği, Çok Boyutlu Algılanan Sosyal Destek Ölçeği, Kadınlara Yönelik Psikolojik Kötü Muamele Envanteri ve Benlik Saygısı Derecelendirme Ölçeği'ni doldurmuştur. İstatistiksel varsayımlar sağlandıktan sonra, yaş ve BKİ'yi kontrol değişkenleri olarak içeren hiyerarşik bir regresyon analizi yürütülmüştür. Analizde, yaş, BKİ, dürtüsellik ve öz-değer, yaşam boyu kilo döngüsü sayısını anlamlı şekilde yordarken, duygu düzenleme güçlüğü, algılanan sosyal destek ve kadın cinsiyet rolü stresi anlamlı bir yordama değerine sahip değildir. r. Bulgular, obezitenin gelişimi ve sürdürülmesi ile başa çıkmak için daha iyi ve daha kapsamlı stratejiler oluşturmak amacıyla mevcut literatür ışığında tartışılmıştır.

Anahtar Kelimeler: Algılanan Sosyal Destek, Beden Kitle Endeksi, Benlik Saygısı, Dürtüsellik, Duygu Düzenleme Güçlüğü, Kadın Cinsiyet Rolü Stresi, Kilo Döngüsü, Obezite

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SYMBOLS AND ABBREVIATIONS

BMI	: Body Mass Index
CDC	: United States Centers for Disease Control and Prevention
ICD	: International Classification of Disorders
OSA	: Obstructive sleep apnea
GERD	: Gastroesophageal Reflux Disease
GWAS	: Genome-Wide Association Study
HPA	: Hypothalamic-Pituitary-Adrenal
KOA	: Knee Osteoarthritis
NCD	: Non-communicable Diseases
SES	: Socioeconomic Status
T2DM	: Type II Diabetes Mellitus
TMH	: Turkish Ministry of Health
TSI	: Turkish Statistical Institute
UN	: United Nations
UNICEF	: United Nations International Children's Emergency
WC	: Weight Cycling
WHO	: World Health Organization
WLM	: Weight Loss Maintenance
WR	: Weight Regain
WOF	: World Obesity Federation

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GENERAL INTRODUCTION

Obesity has been a growing problem for individuals and societies in the last decades by its negative impact on physical and mental health, and economics (Sarwer & Polonsky, 2016; Tremmel et al., 2017). According to World Health Organization's (WHO) European Regional Obesity Report (2022), every 1 in 3 school-aged children, every 1 in 4 adolescents, and around 60% of adults are overweight or obese today. Despite the worldwide interventions conducted by governments and non-governmental organizations in collaboration, by 2030, 29.42% of men and 29.97% of women in Europe are estimated to reach obesity, of which Turkey has the highest prevalence estimate with 50% of obesity among women (World Obesity Federation (WOF), 2022)

Obesity, associated with the leading fatal chronic diseases like heart disease or Type-II diabetes, is mainly explained by an excessive amount of energy intake along with limited physical activity due to a sedentary lifestyle (WHO, 2022). Given the basic equation, a decrease in food intake with an increase in physical activity is expected to be the treatment of obesity, and weight management programs are formed accordingly (Hajjaj et al., 2022). However, despite the effectiveness of these weight management programs in the short term (Bellicha et al., 2021; Dombrowski et al., 2014), most individuals end up gaining the lost weight in the long term. In population-based studies, the prevalence of weight loss trials followed by weight regain is significantly high among both non-clinical populations (Quinn et al., 2020; Stevens et al., 2012; Lahti-Koski et al., 2005; Madigan et al., 2022), and weight-loss surgery patients (Clapp et al., 2018; El Ansari & Elhag, 2021; Tolvanen et al., 2022; 2016). Thus, despite the major efforts to lose weight, a significant number of patients end up with weight regain, and the loss of progress. Moreover, the number of weight cycles -pairs of gains and losses- is associated with an increased risk for cardiovascular mortality, and depressive symptoms (Rhee, 2017; Quinn et al., 2020). Therefore, weight cycling can be considered one of the major obstacles in treating obesity.

The systematic reviews focusing on the associates of obesity and weight cycling presented them as multifactorial phenomena resulting from the combined effects of genetics, hormonal factors, anatomic factors (Yu et al., 2019), behavioral factors like maladaptive eating patterns or quality of life (Dombrowski et al., 2014; Varkevisser et al., 2019), and psychological (Mauro et al., 2019; Spreckley et al., 2021), social, and environmental factors (Athanasiadis et

al., 2021). Genetic studies conducted in relation to the Human Genome Project, which presented around 250 genes associated with obesity, showed the moderation of physical and psychosocial environment in the expression of these genes (Dashti et al., 2022; Hüls et al., 2021; Loos & Yeo, 2022; Sanghera et al., 2019). Psychological, social, cultural, and physical environmental effects can be considered within this gene-environment interaction. In a systematic review, the most effective inpatient program for weight loss maintenance was shown with the multidisciplinary approach including a low-calorie diet, scheduled physical activity, and psychological support based on behavioral treatment (Spadaccini et al., 2022).

Following these studies, both governmental and nongovernmental organizations prefer to adopt a holistic approach to the treatment and prevention of obesity. In European Regional Obesity Report (2022), WHO advises "providing individualized care plans that address the causes of their obesity by working with a multidisciplinary team including the team of doctors, dietitians, physiotherapists, psychiatrists or psychologists, and nurses" in the effective obesity management. Likewise, United Nations International Children's Emergency (UNICEF) conducted 'A Case Study on Healthy Diets for Children' in Amsterdam, in which they support individualized care for children with overweight/obese and their families with a team of professionals (UNICEF, 2020). In this whole-system approach project that had been started in 2013, a substantial decrease in obesity rates was recorded in 2018. In line with global actions, In the Prevention of Adulthood and Childhood Obesity, and Physical Activity Action Plan (Turkish Ministry of Health (TMH), 2019), the Turkish Ministry of Health highlighted the importance of a holistic approach to coping with the obesity epidemic. Following this approach, in 2018, TMH issued a circular for the extensification of obesity centers in all the provinces of the country. In the circular, operations in the obesity centers were defined by a network of professionals including medical doctors with different specialties, dieticians, psychologists, physiotherapists, and nurses working together in collaboration (TMH, 2018).

In line with the worldwide policies aiming for a holistic approach, literature studies are expected to examine the problem in all aspects. However, relative to the interest in medical and physiological factors behind obesity, psychosocial associates have had very limited attention thus far. Considering the significance of each factor contributing to obesity as different legs of the same table, this study aims to fill in this gap by examining the psychological predictors associated with obesity maintenance. Accordingly, in this study, a biopsychosocial approach to obesity will be followed. As a holistic approach, the biopsychosocial model proposes the interconnection between biology, psychology, and socio-environmental factors in the

determination of health outcomes and vulnerability to diseases. Both the development and the treatment of a health problem, in this approach, become possible through intervention in both biological, psychological, and social factors. In the case of obesity, the biopsychosocial approach states the interaction of the obesity genes with the strength of psychological resilience in response to stress, arising from the social environment while providing the solution through a reformation of food environments, behavioral and cognitive change through psychotherapy, medical intervention, and encouragement of physical activity, etc. (Straub, 2014).

Adopting this approach, this study will focus on psychosocial factors contributing to the maintenance of obesity. More specifically, this study aims at testing the direct and indirect effects of the main psychological factors associated with weight cycling based on a literature review. Understanding the predictive value of the main psychosocial factors related to weight cycling is expected to pave the way for effective intervention programs. In the next chapter, obesity, and weight cycling will be explained in details. Following the literature review, possible psychosocial predictors of weight cycling will be analyzed.

CHAPTER I: LITERATURE REVIEW

In the first chapter, obesity, and weight cycling terms will be detailed in two parts based on the biopsychosocial approach to obesity. Accordingly, after providing a background including the epidemiology of and health consequences related to obesity, a literature review will be conducted. In the literature review, the biological and genetic background of obesity and weight cycling, psychological factors related to obesity and weight cycling, and social and cultural factors that contribute to the development and maintenance of obesity and weight cycling will be reflected. Following the literature review, the psychological factors that have been most frequently associated with obesity and weight cycling will be examined in terms of their predictive value on the number of lifetime weight cycles in the subsequent chapters.

1.1 OBESITY

Obesity, derived from the Latin word *obesitas*, was first used by Randle Cotgrave in 1611 according to the Oxford English Dictionary. Yet, its origins go back to ancient times when obesity and overweight, as signs of prosperity and wealth, are unique to a group of people. The idea of being fat as a sign of health was reflected in the icons and figurines that were made 20.000 years ago (Eknoyan, 2006). Its association with health problems, on the other hand, had been presented in the first half of the 20th century. By the turn of the 20th century, technological advances provided easier access to food for an increasing number of people around the world. Despite the two world wars in the first half of the century, by the 1960s, food shortages started to decrease while the number of food companies started to increase. Several worldwide fast-food companies were established and widely grown around the 1960s (McDonalds, n.d.; Kentucky Fried Chicken, n.d.; Burger King, n.d.; Pizza Hut, n.d.; Dominos, n.d.).

With the increase of patients with diabetes or heart disease, studies increasingly focused on the association between obesity and health problems. In 1948, WHO defined obesity as a health problem in the 6th revision of the International Classification of Disorders (ICD-6). As a result of the rapid increase in obesity rates, especially in Western countries, and with the discovery of leptin in 1994, WHO recognized obesity as a chronic disease in 1997. In 2007, European Commission published the "White Paper on A Strategy for Europe on Nutrition, Overweight, and Obesity-related health issues" as an action proposal to struggle with obesity.

In 2014, the Global Obesity Federation has been established under the OBTAINS-E2 program funded by European Union. The program aimed *"(i) to improve the training and skill*

levels of health professionals across the EU; (ii) to improve the exchange of information and dissemination of evidence for policies and interventions; and (iii) to strengthen the evidence base for the development of policies and interventions to address obesity". As a result of the growing epidemic despite the worldwide policies, in 2021, European Commission recognized obesity as a chronic, relapsing disease that needs a holistic approach to struggle with.

1.1.1 Background and Definition of Obesity

Obesity is defined as "a disorder characterized by an abnormally high, unhealthy amount of body fat" in the ICD-10 under the code E66. WHO points to the body mass index (BMI) as the main measure of obesity, which is determined by the division of a person's height with his/her weight. As provided in Table 1, obesity is defined by a BMI>30, which is further categorized into three levels; class I obesity corresponds to 34.9>BMI>30, while class II obesity corresponds to 40>BMI> 35; class III obesity corresponds to BMI higher than 40. BMI is a major signifier of body fat and obesity; however, since it does not consider muscle mass, bone density, body composition, or body fat accumulation, other measures of obesity like waist circumference, waist-to-hip ratio, skinfold thickness, or bioelectric impedance are frequently used to understand the level and outcomes of obesity accurately (Hu, 2008). For children, the United States Centers for Disease Control and Prevention (CDC) proposes the BMI-for-age growth charts in which overweight is defined by a BMI at or above the 90^{th} percentile of standard weight and height, and obesity is defined by a BMI at or above the 95^{th} percentile of standard weight and height.

While overall body fat reflects the overall adverse outcomes of obesity, the body parts at which the fat accumulates may be more important. Abdominal obesity, known also as central obesity or male-pattern obesity, is a type of obesity in which there is a body fat accumulation around the stomach and abdomen; while peripheral obesity, known also as female-pattern obesity, refers to the fat accumulation mostly around the hips and thighs (WHO, 2008). Independent of BMI, both abdominal and peripheral obesity is measured based on absolute waist circumference or waist-to-hip ratio. WHO (2008) recommended waist circumference measurement to be made *"at the approximate midpoint between the lower margin of the last palpable rib and the top of the iliac crest"* and hip circumference measurement *"to be taken around the widest portion of buttocks"* with a "stretch-resistant" tape. The waist-to-hip ratio is considered a better predictor of non-communicable diseases (NCDs) than BMI value since the

increased amount of adipose tissue that accumulates around the middle part of the body brings about metabolic abnormalities (WHO, 2008). As provided in Table 2, a waist circumference of 102 cm or higher is considered a “high risk” for men, while 88 cm or higher is a “high risk” for women (WHO,2008).

Table 1: WHO Body Mass Index classification (WHO, 2008)

Weight Status	**Body Mass Index (BMI) kg/ m2**
Underweight	<18.5
Normal	18.5-24.9
Overweight	25.0- 29.9
Obese	≥ 30
Obese Class I	30.0- 34.9
Obese Class II	35.0- 39.9
Obese Class III	≥ 40

Table 2: Waist Circumference (WHO, 2008)

	Men	**Women**
Low risk	<94 cm	<80 cm
Medium risk	94-102 cm	80-88 cm
High risk	>102 cm	> 88 cm

1.1.2 Epidemiology of Obesity

WHO refers to obesity as “globesity” as an epidemic escalating around the globe. By 2030, obesity prevalence is estimated to be 20% for men and 30% for women worldwide; in other words, every 1 in 5 men and every 1 in 3 women are estimated to live with obesity. Among World Bank income group countries, for children aged 5-9, obesity is measured globally as 11% and it is estimated to increase to 16% by 2030; while for children aged 10-19, it is 7% in 2020, and it is expected to increase to 11% by 2030.

1.1.2.1 Global Epidemiology

As one of the leading countries in obesity, United States' statistics reflect the increasing trend; the 12.8% adult obesity rate in 1960 increased to 34% obesity rate among adult women in 2000, and 42.7% adult obesity in 2018. Today, according to the European Regional Obesity Report of the WHO, every 1 in 3 school-aged children, every 1 in 4 adolescents, and around 60% of adults are living overweight or obese (WHO European Regional Obesity Report, 2022).

There are differences across different continents and across countries within a continent. In Africa region, the prevalence of obesity is estimated to reach 7.76% among men and 20.41% among women by 2030 (WOF, 2022). The rates are estimated to be 34.41% of men and 39.72% of women in America, while it is 21.69% of men and 33.15% of women in the Eastern Mediterranean. Across the continents, South-East Asia has the lowest rates of obesity estimates by 2030 with 5.15% of men and 9.31% of women.

Comparing the countries, while South Africa is estimated to reach 50% prevalence of obesity among women, Ethiopia, from the same continent, is estimated to reach 11% by 2030 (WOF, 2022). In Eastern Mediterranean, while Kuwait and Jordan are estimated to reach 52% of obesity amongst women by 2030, Afghanistan is estimated to reach 12%. The gap is even higher for the Pacific region; as such, while the prevalence amongst women is estimated to reach 69% in American Samoa, it is estimated to be 4% in Vietnam. These variations across countries will be explained by many determinants in the following sections. On the other hand, across the world, with no exceptions, women have higher rates of obesity prevalence compared to men. While the rates are closest across the two genders in Europe, women are three times more likely to live with obesity in Africa (WOF, 2022).

In the global projections of obesity, 29.42% of men and 29.97% of women in Europe are estimated to reach obesity by 2030; within the continent, Turkey has the highest prevalence estimate with 50% of obesity among women (WOF, 2022). Moreover, among European countries, Turkey is estimated to be among the highest countries of child obesity (5-19 years) with 19% by 2030 (WHO,2022).

1.1.2.2 Epidemiology in Turkey

Turkish Statistical Institute's 2020 report revealed 17.3% of men and 24.8% of women in Turkey as obese, while an additional 30.4% of women and 39.7% of men were classified as

pre-obese (TSI, 2020). Obesity rates increased from 12.3% for men and 18.5% for women in 2008, while preobesity prevalence reached 36.9% for men and 27.4% for women.

Considering obesity prevalence in the adult population, it is estimated to increase to 42.1% by 2030 which is considered "very high". Global Preparedness Ranking of obesity reflects the ranking of all countries for their relative preparedness to tackle obesity from 1 as the best to 183 as the worst (WOF, 2022). Turkey is the 37th country in this ranking which is defined as "fairly good". In these estimates, adults with obesity are expected to increase to 55% by 2035 while the impact of overweight on GDP is estimated to be 2.5% (WOF, 2022). Therefore, addressing the issue of obesity is of paramount importance for Turkey.

1.1.3. Results of Obesity

Considering the studies conducted by researchers, governments, and policymakers, obesity brings about serious physical and mental health outcomes, as well as a significant economic burden to societies. WOF (2022) statistics reveal that around 2% of GDP is spent on addressing obesity across countries, and this percentage is estimated to double by 2060.

According to the Global Burden of Disease, 4.7 million people died prematurely from obesity in 2017. While 4.5% of all deaths are the result of obesity in 1990, it increased to 8.3% by 2017. NCDs, namely cardiovascular diseases, type II diabetes, hypertension, stroke, cancer, respiratory diseases, etc., are chronic diseases that lead to long-term health problems, and they are collectively responsible for 74% of all deaths globally (WHO, 2020). According to WOF, 18% of preventable NCD deaths are caused by high BMI (WOF, 2022). In this regard, WHO proposed four major risk factors for NCDs: tobacco use, alcohol abuse, unhealthy diet, and physical inactivity (WHO, 2020).

Adiposity, referring to body fat, is the medical term for obesity. Adipocytes, or fat cells, store most of the body's lipids like triglycerides and free cholesterol, and create adipose tissues (Bays et al., 2013). Excessive accumulation of adipose tissues results in the circulation of lipids at abnormal levels and leads to dyslipidemia (Bays et al., 2013). A meta-analytic study conducted in Africa revealed that those who have a BMI value higher than 25 are 2.36 times more likely to develop dyslipidemia (Obsa et al., 2022). Dyslipidemia refers to the imbalance of lipids in the blood, which paves the way for cardiovascular disease, high blood cholesterol, and sudden cardiac death (Hedayatnia et al., 2020).

Abdominal obesity is strongly associated with cardiovascular diseases (CVD). In a cohort study conducted with 44 thousand women, abdominal adiposity was significantly associated with cardiovascular disease and cancer mortality even after adjusting for BMI (Zhang et al., 2008). A meta-analytic study analyzing the relationship between abdominal obesity and CVD revealed that the risk of CVD increases by 3-4 % for each 10 cm increase in waist circumference (Xue et al., 2021).

Likewise, obesity is a strong predictor of type II diabetes mellitus (T2DM). A meta-analytic study revealed that a higher BMI is a significant risk factor for developing T2DM. According to the analysis, 5 units increase in BMI is associated with 1.72 times higher, and 0.1 units increase in the waist-to-hip ratio is associated with a 1.63 times higher risk for T2DM development (Jayedi et al., 2022). In another meta-analytic study, the relative risk of developing T2DM is 7.19 for obese and 2.99 for overweight people compared to normal-weight subjects (Abdullah et al., 2010); and the risks are even higher for those with abdominal obesity (Muche Ewunie et al., 2022). Moreover, Yu and his colleague's meta-analytic study (2022) presented a 22.97 times higher risk of T2DM for those with severe obesity compared to normal-weight subjects. Therefore, there is an exponential increase in T2DM risk depending on BMI value and body fat accumulation.

On the other hand, body fat accumulation brings about blood pressure and hypertension as well. In a study conducted with South African men and women, visceral adipose tissue and waist circumference is directly associated with hypertension (Pisa et al., 2018). Likewise, a systematic review including studies conducted in Ethiopia revealed the association between high blood pressure and central obesity (Tegegne et al., 2022). In a meta-analysis including 2.3 million participants, the relative risk of developing hypertension is 1.49 times higher for every 5-unit increase in BMI, and 1.27 times higher for every 10-cm increase in waist circumference (Jayedi et al., 2018). Another review, including 60 thousand people consisting of both children and adults from four continents, revealed a positive association between visceral adiposity index and blood pressure (Leite et al., 2021). Supporting that, a systematic review presented the effect of fruit and vegetable consumption on the reduction of blood pressure (Arnotti et al., 2021).

As another major outcome, studies revealed a bi-directional link between obesity and sleep problems. While a high BMI is a predictor of sleep problems, reduced sleep time or quality brings about weight gain. Obstructive sleep apnea (OSA), characterized by reduced or absent

breathing during sleep due to the fat deposits in the upper respiratory, is significantly associated with obesity for both adults and children (Jehan et al., 2017). A meta-analytic study revealed the effect of weight-loss interventions in normalizing OSA for 46.2–79.7% of a youth group with obesity (Roche et al., 2020). Gastroesophageal reflux disease (GERD) is another problem that appears or becomes worse during sleep in the existence of obesity (Anand & Katz, 2010). In fact, according to a meta-analytic study, a higher BMI is associated with a higher risk for GERD (Hampel et al., 2005). The connection between obesity and GERD is pointed out as "the increased abdominal pressure which relaxes the lower esophageal sphincter" which leads to "gastric content exposure to the esophageal mucosal" (Emerenziani et al., 2013). The other respiratory problem associated with obesity is asthma. A meta-analysis presented the relationship between abdominal obesity and asthma (Jiang et al., 2019).

As a reflection of the hidden risks brought about by obesity, it is associated with higher risks of COVID-19. In fact, according to World Obesity Federation (2022), obesity is the second predictor of COVID-19 complications after age. A systematic review revealed the increased risk of COVID-19 among patients with dyslipidemia (Atmosudigdo et al., 2021). In a systematic review by de Siqueira et al. (2020), levels of hospitalization due to coronavirus was higher among people with higher BMI. The risk of hospitalization and death due to COVID-19 increases with the BMI value (Sawadogo et al., 2022).

On the other hand, obesity is associated with major mental health issues including depression, anxiety, stress, eating disorders, poor quality of life, and body dissatisfaction. Although they are not directly related to life-or-death situations as much as NCDs, mental health problems lead to significant negative outcomes both for individuals and society. In the study conducted with Austrian national data of inpatient services from 1997 to 2014, obesity has been significantly associated with increased odds for psychiatric diagnoses including depression, anxiety disorders, psychosis, eating, and personality disorders (Leutner et al., 2023); moreover, except for psychosis spectrum, obesity was pointed as the first diagnosis for most of the patients.

Studies specifically considering the relationship between obesity and depression revealed a bidirectional relationship (Blasco et al., 2020; Rajan & Menon, 2017). In the United States Nutritional Health and Nutrition Examination Survey, adults with depression were more likely to live with obesity than adults without depression (Pratt & Brody, 2014). In a cross-cultural study conducted in Germany and China, (Lavallee et al., 2021) overweight and obesity

significantly predicted later depression, anxiety, and lower life satisfaction. Moreover, in a recent study, depression, and obesity were reflected in a vicious cycle in which obesity predicts future obesity through depression, and likewise, depression predicts further depression through obesity (Plackett, 2022). A review of studies investigating this relationship reflects underlining mechanisms including hypothalamic pituitary adrenal axis dysfunction and the activation of these mechanisms through psychosocial chronic stressors (Ouakinin et al., 2018). Therefore, treatment and prevention of obesity may indicate treatment of depression for a group of people, which was associated with a 43% of increase in the risk of death (Saint Onge et al., 2014).

Likewise, a meta-analysis study revealed a positive association between obesity and anxiety disorders for both men and women (Gariepy et al., 2010). In a study, obesity and social anxiety levels were reflected in an interaction in predicting insulin resistance; in other words, those who have both larger waist circumferences and high social anxiety scores had higher insulin resistance levels compared to those who have larger waist circumferences and low social anxiety scores (Jaremka & Pacanowski, 2019). In another study conducted with animals, researchers investigated the effect of the Western diet, obesity, and type of weight-loss surgery in sequence on brain response to sucrose (Gautier et al., 2020); as a result, the study provided evidence that overconsumption of palatable foods and obesity lead to anxiety-like behaviors, and loss of motivation through changes in brain glucose mechanisms.

Body dissatisfaction is one of the explanations for a higher prevalence of anxiety disorders among individuals with obesity. In a meta-analysis, higher body dissatisfaction was reported among women with obesity compared to men with obesity, and normal-weight individuals (Weinberger et al., 2016). An increased level of body dissatisfaction is present across normal weight, overweight, and obese subjects even when they were asked for their subjective body size; and the gap between BMI levels is even larger for women compared to men (Gruszka et al., 2022). In a recent experimental study, normal-weight subjects and higher-than-normal-weight (overweight and obese) subjects were compared in terms of their responses to their most beautiful and ugliest body parts, and to a weight-matched control's most beautiful and ugliest body parts (Baur et al., 2022). While both normal-weight and overweight/obese subjects show interest in their own bodies rather than controls, overweight/obese subjects more frequently focused on their ugliest body parts compared to normal-weight subjects, who display a more balanced focus on both ugliest and most beautiful body parts of themselves. Supporting that, in a study conducted with Pakistani university students, body shame was associated with BMI, guilt, and depression (Naveed et al., 2023). Therefore, individuals with obesity may tend

to have a biased approach to their bodies which links to higher body dissatisfaction, and increased depression.

Psychological problems including those described above bring about poor quality of life for individuals with obesity. In a large-scale population study conducted with more than 60 thousand adults, increasing levels of obesity were associated with reduced health-related quality of life, which arises particularly from mental health scores (Stephenson et al., 2021). Supporting the relationship between BMI and quality of life, in a longitudinal study from Poland, weight loss was associated with better quality of life among otherwise healthy people (Zawiska et al., 2019). Likewise, a narrative review reflected the impact of obesity treatment in various ways on the improvement of quality of life (Hachula et al., 2023).

1.1.4 Factors Associated with Obesity

Literature studies on the development, maintenance, and treatment of obesity highlight the presence of a multifactorial structure of obesity (Safari et al., 2021). Understanding how each factor individually contributes to obesity and how they interact with one another in the formation of the outcomes of obesity are thought to be of substantial importance in understanding the construct of obesity. Based on the biopsychosocial approach, factors associated with obesity will be detailed in this part in three steps: genetic predisposition, psychological factors, and socioenvironmental triggers.

1.1.4.1 Genetic Predisposition and Epigenetic Factors

The development of obesity originated during the prenatal period. According to the Developmental Origins of Health and Disease hypothesis of obesity, maternal nutrition during fetus development may change the gene expression and increase the likelihood of T2DM and obesity (Mandy & Nyirenda, 2018). On the other hand, maternal exposure to toxins like smoking is associated with disruptions in the endocrine system (Fernandez-Twinn et al., 2019 as cited by Tirthani et al., 2023). Likewise, young maternal age, maternal diabetes, and maternal stress during pregnancy are epigenetic risk factors for childhood obesity.

Genetic studies reveal two types of obesity: monogenic, and polygenic. While monogenic obesity reflects a single gene mutation with high genetic contribution and a low environmental effect; polygenic obesity reflects the combination of several genes and external

variants for the expression of an effect (Loos & Yeo, 2022). Polygenic obesity is the more common type of obesity that interacts mainly with environmental effects.

As a result of the Human Genome Project conducted from 1980 to 2003, around 250 genes were associated with obesity phenotype. These genes pave the way for obesity by influencing neural pathways, which affect ultimate obesity precursors like insulin resistance, appetite control, ectopic fat disposition, inflammation, etc. (Sanghera et al., 2019).

In the Genome-Wide Association Study (GWAS), conducted recently, around 2.1 million genetic variants were analyzed with 300.000 people to detect the genes of obesity. Based on the data coming from this study, a large group of researchers examined the polygenic score of obesity among underweight, normal, overweight, obese, and severely obese people (Khera et al., 2019). They have found a 28 times higher difference between those in the top decile and those in the bottom decile of polygenic score among severely obese people. While this result presented a significant effect of polygenic score in predicting obesity susceptibility, it accounts for a very limited part of the consequence. Hüls and his colleagues' study (2021) conducted with 3098 children at the ages 2-16 years old based on GWAS, revealed evidence for the environmental effect on the expression of polygenic susceptibility to obesity. Although the polygenic risk score predicts children's BMI and waist circumference, the prediction was moderated by their parent's level of education, children's consumption of fiber, screen time, or whether they are from Southern or Central Europe (Hüls et al., 2021). Likewise, another study, based on The Mass General Brigham (MGB) Biobank health record of 33.511 patients, presented the interaction between polygenic risk score and obesogenic environment (Dashti et al., 2022). Moreover, the effect of lifestyle is higher for those with high genetic susceptibility.

1.1.4.2 Psychological Factors

Stress is a well-established psychological predictor of changes in appetite and consumption of food. In her comprehensive review of emotion regulation, Koole (2009) presents stress-induced eating as a need-oriented bodily-based maladaptive emotion regulation strategy. Based on the temporal model of emotion regulation (Gross, 1998), Maffei and Fusi (2016) proposed a maladaptive model of emotion regulation in which complete behavioral avoidance, emotional avoidance, distraction, rumination, or worry takes place (see Figure 1). According to the escape from self-awareness model (Heatherton & Baumeister, 1991), binge eating, or overeating provides a quick escape/avoidance from unpleasant thoughts to the

immediate environmental stimulus. Likewise, Fairburn et al. (2003) claimed the presence of "dysfunctional mood modulatory behavior to neutralize the mood changes" as a transdiagnostic behavior among those with low mood intolerance, which takes the form of overeating among individuals with eating disorders. Similarly, the affect regulation model attributes food and eating the alleviator role in the presence of negative affect; according to the model, food provides down-regulation of emotions by decreasing negative affect, thereby negatively reinforcing its role of emotion regulation (Haedt-Matt & Keel, 2011; Leehr et al., 2015; Cardi et al., 2015). Lastly, expectancy theory proposes the attribution and expectancy regarding food to provide relief in times of stress. Supporting the theory, Moore and her colleagues (2017), in their model, proposed three brain regions responsible for compulsive overeating: basal ganglia as involved in habitual overeating through learning the rewarding effects of food, extended amygdala that offers overeating to relieve negative affect, and prefrontal cortex that fails to control food-related impulses.

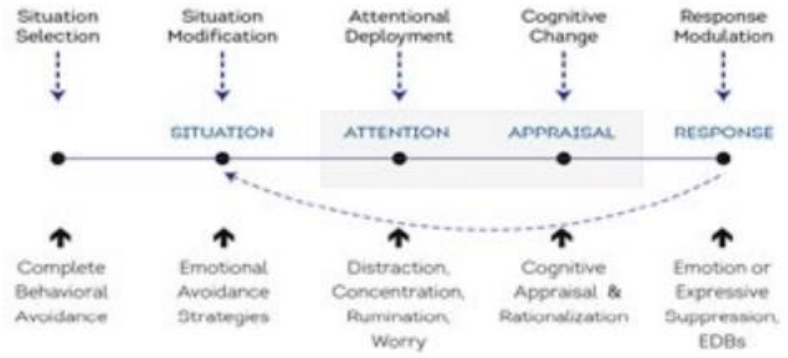


Figure 1: A maladaptive model of emotion regulation (Maffei & Fusi, 2016)

The relationship between stress and increased consumption of unhealthy foods along with decreased consumption of healthy foods was shown for healthy adults (Hill et al., 2022) as well as those with eating disorders (Reichenberger et al., 2022). Emotional eating or stress-induced eating refers to the consumption of food in the absence of hunger in response to stress or intense emotions. While it is not a rare response for people in general, it is used more frequently by those with an eating disorder as a coping strategy (Reichenberger et al., 2022).

Although obesity and emotional eating are not defined as psychiatric diagnoses, the frequency of emotional eating is associated with increased BMI value. A study comparing normal weight to overweight individuals revealed higher alexithymia and emotion regulation

difficulty in the overweight group (Casagrande et al., 2020), while another study comparing individuals with moderate obesity to those with severe obesity revealed an even higher degree of emotional eating in the latter group (Willem et al., 2020).

The circular relationship between stress or mood disorders and obesity has been pointed for a while through the mediation of emotional eating (Cotter & Kelly, 2018; Gerges et al., 2022; Guerrini-Usubini et al., 2023; Konttinen et al., 2019; Lazarevich et al., 2016). A study conducted with adults from an obesity service revealed their urge to eat in the presence of negative emotions or simply boredom (Guerrero-Hreins et al., 2022). Likewise, a study from France showed a positive association between obesity, emotional eating, and uncontrolled eating (Aymes et al., 2022). In a qualitative study examining the determinants of stress-induced eating, participants explained that food is associated with "almost anything, stress, comfort, and all" for them and their families; therefore, they attribute emotional values to food like a friend (Leow et al., 2021).

Favieri and her colleagues (2021), in their systematic review, explained overeating behavior with maladaptive emotion regulation. A meta-analytic study exploring the emotion regulation processes among individuals with obesity revealed their significantly higher scores of alexithymia (d=0.53) and externally oriented thinking (d=0.31) compared to normal weight controls (Fernandes et al., 2018). Prefit and her colleagues' meta-analysis (2019) has shown medium to large effect sizes for the relationship between difficulty in emotion regulation (lack of emotional awareness, clarity, acceptance of emotions, reappraisal, and problem-solving), maladaptive emotion regulation strategies (rumination, avoidance of emotions, and suppression) and eating-related symptoms. Therefore, although it is not limited to those with high BMI values, individuals with emotion regulation difficulties are at higher risk of emotional eating in response to stress and thereby developing obesity.

Considering that a healthy development of emotion regulation originates in early relationships with caregivers, emotion regulation difficulties are closely associated with attachment problems. A meta-analytic review revealed that insecure attachment, including avoidant attachment, ambivalent attachment, and disorganized attachment, brings about emotion regulation difficulties and maladaptive coping strategies (Cooke et al., 2019). Supporting that, another meta-analytic review revealed emotion regulation difficulty as the mediation with the highest effect size linking insecure attachment to eating disorder pathology (Cortés -Garcia et al., 2019). Likewise, higher attachment insecurity is associated with higher

degrees of unhealthy eating (Faber et al., 2018; Wilkinson et al., 2018), and thereby higher BMI through the mediation of disordered eating (Maras et al., 2016; Wilkinson et al., 2020). More specifically, the link between emotional eating and avoidant/anxious attachment style was mediated by emotion regulation difficulty for bariatric surgery candidates (Taube-Schiff et al., 2015). Considering the neurological effects of insecure attachment, individuals with high attachment anxiety show lower cortisol awakening responses compared to those with secure attachment, which reflects a dysfunctional hypothalamic-pituitary-adrenal (HPA) axis (Monteleone et al., 2018).

On the other hand, apart from insecure attachment, or emotion dysregulation tendencies, stress is associated with increased consumption of unhealthy foods along with decreased consumption of healthy foods in the nonclinical population (Hill et al., 2021). Studies revealed the increased consumption of food and preference for unhealthy snacks over healthy foods in response to perceived chronic stressors; in the statements, participants describe food as a reward/motivation or as a distraction in coping with stress (Ling & Zahry, 2021; Debeuf et al., 2018). Besides, psychological distress due to socioeconomic status brings about emotional eating (Spinosa et al., 2019). Therefore, environmental stressors affect the appetite and food consumption in the majority of people irrelevant of emotion regulation difficulty. The social and environmental factors contributing to the increased consumption of food will be explained in the following section.

1.1.4.3 Social and Environmental Factors

The obesogenic environment, as a term, is used to define the environmental conditions that *"promotes high energy intake and sedentary behavior"*, and includes "*the foods that are affordable, accessible, promoted … and the social norms in relation to food and physical activity"* (WHO, 2016). Cross-culturally conducted studies show a strong and positive association between ultra-processed food availability and high BMI prevalence (de Araújo et al., 2021). The "success story" of the world-known fast-food companies in the 1960s, was based on the system of cheap and fast-delivered high-calorie high-sugar foods. Today, the global fast food market size has reached 862.05 billion US dollars. Technological advances speed up easy access to and consumption of ultra-processed foods through frequent food commercials, home-delivery food services, and an increased number of fast-food chains (Demeke et al., 2023). In a study conducted with Filipina migrant workers, increased fast-food restaurant density 0.5 miles

around the residential address was associated with an increased prevalence of overweight and obesity (Hall et al., 2021).

The Food and Agriculture Organization of the United Nations described the food environment as the foods and the safety, price, convenience, and nutritional quality of these foods surrounding people in their everyday lives (United Nations (UN), 2016). The food environment is a significant determinant of diet. A mixed-method study analyzing the relationship between food environment and obesity through quantitative and qualitative data from high-income countries both in adults and in children revealed a significant association between different types of food environment and obesity (Eskandari et al., 2022). While there is a tendency for energy-dense but nutrient-poor foods due to easy access and affordability for all populations, having unhealthy foods at home is associated with increased rates of obesity (Eskandari et al., 2022). In the regions with higher food insecurity, BMI values and consumption of unhealthy foods are affected by the moderation of the food environment.

Food insecurity or food deprivation is defined as social and economic conditions that lead to limited or uncertain access to nutritional and safe foods. It is a serious concern of the world that various policies are conducted upon. According to "The State of Food Security and Nutrition in The World 2022" report of the UN, 29.3% of the world population live in food insecurity in 2021 which has increased from 21.2% in 2014. In a survey conducted by the US Department of Agriculture in 2021 to measure food insecurity, 97% of those living in food insecurity agreed that "the food they bought just did not last, and they did not have money to get more", while 32% of them stated that they spent at least one day without eating because of economic struggles. These statements among others reveal the feelings of uncertainty about getting enough food in need.

Food environments with difficulty in access to healthier foods are challenges for weight loss maintenance (Neve & Isaacs, 2021). A meta-analytic study of the relationship between food insecurity and obesity revealed a strong and positive association (Eskandari et al., 2022). Those who experience food security are more likely to perceive healthy foods as affordable and convenient. In line with that, children with insecure food environments more frequently consume fast food than those living in food-secure environments. Even perceived food insecurity, when people view themselves as poor relative to others, leads to increased calorie intake (Bratanova, 2016). Yet, when individuals with food insecurity have access to fresh fruits and vegetables in their neighborhood, obesity prevalence tends to decrease.

On the other hand, as an example of moderate- and low-income countries, a cross-sectional study conducted with a large sample in Bangladesh and Sri Lanka revealed a similar association between food environment and BMI; while the presence of fast-food restaurants in the neighborhood increase the likelihood of obesity, higher supermarket shares in the neighborhood was associated with lower rates of obesity (Atanasova et al., 2022). Thus, while having access to supermarkets provide a better food environment in terms of BMI values, access to fast-food restaurants leads to a reverse effect. The associations are stronger for females and individuals with lower incomes. Food desert, as a term, is used to describe specific regions in which there is limited access to nutritious and fresh food because of the very low number of supermarkets, grocery stores, farmers' markets, etc. In a qualitative study conducted with a Turkish sample, individuals stated limited access to fresh foods due to economic and transportation problems as obstacles to weight loss and weight loss maintenance (Dikyol Mutlu et al., 2022).

WHO (2016) defines physical activity as *"any bodily movement produced by skeletal muscle that requires energy expenditure".* With the rise of technological advances that decrease the need for a labor force and give weight to cognitive activity, an increasing number of people have adopted a sedentary lifestyle. A sedentary lifestyle is defined as spending a substantial amount of time by an energy expenditure of less than 1.5 metabolic equivalents, like sitting or lying down while engaging in watching TV, working online, spending time on social media, etc.

According to WHO, 23% of adult men and 32% of adult women were not physically active enough in 2016 (WHO, 2022). Based on the pooled data of 1.9 million people from 168 countries, the prevalence of global physical inactivity rate is 27.5%, including high-income Western countries with 42.3% to low-income countries with 16.2% (Guthold et al., 2018). Specifically for Turkey, the data reflects 20-30% of men and 30-40% of women as physically inactive in 2016. In another study, conducted across 28 European countries, the physical inactivity rate is 36.2% ranging from 19.2% in Sweden to 63.7% in Portugal (Nikitara et al., 2021).

In the 2010 report of Turkey Nutrition and Health Research, 52.2.% of men and 54.1% of women had a sedentary lifestyle, at which 67.8% of the population above 12 years of age watch at least 2-4 hours of TV at a day (TMH, 2011). In the 2017 report, insufficient physical activity prevalence was 41.8% for those above age 15, and 70.1% for those above age 65 (TMH,

2019). In the recent report, 37% of the population (26.1% of men, and 47.8% of women) above age 15 does not meet the World Health Organization recommendations for physical activity, which is 64.5% for those above age 70 (TMH, 2019); for those above age 15, mean of physical activity time is 93.1 minutes for women and 197 minutes for men in a day (TMH, 2019); that reflects a global trend that every 1 in 4 adults and 3 in 4 adolescents do not meet the physical activity recommendations (WHO, 2018). Physical inactivity is frequently accompanied by screen penetration. A systematic review focusing on the association between screen time and obesity risk among adolescents revealed a 1.27 times higher risk for those with high screen time (Haghjoo et al., 2022). Similar results were shown in another systematic review for children (Fang et al., 2019).

A systematic review of 24 reviews and meta-analyses reflected that physical activity provides a reduced risk of cardiovascular mortality, breast and prostate cancer, fractures, recurrent falls, Activity of Daily Living (ADL) disability, cognitive decline, dementia, Alzheimer's disease, and depression, while those who have regular physical activity tend to experience healthier aging trajectories (Cunningham et al., 2020). In an overview of systematic reviews, the strong association between a sedentary life and obesity was revealed apart from the health outcomes above (de Rezende et al., 2014). Likewise, another metanalytic study reflected a positive and significant association between obesity and physical inactivity (Silveira et al., 2022).

Social identity theory (Tajfel & Turner, 1979) defines social identity as someone's self-concept deriving from membership to a certain group. Likewise, social construction theory states the inevitable constructive role of society and social practices in our self-definitions; therefore, we define ourselves through our social group's practices and our social identities, in which food and eating practices have a major part. Studies conducted with immigrants reveal their effort to keep their cultural roots by preserving the culture-specific eating practices, which reflect that food and eating practices are significant elements of culture and identity. Considering the effects of social and cultural norms on eating practices are a relatively subjective matter, qualitative studies may better represent the individual experiences of overeating in this context. In a study on the Singaporean multicultural environment, cultural and religious eating practices were associated with social identity maintenance; in fact, the participants stated overeating at times of special events and gatherings related to their cultures (Reddy & van Dam, 2020). In a qualitative study conducted with 15 indigenous Fijian women, social and cultural norms that contribute to the overconsumption and obesogenic environment

were described (Buksh et al., 2022). Among the statements, “Meats are delicious and necessary food especially for men while vegetables are only for poor people”, “bigger body sizes of family members reflect a more successful mother”, and “breastfeeding mothers need to eat for two”. Likewise, in the qualitative study conducted with Turkish women, similar statements were provided; women stated traditional tea times with pastries after dinner, grand dinner tables during Ramadan, or encouragements of overeating towards breastfeeding women as reasons for weight gain (Dikyol Mutlu et al., 2022).

As another reflection of culture and identity, in Eastern cultures, serving food has been associated with hospitality and respect; therefore, in these cultures, food and those who prepare and serve the food are expected to be treated with respect, which means not refusing the food in any condition. Supporting that, in a qualitative study, the cultural links of food consumption among Turkish and Moroccan adults living in the Netherlands were examined (Nicolaou et al., 2009). In the statements, food was presented as a symbol of hospitality, as such the guest expects to be served food while the host expects the guests to eat and appreciate the food even if they are not hungry. On the other hand, according to the participants, how much time they can spend during lunch or dinner differs from their home country, which leads to less socialization during mealtimes. Lastly, their encounter with a Turkish/Moroccan meal decreases their resistance even more toward food. Likewise, in a qualitative study of Chinese women, they stated the cultural norms about not refusing and not wasting food as a sign of respect to those who prepare it, and those who cannot reach food at times of scarcity; that leaves them with the obligation to finish their plates even though they are not hungry in order not to face with social rejection (Ng et al., 2020). In addition, participants stated an old Chinese saying that *“if I left pieces of rice in my bowl, I would marry a man with many spots on his face”* to reflect the deep cultural connections of eating habits.

Cultural differences may direct the perceptions toward body image, and indirectly the amount of consumption. A study comparing Kiribati people to Europeans reflected the former group’s higher tendency for disinhibition and perceiving themselves as thinner than their equal-weight European counterparts, which makes them over-consume in the end (Westenhoefer et al., 2018). On the other hand, consumerism and American fast-food culture are widely associated with overeating and obesity. Easy access to highly palatable foods and drinks in a culture sending addictive messages like ‘Enjoy’, not surprisingly, increases the likelihood of overconsumption (Gauiter et al., 2020; Munoz-Escobar et al., 2019). The acculturation level of people from minority groups has been associated with their disordered eating (Cachelin et al.,

2006; Stark-Wroblewski et al., 2005). In other words, adaptation to the Western diet culture brings about an increased tendency to disordered eating among Chinese immigrants in Portugal (Li et al., 2023), among Arab Muslims (Eldoumi & Gates, 2017), Hispanic families (Power et al., 2015) and African immigrants in United States (Onuoha Obilor, 2017).

In a comprehensive cross-cultural review, disordered eating behavior prevalence rates vary greatly across different countries (Miller & Pumariega, 2001). For example, anorexia nervosa was very rare in Malaysia while binge eating rates are significantly high, which is explained by the country's relatively late industrialization. In certain cultures, being overweight or obese gains more support than being underweight. For example, in Turkish culture, brides were given gold in their wedding as the amount of their weight; in fact, there is an idiom "be worth one's weight in gold" that has been used for brides for a long time. Likewise, in the Turkish language, words used for being overweight reflect rather positive associations ("etine dolgun") than words used for being underweight ("sıska"). Considering that language is a significant reflection of a culture, and that culture directs our perception of what to eat, and how much to eat, cultural background may be examined as a major determinant of obesity.

1.2. WEIGHT CYCLING

1.2.1. Weight Regain, Weight Loss Maintenance, and Weight Cycling

In coping with perceived extra weight, individuals seek out ways of weight loss by various means including dietary interventions, increased physical activity, or medical and surgical interventions. Despite the effectiveness of these methods in the short term, a significant part of these people tends to regain weight in the long term (Quinn et al., 2020; Stevens et al., 2012; Lahti-Koski et al., 2005; Madigan et al., 2022). Weight cycling (WC) is determined as a major obstacle in the treatment and prevention of obesity.

After the weight loss by an intervention of any kind, *weight loss maintenance* (WLM) refers to the preservation of the weight loss for a certain amount of time (Hall & Kahan, 2018). It is frequently measured to understand the long-term effect of weight loss by dietary or surgical interventions. On the other hand, when individuals' weight loss experiences are followed by unintentional weight gain, it is referred to as *weight regain (WR) (*Hall & Kahan, 2018). Experiencing weight loss and regain multiple times is defined as *weight cycling* (Quinn et al., 2020).

Although weight regain and weight cycling are confused easily, "weight regain" reflects regaining weight at a specific time, while "weight cycling" refers to at least one pair of intentional weight loss and an unintentional weight regain in a lifetime. Yet, there is no consistent operational definition of weight cycling. Both the number of weight fluctuations that is necessary to define it as weight cycling, and the amount of weight loss and regain at one cycle varies across studies (Zou et al., 2021; de Zwaan et al., 2015; Stevens et al., 2012; Osborn et al., 2011). In this study, pair of weight losses and regains will be accounted for the number of lifetime weight cycles.

1.2.2. Prevalence of Weight Cycling

There are a limited number of studies examining the prevalence of weight cycling. In the study conducted with a national sample of American adults, 74% of the population stated at least one weight-loss trial with the average number of weight cycles as 7.82 over the lifetime (Quinn et al., 2020). Likewise, in a large cohort study conducted with 120 thousand adults, 42% of men and 56.8% of women reported at least one cycle of weight loss and regain (Stevens et

al., 2012). In another study with Finnish adults, 18% of men and 29% of women in the general population were defined as weight-cyclers (Lahti-Koski et al., 2005).

The prevalence was described as 14.6% in the Australian population when they defined weight cycling as gaining or losing 5 kg three times or more (Madigan et a., 2022). In bariatric surgery patients, rates of weight regain range from 13.7% to 75.6% depending on the population and the number of years after the surgery (Clapp et al., 2018; Tolvanen et al., 2022; Lauti et al., 2016; El Ansari & Elhag, 2021). In a systematic review on weight regain after sleeve gastrectomy, weight regaining rates varied from 5.7% at 2 years to 75.6% at 6 years after the surgery (Lauti et al., 2016). In the study conducted with 117 Turkish adults who had undergone weight-loss surgery, 13.7% of the participants were reported as weight regainers when assessed in the 12^{th} to 98^{th} month post-surgery (Ünal et al., 2019); in the analysis, night eating, depression, emotional eating, and eating concern were associated with weight regain. In another study conducted to examine the effect of weight cycling on cardiometabolic risk factors among 60 women who applied to an Endocrine Department in Turkey, 33% were defined as weight cyclers based on losing and regaining 5 kg or more in the last ten years (Oral & Kızıltan, 2021).

1.2.3. Demographic Factors Associated with Weight Cycling

Literature studies reveal the association of demographic factors like age, education level, marital status, working status, and BMI with weight regain, weight loss maintenance, and weight cycling. In a cross-sectional study, the mean age of the maintainers was statistically lower than the mean age of the regainers (Koutras et al., 2021). In a systematic review of studies on the predictors of behavioral weight loss and behavioral WLM among children and adolescents, age and socioeconomic status were stated as the most frequent predictors for both weight loss and WLM (Weiland et al., 2022). In a study from Taiwan, age was a significant predictor of WR 3 years after sleeve gastrectomy (Yang et al., 2021), and 10 years after bariatric surgery (Monaco-Ferreira & Leandro- Merhi, 2017). However, in another systematic review on determinants of WLM, age, and socioeconomic status were not stated as significant predictors of WLM unlike marital status (Varkevisser et al., 2018). Likewise, a longitudinal study of WR after bariatric surgery presented a nonsignificant predictive role of age (Torrego-Ellarucia et al., 2021). In a study conducted with patients with severe obesity, younger age, and a higher BMI value predicts an increased number of WC (El Ghoch et al., 2018). In a population-based cross-sectional survey of US adults, age and BMI were positive and significant predictors of WR and WC (Kakinami et al., 2020). In another population-based study of WC, BMI was a

significant and positive correlate of the number of lifetime WC, while age, education, and income were not significant correlates (Quinn et al., 2020). In a study conducted with a nonclinical population of soldiers, WC was associated with higher BMI values (Allen et al., 2021). In a cross-sectional study, the BMI of the maintainers was statistically lower than the BMI of the regainers (Koutras et al., 2021). In another study, BMI significantly predicted WR after bariatric surgery (Torrego-Ellarucia et al., 2021).

On the other hand, in a cross-sectional study, the number of education years was statistically higher for maintainers than regainers (Koutras et al., 2021). In a 10-year longitudinal study, examining the effects of socioeconomic status on overweight and obesity from adolescence to young adulthood, presented that those with low socioeconomic status (SES) are more likely to consume fast food and become overweight/obese than those with high SES (Watts et al., 2016). Moreover, education level is an important moderator in the effects of SES on eating practices. The association between SES, education level, and disordered eating behaviors was presented by several studies (Zhang et al., 2021; Ball & Crawford, 2005; Loman et al., 2013) through the mediation of food environment, poverty, chronic stress, etc.

A systematic review including studies until 2011 presented the association between marital status and BMI; in the analysis, being married was associated with increased BMI while being single or divorced was associated with decreased BMI (Dinour et al., 2012). A 10-year longitudinal analysis in the United States showed similar results that the transition from being single to being married is the most significant predictor of weight gain in 10 years (Sobal et al., 2003). Likewise, Teachman (2016), in his data from a longitudinal study of US national health approved the previous findings about being with or without a partner on BMI. In a study conducted in Japan, which has one of the lowest obesity rates among developed countries, marriage is associated with increased BMI (Sato, 2019). In a cross-sectional study on weight management, 33.10% of those who maintain weight loss and 41.40% of those who regain the lost weight was married (Koutras et al., 2021).

1.2.4. Psychosocial Factors Associated with Weight Cycling

In a systematic review focusing on the factors associated with WR after bariatric surgery, 5 main categories were proposed: anatomical, genetic, dietary, psychiatric, and temporal (Athanasiadis et al., 2021). Based on the review, depression, impulsivity, emotional eating, and loss of control were positively correlated with WR while self-esteem and social

support were negatively correlated. Likewise, in another systematic review of the determinants of WLM, stress, depression and negative mood, self-efficacy, self-worth, impulse control, and social support were found to be significant psychosocial predictors of WR (Varkevisser et al., 2018).

Loneliness, family difficulties, and physical and mental health problems were stated as obstacles in weight management in a qualitative study conducted with 16 adult participants with obesity, which leads them to loss of control, emotional distress, and weight regain (Tolvanen et al., 2022). Another systematic review proposed cultural norms, an obesogenic environment, lack of support, stress, and social isolation as psychosocial challenges in the way of sustainable weight loss (Spreckley et al., 2021). On the other hand, weight regainers among the participants of the review frequently pointed to emotional eating as a coping mechanism to deal with stress due to feelings of deprivation, social pressure, etc. (Spreckley et al., 2021).

Mauro and her colleagues' review (2019) presented the significant relationship between eating psychopathology (loss of control, binge eating, night eating syndrome, etc.) and post-bariatric WR. One of the studies included in the review showed the protective effect of post-surgery psychological counseling in the prevention of WR (Silva et al., 2016 as cited by Mauro et al., 2019). Likewise, in another study, post-bariatric WR was associated with a lack of support, body image, self-esteem, emotional eating, locus of control, and self-efficacy (Marion, 2018).

Greaves and his colleagues (2017) proposed a conceptual model of weight loss maintenance based on the meta-synthesis of 26 qualitative studies on the WLM experiences of 710 participants from 7 countries consisting of the United States, England, Greece, Finland, Ireland, Australia, and Sweden. The model was built on the factors differing regainers (%60 of the participants) from maintainers. According to the model, the period after weight loss is a period of tension that originates from old habits and impulses, from the unmet needs for emotion regulation, pleasure, and social acceptance, and the self-referential thoughts and beliefs; and it is modified by factors like illness, culture, life events, food availability, family, and friends. According to the researchers, an increase in tension paves the way for relapse while being able to cope with the tension through factors like changing self-concept, gaining insight, or self-regulation provides weight loss maintenance. Greaves and his colleagues' model (2017) reflected the main factors proposed by other researchers in the field. Based on their comprehensive model and other systematic reviews in literature, the following factors -as

among the most frequent factors associated with WR or WLM- will be examined and analyzed for their predictive value: food-related impulsivity or loss of control, perceived social support, self-esteem, perceived stress, and emotion regulation difficulty.

1.2.4.1. Loss of Control

Loss of control eating is a transdiagnostic symptom characterized by a lack of control over eating. In the clinical, and nonclinical populations, loss of control eating predicts overweight and obesity and is associated with depression and anxiety (Garcia-Garcia et al., 2022; Meule & Blechert, 2016). In the conceptual model of loss of control eating, Byrne et al. (2018) proposed biological, psychological, and environmental predictors of loss of control along with outcomes including emotion dysregulation, disordered eating, and obesity.

Likewise, Conceição et al. (2022) showed the relationship between emotion regulation difficulty and loss of control eating. Feelings of loss of control or impulsivity in response to the food environment have frequently been associated with weight regain and weight cycling (Johnson & Annesi, 2018; Karmali et al., 2013; Varkevisser et al., 2019). In line with this, in a longitudinal study conducted with post-menopausal women, weight regain was associated with significantly lower dietary adherence, lower control in food intake, and higher disinhibition in response to palatable foods (Bajerska et al., 2020). In a thematic synthesis of qualitative studies, the food environment was shown as an important associate of weight regains by undermining weight management efforts (Neve & Isaacs, 2022). Therefore, food-related impulsivity was pointed out as a factor differing the maintainers from the regainers. Meyre and her colleagues (2019) presented the association between impulsivity-related traits and obesity at genetic level. In the study conducted with 50 thousand adults from the general population in France, impulsivity was associated with higher rates of obesity (Bénard et al., 2017).

In the study conducted with freshman students at a college, emotion-driven impulsivity moderated the relationship between an obesogenic environment and weight gain (Bjorlie & Fazzino, 2020). Likewise, in a 3-year prospective study, impulsivity was associated with higher adherence to an unhealthy Western-diet and lower adherence to the healthy Mediterranean diet (Gómez-Martínez et al., 2022). In a systematic review, impulsivity was associated with post-bariatric surgery weight loss (Yeo et al., 2021).

1.2.4.2 Social Support

Another frequent psychological association of weight-regain or difficulty in weight loss maintenance is lack of support. In a meta-analysis, extended care was shown to provide an additional 3,2 kg of weight loss over 17 months post-intervention (Middleton et al., 2012). Likewise, extended contact interventions via text messaging provide 0.82-2.16 kg of extra weight loss (Job et al., 2017).

In the qualitative study from Sweden, the participants highlighted the role of lack of support (Tolvanen et al., 2021). In another study, barriers to weight loss maintenance include a lack of support and depressive thoughts, and a lack of motivation (Machado et al., 2022). While social support and self-care are the facilitators of weight loss maintenance, loneliness, family problems, and mental health problems open the way for weight regain (Özer et al., 2021; Tolvanen et al., 2022).

Moreover, not only showing interest in the weight management process but being supportive during the process is important for weight loss maintenance. In the study comparing those who maintain weight loss and those who regain, regainers stated instruction-based social support whereas maintainers stated complimentary social support (Karfopoulou et al., 2016). In a cross-case analysis, those who are at the highest weight loss maintenance stated a deeper and more consistent level of support compared to those who are in the lowest group (Bartholomew et al., 2021).

On the other hand, family, peer, and professional support are considered significant in weight management. In a meta-analysis of studies conducted in Pacific countries, peer support has a statistically significant effect on weight management (Paul et al., 2022). In a qualitative study examining the experiences of Brazilian women who had weight regain after bariatric surgery, feelings of abandonment, and mistreatment by the health team were stated as factors for social insertion and weight regains (Carvalho Jr et al., 2012). In another meta-analysis, social support was a promoting factor in adherence to weight management intervention programs (Lemstra et al., 2016). In the systematic review, social and professional support were significant factors along with intervention type and duration in weight loss maintenance (Machado et al., 2022).

1.2.4.3 Self-worth

Self-referential concepts like body image, self-worth, self-esteem, or self-efficacy are also frequent predictors of weight regain or weight loss maintenance. In a systematic review investigating the factors associated with weight regain post-weight loss surgery, self-esteem was negatively associated with weight regain (Athanasiadis et al., 2021). Likewise, in a qualitative study of factors related to weight regain after weight-loss surgery, self-control was pointed out as a factor (Marion, 2018). In another study of the treatment-focused chain model, improvement of self-regulation and self-efficacy were related to reduced emotional eating and sustained weight loss (Annesi, 2018).

Obesity is significantly associated with low self-esteem in population-based studies among adults (Elran-Barak, 2019), adolescents (Jankauskiene et al., 2019), and children (Mirza et al., 2005). In a longitudinal study, low self-esteem was associated with high BMI through the mediation of body dissatisfaction (Meland et al., 2021). In a meta-analysis, obesity was significantly associated with higher body dissatisfaction (d=0.89), especially for females (Weinberger et al., 2016). Likewise, self-esteem has been negatively associated with body dissatisfaction among individuals with obesity and overweight (Fortes et al., 2014; Jankauskiene et al., 2019; Albawardi et al., 2021). Self-esteem and emotional eating have been significantly and negatively correlated (Gündoğmuş et al., 2022)

1.2.4.4. Perceived Stress

Stress is defined as a series of physiological reactions to trigger 'fight or flight' activity in response to internal or external pressures that are perceived as threatening or overwhelming. Therefore, individuals may respond to various events with stress reactions as long as they are perceived as threatening or overwhelming. Relationship difficulties, work-related problems, financial issues, academic demands, and sociocultural demands were pointed out as the major interconnected sources of stress (Senanayake et al., 2020; Mutiso et al., 2023), and associated with increased food consumption (Klingberg et al., 2018; Park & Sung, 2021; Emond et all, 2016; Brooke et al., 2020).

As explained in the previous section in detail, emotional eating or stress-induced eating is a significant predictor of overweight and obesity, and overeating in otherwise healthy adults (Hill et al., 2021). In studies focusing on the physiological process of stress- overeating mechanism, perceived stress is associated with increased difficulty in glycemic control

(Ruissen et al., 2021) and thereby increased BMI (Pellegrini et al., 2021). In a longitudinal study conducted in the socioeconomically disadvantaged neighborhoods of Australia, perceived stress was associated with increased fast-food consumption and higher BMI (Mouchacca et al., 2013).

While sources of stress vary across different populations, culture plays a significant role in the sources of and the appraisal of stress (Du et al., 2015; Jobson et al., 2022; Pourmand et al. 2021; Lee et al., 2023). In a recent qualitative study, conducted with Turkish adult women with obesity, the societal demands related to gender roles, along with relational stress arising from lack of emotional support and feelings of loneliness, were pointed as significant sources of stress, overeating, and weight regain (Dikyol Mutlu et al., 2022). Based on the structural role of culture in how we perceive stress and considering the major role of societal expectations among individuals in Turkey, gender role stress was preferred over other sources of stress in predicting eating behavior in this study.

Gender-role stress is a concept used to define the stress arising from the struggle to fit into the societal expectations related to gender roles. According to Gender Role Strain Paradigm, society prescribes certain attitudes and treatments in line with socially constructed feminine and masculine gender roles; those whose behaviors or tendencies contradict these societal expectations tend to experience increased levels of stress (Levant & Povell, 2017). Gender Role Strain Paradigm, developed by Joseph Pleck in 1981, proposes the social construction of gender roles that impose independence, power, and active position to biological males, and caregiving, affectionate, and passive positions to biological females; according to the paradigm, these restrictive norms may lead to the feelings of rejection, inadequacy, dissatisfaction with oneself to those who struggle to adhere. On the other hand, social identity theory suggested that individuals tend to perceive and define themselves in relation to others in their social context, in which they feel a sense of belongingness, support, and self-worth to the degree that they identify with the group norms and values (Tajfel & Turner, 1979). Unlike individuals with individualistic backgrounds who give priority to privacy, those who live in a collective culture tend to assign more importance to their social identities (Gouveia et al., 2002). As a country with collective culture, social identities and conforming to the roles assigned to these identities may be of critical importance for individuals in Turkey.

Moreover, adherence to traditional gender roles and thereby experiencing gender role stress may be more common among unemployed women, namely housewives. In the qualitative

study, in which majority of the participants were housewives, Turkish women primarily defined themselves as housewives, mothers, or caregivers whose main occupation is to take care of the needs of living in this house (Dikyol Mutlu et al., 2022). Since their lives are mainly restricted to house, they defined the kitchen as a personal space in which they get relief simply by spending time in there. Previous studies reflected the association between traditional gender beliefs and increased stress due to pressure to adhere to these social identities (Bayar et al., 2017; Rovira et al., 2022; Aparicio-Garcia et al., 2018; Kazmierczak, 2010). Considering these statements and previous studies in literature, it may be expected that Turkish women who have an increased adherence to traditional gender roles may have an increased gender role stress along with limited coping mechanisms restricted most likely to the kitchen. In a recent study, transition into paid employment was associated with better mental health among housewives, especially for those with traditional gender role attitudes (Lu et al., 2023).

On the other hand, for those who are employed, the work-family conflict is a major gender-role problem, especially in nonegalitarian countries in which women are expected to be the 'homemaker' by being responsible for housework and kids while men are expected to be the 'moneymaker' who work outside to support the family. In a cross-sectional study, conducted in China, traditional gender role attitudes predicted work-family conflict positively (Chen et al., 2022). In a qualitative study, conducted with Turkish female academics, they stated a deeper gender inequality along with decreased productivity at work during COVID-19 pandemic (Parlak et al., 2021). In another qualitative study, conducted with men and women in Pakistan, the allocation of responsibilities according to gender is a major source of gender role strain both for men and for women, which results in stress and anger (Arshad & Shahed, 2019).

Analyzing the path from gender role stress to the number of weight cycles among Turkish adult women, gender role stress was proposed as the link connecting cultural gender norms and eating disorder vulnerability, based on both the physiological and the subjective data reflecting higher gender role stress among women with eating disorders (Martz et al., 1995).

In the study conducted with Spanish women, traditional gender beliefs were associated with increased stress and depressive symptoms (Rovira et al., 2022). The relationship between traditional gender beliefs and gender role stress was replicated in Turkish adult women as well (Bayar et al., 2017). Another study from Polish society reflected gender role stress models, in which femininity has a higher association with gender role stress than masculinity

(Kazmierczak, 2010). Likewise, adherence to a traditional female role was associated with increased anxiety among Spanish women (Aparicio-Garcia et al., 2018).

1.2.4.5 Emotion Regulation Difficulty

Difficulty in coping with stress, and stress-related eating are among the most frequent associates of WR (Karmali et al., 2013; Thom et al., 2020; Fisher et al., 2021; Youssef et al., 2021; Johnson & Annesi, 2018; Thom et al., 2021; Ingels & Zizzi, 2018). As explained in the previous chapter, emotional eating is considered as a maladaptive emotion regulation strategy. Qualitative studies reflect the major role of food and eating among individuals with emotion regulation difficulty. In a qualitative analysis, participants defined eating as an "emotion-focused coping strategy" (Low et al., 2021). In a 2-year longitudinal qualitative study, weight regain was associated with the satisfaction of emotional needs by eating in times of negative mood and stress (Thom et al., 2021).

Likewise, population-based studies reflect higher emotion regulation difficulties among both adults and children with obesity or overweight (Willem et al., 2019; Favieri et al., 2021). A cross-sectional study conducted with 2000 adults from three European countries (UK, Portugal, and Denmark), presented a positive association between emotion regulation difficulty and weight regain (Sainsbury et al., 2019). In a path analysis, emotion regulation difficulty contributes to the relationship between psychological stress and higher BMI (Guerrini-Usubini et al., 2023; Aparicio et al., 2016). A meta-analysis on the relationship between binge eating disorder and weight management among overweight and obese individuals showed the increased difficulty in weight management by the diagnosis (Kantilafti et al., 2022).

Considering these, intervention programs frequently aim at developing emotion regulation strategies as part of the overall weight management program (Stubbs et al., 2021; Debeuf et al., 2019; Guerrini-Usubini et al., 2021). Among these, Hadley and her colleagues (2020) showed higher effectiveness of an emotion-regulation intervention to only behavioral weight management in reducing BMI. More frequent usage of adaptive emotion regulation strategies like reappraisal positively predicts WLM in inpatient obesity treatment (Reinelt et al., 2020).

1.3 CURRENT STUDY

1.3.1 Scope of the Study

Today, obesity has become a major public health concern across the world by its association with significant physical and mental health outcomes including NCDs, certain cancer types, and depression. While obesity prevalence substantially increases around the world, World Health Organization anticipated Turkey in a leading position among European countries in both adult and childhood obesity rates by 2030. In the struggle towards obesity, the main formula has been pointed out as a healthy diet along with exercise. Yet, as explained in detail above, even though this formula is effective in weight loss in the short term, majority of the individuals tend to regain the lost weight in the long run. Weight cycling refers to repetitive trials of intentional weight loss with subsequent unintentional weight regain. Therefore, weight cycling is a major obstacle in the struggle with obesity.

Studies examining the factors associated with obesity reveal that it is a multifactorial phenomenon resulting from and maintained by the interaction of genetic, environmental, and psychosocial factors. However, unlike the policies and intervention programs that adopt this holistic approach, there is an unbalanced interest in the literature on psychosocial factors contributing to the development and maintenance of obesity compared to genetic and environmental factors. The literature review of the psychological factors associated with obesity, weight regain, or weight loss maintenance, conducted with this purpose, revealed certain psychological factors that may have an impact on weight regulation or eating behavior.

Accordingly, this study aims at understanding the predictive value of these psychological factors on weight cycling among Turkish adult women. Based on the literature review, the predictive value of impulsivity, emotion regulation difficulty, perceived social support, female gender role stress, and self-worth on the number of lifetime weight cycles will be examined. As explained above in detail, understanding the contribution of psychological factors in cycles of weight loss and regain is expected to provide better and more comprehensive building of strategies for coping with the development and maintenance of obesity.

1.3.2 Aims and Hypotheses of the Study

The aim of this research is to investigate the relationship between psychological factors (food-related impulsivity, emotion regulation difficulty, perceived social support, female gender-role stress, and self-worth), lifetime weight cycle, and demographic variables among Turkish adult women. In addition, based on the literature, this study aims to investigate the differentiation of psychological factors depending on demographic variables (age, marital status, education level, household income, and BMI). Following these aims, the hypotheses provided below will be tested.

H1. There is a significant relationship between psychological factors including food related impulsivity, emotion regulation difficulty, perceived social support, female gender-role stress, self-worth, and the number of lifetime weight cycles among Turkish adult women.

H2. Psychological factors including food related impulsivity, emotion regulation difficulty, perceived social support, female gender-role stress, and self-worth significantly predict the number of lifetime weight cycles among Turkish adult women.

H3. There is a significant difference across the groups of sociodemographic variables (age, marital status, working status, education level, household income, BMI) in terms of food-related impulsivity, emotion regulation difficulty, perceived social support, female gender role stress, self-worth and the number of weight cycles.

CHAPTER II: METHOD

In this chapter, following the aims and hypotheses of the study, the data collection process will be explained in detail. Accordingly, the participants of the study will be described in terms of demographic information including their professions, living place, marital status, household, and household income etc. Subsequently, the measures used to collect data necessary to test the hypotheses of the study will be explained. Lastly, the data collection procedure, from approval from the Ethical Committee to collecting the responses from participants will be described.

2.1. Participants

A total of 311 Turkish adult women between the ages of 19 to 63 *(M* = 35.51, *SD* = 10.24*)* completed the study out of 495 individuals who referred to the survey link. Since the study aims for the general population, the inclusion criteria were limited to being women and being older than 18 years old. The inclusion criteria were designated based on the literature review. More precisely, considering the predomination of women in obesity prevalence and weight loss initiations across the world, and the biopsychosocial differences between adults and children, nonclinical adult women were determined as our population group. A convenience sampling method was employed in the process of data collection due to its practicality in the collection of data in a cost-effective manner. The participants are from 44 different cities in 7 geographical regions of Turkey. Among the participants, 23.5 % (n = 71) defined their occupation as healthcare professionals, 17.5 % (n = 53) as teachers or academicians, 14.9% (n = 45) as housewives, 14.4 % (n=39) as skilled professionals (journalist, manager, lawyer, advertising, tourism, human resources, etc.), 8.9% (n= 27) as elementary occupations (operative, secretary, food service, etc.), 8.3 % (n = 25) as engineer or technician, 7.2 % (n = 22) as financial services, 4 % (n = 12) as student, and 2.3% (n= 7) as retired.

While 59.5 % (n=185) of the participants are married, 19.6% (n=61) have a romantic relationship, and 20.9 % (n= 65) are single. Among the participants, 74.5% (n= 123 with children and a partner, n= 58 only with the partner, and n= 51 with parents) are living as nuclear families, while 12.5% (n=39) living alone, 6.1% (n= 19) living with family elderly, and 4.2 % (n= 13) living with roommates. The majority of the participants (75.3%, n=234) have at least university level education, including bachelor's degree (54.8%, n= 171), and graduate degree (20.1%, n= 63). Considering the household income, 11.6% (n = 36) of participants stated at or

below the hunger threshold (≤ 4.750 TL), 63% (n=193) has an income lower than the poverty line and higher than the hunger threshold (4750< X<16.000), and 25.4% (n=79) have an income higher than the poverty line as defined by Turkish Statistical Institute Income and Living Conditions Survey (2021). Lastly, among the participants, 6.4% (n=20) are underweight, 53.4% (n=166) at a normal weight, 28% (n=87) are overweight, and 12.2% (n=38) are obese as defined by BMI values of World Health Organization. The details of the demographic characteristics of the participants were given in Table 3.

2.2. Measures

2.2.1. Demographic Form

The form includes gender, age, education level, household income, where they live (urban/rural), whom they live with, employment status and the height and weight of the participants to calculate the BMI value. While there is no consensus on how to define and test the weight cycle, previous studies mostly defined a pair of intentional weight loss of 5 kg (10 pounds) or more with a subsequent unintentional weight gain of 5 kg or more as a weight cycle (Montesi et al., 2016; Shai et al., 2008; Victoria et al., 2012; Wing et al., 1995). Accordingly, in order to calculate the number of lifetime weight cycles, participants were asked four questions in order: whether they have intentionally lost 5 kg or more in their lifetime, (if yes) how many times they intentionally lost 5 kg or more; and whether they unintentionally regain 5 kg or more, (if yes) how many times they unintentionally regained 5 kg or more after losing 5 kg or more.

2.2.2 Power of Food Scale

The Power of Food scale has been developed by Lowe and his colleagues (2009) to examine the appetite for palatable foods in the environment. The scale will be used in this study to measure food related impulsivity. The scale consists of 15 items rated on a 5-point Likert-type scale, in three factors: food available, food present, and food taste. The Cronbach alpha value for the overall scale was found to be .91, while the test-retest reliability value is .77.

Table 3: Demographic Characteristics of Participants

Variables		Frequencies (%)		
Age	19-25	14.6 % (n = 45)	*M*=35,4	*SD*=10,42
	26-35	41.8 % (n = 130)		
	36-45	24.5 % (n = 77)		
	46-63	19.1 % (n = 60)		
Marital Status	Married	59.9 % (n = 186)		
	Single	40.1 % (n = 126)		
Education	Elementary School	5.1 % (n = 15)		
	Secondary School	2.2 % (n = 7)		
	High School	17.8 % (n = 56)		
	University	54.8 % (n = 171)		
	Graduate degree	20.1 % (n = 63)		
Household income	4750 TL and lower	12.1 % (n = 37)		
	4750 TL- 16000 TL	62.7 % (n = 196)		
	16000 TL and higher	25.2 % (n = 79)		
Body Mass Index	Underweight	6.5 % (n = 20)		
	Normal	54 % (n = 167)		
	Overweight	27.5 % (n = 87)		
	Obese I (35>BMI>29.9)	7.8 % (n = 25)		
	Obese II (40> BMI> 34.9)	2.6 % (n = 8)		
	Obese III (BMI>39.9)	1.6 % (n = 5)		
Living Region	Black Sea Region	5 % (n = 16)		
	Marmara Region	15.5 % (n = 47)		
	Eagean Region	7.9 % (n = 24)		
	Central Anatolia Region	60.2 % (n = 182)		
	Eastern Anatolia Region	3.3 % (n = 10)		
	Southeastern Anatolia Region	2.3 % (n = 7)		
	Mediterranean Region	5 % (n = 16)		
Working Status	Employed	82.4% (n= 257)		
	Unemployed	14.9% (n= 48)		
	Retired	2.3% (n= 7)		

The Turkish version of the scale was adapted by Ülker and his colleagues (2021). Because of the high error covariance, items 5 and 13 were removed in the Turkish adaptation. As a 13-item scale, Cronbach's alpha value of the overall scale was found as .92, while it is .84 for food available, .79 for food present, and .82 for food taste. In the analysis to assess the internal consistency reliability of the questionnaire in this study, Cronbach's alpha coefficient of all items was .90, indicating a high level of reliability.

2.2.3 Difficulties in Emotion Regulation Scale – Short Form

Difficulties in Emotion Regulation Scale (DERS) was first developed by Gratz and Roomer (2004) and adapted to the Turkish sample by Rugancı and Gençöz (2010), as a 36-item self-report questionnaire to examine individual emotion regulation skills. There are six subscales (awareness, clarity, non-acceptance, strategies, impulse, and goals) rated on a 5-point Likert-type scale, in which higher scores indicate higher difficulty in emotion regulation. In the development of the scale with the participation of 357 university students, the Cronbach alpha value of the internal consistency was found as .93 for the overall scale, while it ranges from .80 to .88 for the subscales. Test-retest reliability was found as .88.

The short form of the Difficulties in Emotion Regulation Scale (DERS-16) was developed by Bjureberg and his colleagues (2016) based on the original scale (Gratz & Roomer, 2004). Unlike the original scale, DERS-16 consists of 16 items and five subscales: clarity, goals, strategies, impulse, and non-acceptance. The Cronbach alpha value of the overall score was found to be .92, while the test-retest reliability value is .85.

Turkish adaptation of DERS-16 was conducted by Yiğit & Güzel-Yiğit (2019) with 316 undergraduate students. The Cronbach alpha value of internal consistency was found to be .92 for the overall scale, while the reliability value is .84 for the Clarity, .84 for the Goals, .87 for the Impulse, .87 for the Strategies, and .78 for the Non-Acceptance. In the analysis to assess the internal consistency reliability of the questionnaire in this study, Cronbach's alpha coefficient of all items was .94, indicating a high level of reliability.

2.2.4 Multidimensional Scale of Perceived Social Support

A multidimensional scale of perceived social support (MSPSS) was developed by Zimet and his colleagues (1990) to examine the satisfactoriness of the social support taken from

family, friends, and a significant other. The scale consists of 12 items rated on a 7-point Likert-type scale, in which higher scores mean higher perceived support. Cronbach alpha value for the overall scale was found to be .88, while it is .91 for a Significant Other, .87 for Family, and .85 for Friends subtests. The test-retest reliability value is .85 for the overall scale.

Turkish version of the scale was adapted by Eker and his colleagues (2001) based on the analysis conducted with three samples including psychiatry patients, surgery patients, and a control group. In the factor analysis, in line with the original scale, a three-factor structure was followed. The Cronbach alpha value was found as .89 for the overall scale, while it is .85 for the family subscale, .88 for the friend subscale, and .92 for the romantic partner subscale. In the analysis to assess the internal consistency reliability of the questionnaire in this study, Cronbach's alpha coefficient of all items was .88, indicating a high level of reliability.

2.2.5 Psychological Maltreatment of Women Inventory- Short Form

Considering our aim to measure gender role stress levels of women, a women-oriented scale was preferred. The Psychological Maltreatment of Women Inventory was developed by Tolman (1989) to examine the level of psychological maltreatment of women by their partners. The scale, originally, consists of two subscales and 48 items rated on a 5-point Likert-type scale; while the dominance/isolation subscale tests the demand for dependency and conformation to traditional gender roles (e.g. "*My partner monitored my time and made me account for my whereabouts"*), emotional/verbal subscale tests verbal abuse and insulting behaviors (e.g. *"My partner treated me like an inferior"*). In addition, the scale consists of a column as "Not Applicable" for those who do not have a partner; that column was scored as zero point. The internal consistency Cronbach alpha value was reported as .95 for the original scale.

The short form of the scale, including 7 items for each subscale, was developed by Tolman (1999). The internal consistency Cronbach alpha values were reported as .92 for the short form. The Turkish adaptation of the scale's short form was conducted by Cem-Ersoy and her colleagues (2017) with 852 adult women. The analysis concluded a three-factor structure (Restriction/blaming/threat, emotional/verbal violence, responsibility) explaining 64.3% of the variance. Cronbach alpha value was reported .93. In the analysis to assess the internal consistency reliability of the questionnaire in this study, the Cronbach's alpha coefficient of all items was .94, indicating a high level of reliability.

2.2.6 The Self-Esteem Rating Scale- Short Form

The Self-Esteem Rating Scale was originally developed by Nugent and Thomas (1993) to evaluate self-esteem at both problematic and favorable levels like self-worth, social competence, problem-solving ability, etc. The measure consists of 40 items (20 positive and 20 negative items) rated on a 7-point Likert-type scale. The internal consistency Cronbach alpha value was reported as .97 for the original scale.

The short form of the scale was developed by Lecomte and her colleagues (2006) by the tests conducted with both clinical and nonclinical samples. The short form consists of 20 items with a Cronbach alpha value of .91 for positive items and .87 for negative items while test-retest reliability is .91.

Turkish adaptation of the scale (The Self-Esteem Rating Scale- Short form) was conducted by Tukuş (2010) with the tests conducted in a clinical sample. The test provided an overall Cronbach alpha value of .89, and a three-factor structure for the scale: Togetherness/ Capability/Satisfaction, Comparison with Others/Failure, and Dissatisfaction with Oneself. The Cronbach alpha values for the Turkish adaptation were reported as .87 for positive items and .85 for negative items. In the analysis to assess the internal consistency reliability of the questionnaire in this study, Cronbach's alpha coefficient of all items was .92, indicating a high level of reliability.

2.3 Procedure

After necessary ethical permissions were taken from Ankara Yıldırım Beyazıt University Ethics Committee (App.1), participants were reached via online resources including social media platforms like Facebook, Instagram, or WhatsApp, in which they will be provided the link to the survey. The Informed Consent (App.2), Demographic form (App.3), Difficulties in Emotion Regulation Scale-16 (App.4), Self-Esteem Rating Scale-Short form (App.5), Power of Food Scale (App.6), Multidimensional Scale of Perceived Social Support (App.7), and Psychological Maltreatment of Women Inventory-Short Form (App.8) were provided to the participants in separate pages through a web page formed in Qualtrics. In the Informed Consent, all the participants were informed about the aim of the study, along with their rights to quit in case of discomfort, the confidentiality of their identity, and limited access to the data. The data were collected from the beginning of June 2021 to the end of July 2021.

CHAPTER 3: RESULTS

This chapter provides a comprehensive explanation of the data screening process, data entry procedures, multivariate statistical assumptions, and the results of statistical analyses conducted using IBM SPSS 25, with detailed information regarding these procedures. Accordingly, descriptive statistics for a set of predictors (food-related impulsivity, emotion regulation difficulty, perceived social support, female gender role stress, and self-worth) and the outcome variable (number of lifetime weight cycles) will be described first. Secondly, the study reports on the results of group comparisons examining differences in study variables (food-related impulsivity, emotion regulation difficulty, perceived social support, female gender role stress, self-worth, weight cycling) across the groups of demographic variables (age, education, working status, BMI, marital status, and household income). Thirdly, Pearson correlation coefficients for the relationship between the variables are provided. Subsequently, a hierarchical regression analysis was performed to assess the extent to which psychological variables predicted the number of weight cycles while controlling for potential confounding variables.

3.1 Data Screening and Assumption Checking

Before conducting statistical analyses, the data were checked for data entry accuracy, missing values, outliers, multivariate normality, multicollinearity, homoscedasticity, linearity, and independent errors. Out of 495 participant data, 184 were removed due to missing values corresponding to more than 5% of the data.

In regression analysis, the linearity assumption reflects the linear relationship between the dependent and independent variables. Independence reflects the independence of the value of the dependent variable in one observation from the value of the dependent variable in another observation. For multiple regression models with two or more independent variables, the ideal value of the Durbin-Watson statistic is pointed to be between 1.5 and 2.5, with values close to 2 indicating no significant autocorrelation (Hair et al., 2010); in this analysis, the independence assumption was met with a Durbin-Watson value of 1.53. The homoscedasticity assumption reflects that the variance of errors is constant across all levels of the independent variables. Likewise, the normality assumption means a normal distribution of the residuals. Both

homoscedasticity and normality assumptions were tested and met with the randomly spread residuals in the residual plot, and a straight-line normal probability plot.

Lastly, the multicollinearity assumption and the need for no influential outliers were tested with the Mahalanobis distance (Belsley et al., 1980). Based on the Mahalanobis distance scores generated from multiple regression analyses, 6 data out of 311 were detected as outliers based on the critical Chi-square value of 24.32 (at α = .001). In the closer examination of the cases, the individual response patterns were not considered abnormal in representing the population. In further analysis, the multicollinearity assumption was provided both in the presence (Weight cycle, Tolerance= .83, VIF= 1.29; BMI, Tolerance= .77, VIF= 1.25; Food Related Impulsivity, Tolerance= .80, VIF= 1.25; Emotion Regulation Difficulty, Tolerance= .62, VIF= 1.62; Perceived Social Support, Tolerance= .74, VIF= 1.36; Female Gender Role Stress, Tolerance= .83, VIF= 1.21; Self Worth, Tolerance= .60, VIF= 1.67), and in the absence of the outliers (Weight cycle, Tolerance= .81, VIF= 1.24; BMI, Tolerance= .80, VIF= 1.33; Food Related Impulsivity, Tolerance= .80, VIF= 1.25; Emotion Regulation Difficulty, Tolerance= .63, VIF= 1.58; Perceived Social Support, Tolerance= .75, VIF= 1.34; Female Gender Role Stress, Tolerance= .84, VIF= 1.19; Self Worth, Tolerance= .62, VIF= 1.61). Therefore, all 6 cases were retained for further statistical analyses.

3.2 Descriptive Analyses of the Variables

As explained above, there is no consensus on the operational definition of a weight cycle; however, based on literature, a pair of intentional weight loss of 5 kg or more followed by an unintentional weight gain of 5 kg or more is considered one weight cycle in this study (Montesi et al., 2016; Shai et al., 2008; Victoria et al., 2012; Wing et al., 1995). Accordingly, the participants were asked about the number of intentional weight losses and unintentional weight gains they have throughout their lives.

The descriptive statistics of weight cycling along with weight losses and weight regains are provided in Table 4. In the first part of the questionnaire, participants were asked “Have you had an intentional weight loss of 5 kg or more in your lifetime?”, if yes, “How many times?”; and the questions were followed by “Have you had an unintentional weight gain of 5 kg or more in your lifetime”, if yes, “How many times?” in order. Participants who answered “Yes” to the question “Have you had an intentional weight loss of 5 kg or more in your lifetime?” corresponds to 67% of all the participants. Those who stated an unintentional weight

gain comprised 59% of all the participants while 49% of all the participants stated both intentional weight loss and subsequent unintentional weight regain (Table 4).

Table 4: Descriptive Statistics for Weight Loss, Weight Regain, and Weight Cycling

	N	Frequency	Min	Max	Mean	SD
Intentional weight loss (IWL)	207	67%	1	10	3.00	2.44
Unintentional weight regain (UWR)	184	59%	1	10	3.06	2.59
Weight cycling (WC) (Pairs of IWL and WR)	152	49%	1	10	2.92	2.52

Table 5: Descriptive statistics of the participants who had IWL of 5 kg or more.

	Changes in Eating Habits/Diet (n/%)			**Diet & Exercise (n/%)**	**Only Exercise (n/%)**	**Surgery (n/%)**	**TOTAL**
	Dietician Support (n/%)	Self-effort (n/%)	Dietary Supplements (n/%)				
Weight regain	20 (87%)	52 (68%)	9 (90%)	70 (76%)	3 (50%)	6 (100%)	159 (74%)
Weight loss maintenance	3 (13%)	25 (32%)	1 (10%)	22 (24%)	3 (50%)	0	54 (26%)
	110 (52%)			92 (43%)	6 (3%)	6 (3%)	213 (100%)

In addition, participants who stated at least one intentional weight loss were asked about their ways of losing weight (Table 5). 52% of them stated only changes in eating habits, 3% stated only physical exercise, 43% stated both diet and exercise, and 3% stated bariatric surgery in weight loss. 74% of those who refer only to changes in dietary habits, 50% of those who refer only to exercise, 76% of those who refer to both diet and exercise, and all the participants who had gone through bariatric surgery have regained the lost weight.

Table 6: Descriptive statistics of psychological variables

	Min	Max	Mean	SD
Self-Worth (SERS-SF)	-36	60	32,49	16,79
Togetherness/ Skillfullness/ Satisfaction	17	70	54.88	8,42
Comparison with Others/ Failure	-34	-5	-11,15	5,53
Dissatisfaction with Oneself	-34	-5	-11,23	5,77
Emotion Regulation Difficulty (DERS-16)	16	77	35.77	12.37
Clarity	2	10	4.33	1.71
Goals	3	15	8.57	3.05
Impulse	3	15	6.02	2.80
Strategies	5	24	10.93	4.55
Non-acceptance	3	15	5.91	2.63
Food Related Impulsivity (PFS)	16	75	44.21	11.45
Food Available	6	30	15.31	5.51
Food Present	4	20	12.91	3.72
Food Taste	5	25	15.99	3.91
Perceived Social Support (MSPSS)	14	84	64.79	13.45
Significant Other	4	28	19.71	7.30
Family	4	28	22.24	5.63
Friends	4	28	22.84	5.05
Female Gender Role Stress (PMWI)	18	90	30.72	12.87
Restriction/ Blaming/ Threat	8	40	11.11	5.07
Emotional-Verbal Violence	6	30	12.36	5.45
Responsibility	4	20	7.25	3.57

Note. SERS: Self Worth Rating Scale-SF; DERS-16: Difficulties in Emotion Regulation Scale; PFS: Power of Food Scale; MSPSS: Multidimensional Scale of Perceived Social Support; PMWI: Psychological Maltreatment of Women Inventory

3.3 Group Comparisons of Variables

In order to examine whether the scores of study variables (food related impulsivity, emotion regulation difficulty, perceived social support, female gender role stress, self-worth, number of weight cycles) statistically differ across groups of demographic variables (age, education level, working status, household income, BMI, and marital status), multiple analyses of variance and independent samples t-tests were conducted. Since there are unequal sample sizes in the groups of demographic variables, the analyses were conducted based on Welch's independent samples t-test for working status and marital status, and MANOVA for age, education, household income, and BMI.

Welch's MANOVA, known also as the Brown-Forsythe procedure, was developed as an alternative method to eliminate the inaccuracy of the results because of the violation of the homogeneity of variance assumption (Brown & Forsythe, 1974; Reed et al., 1988). In further analysis, researchers recommend Games-Howell pairwise comparison procedure in case of violations in the equal sample size or equal variance assumptions (Sauder & Demars, 2019). Accordingly, Games-Howell Posthoc comparison was conducted to examine the differences across multiple groups.

3.3.1 Group Comparisons Based on Age

The mean differences according to age groups in terms of food-related impulsivity, emotion regulation difficulty, perceived social support, female gender role stress, self-worth, and the number of lifetime weight cycles were examined using a multivariate analysis of variance (MANOVA). Age groups were defined based on different life stages, namely early adulthood (19-25), young adulthood (26-35), middle adulthood (36-45), and late adulthood (46-63) as defined by Levinson (1986).

The analysis, using Wilks' Lambda, revealed a significant difference across the means of age groups in terms of emotion regulation difficulty, female gender role stress, and the number of lifetime weight cycles (Wilks' Lambda=.793, $F(18,854)=4.068$, $p<.001$). Follow-up analyses indicated significant differences across the means of age groups in terms of emotion regulation difficulty ($F(3,310)= 4.104$, $p<.01$) with a small effect size ($\eta^2p =.039$), female gender role stress ($F(3,310)= 8.571$, $p<.001$) with a small effect size ($\eta^2p =.077$), and the number of lifetime weight cycles ($F(3,310)= 6.588$, $p<.001$) with a small effect size ($\eta^2p =.060$).

In further analyses, Games-Howell posthoc analyses revealed significant differences across the means of 19-25 age group and 36-45 age group (p<.05), as well as between 19-25 age group and 46-63 age group (p<.05) in terms of emotion regulation difficulty; however, there were no significant differences between 26-35 age group, 36-45 age group, and 46-63 age group. In terms of female gender role stress, Games-Howell posthoc analyses revealed significant mean differences between 19-25 age group and 36-45 age group (p=.001), as well as 19-25 age group and 46-63 age group (p<.01); in addition, 26-35 age group significantly differ from 36-45 age group (p<.01) and 46-63 age group (p=.01). Lastly, in terms of weight cycles, 19-25 age group significantly differ from 36-45 age group (p<.05) and 46-63 age group (p<.01), while 26-35 age group significantly differ from 46-63 age group (p<.05).

On the other hand, the results of MANOVA did not indicate a significant difference across the means of age groups in terms of food-related impulsivity (F(3,310)= 2.237, p>.05), on perceived social support (F(3,127)= 1.081, p>.05), and on self-worth (F(3,310)= 2.237, p>.05). The details of the results are provided in Table 7.

Table 7: Results of Multiple Analysis of Variance in terms of Age

Age								
	19-25	**26-35**	**36-45**	**46-63**	**Mean**	**SD**	**F**	**η^2p**
Food-Related Impulsivity	48,00	44,33	42,90	42,88	44,21	11,45	2,237	.021
Emotion Regulation Difficulty	40,43	36,68	33,57	33,21	35,77	12,36	**4,104****	**.039**
Perceived Social Support	63,97	66,15	64,74	62,50	64,79	13,44	1,081	.010
Female Gender Role Stress	26,25	28,07	35,07	34,17	30,72	12,87	**8,571****	**.077**
Self-Worth	30,98	32,23	32,71	33,91	32,49	16,79	0,276	.003
# of WC	0.77	1.03	1.65	2.33	1.40	2.21	**6,588****	**.060**

3.3.2 Group Comparisons Based on Education Level

The mean differences according to education levels in terms of food-related impulsivity, emotion regulation difficulty, perceived social support, female gender role stress, self-worth, and the number of lifetime weight cycles were examined using a MANOVA. The first education level includes primary school, secondary school, and high school while the second group includes a university degree, and the third group includes the post-graduate level. The overall

analysis revealed significant differences across the means of education levels in terms of perceived social support (Wilks' Lambda=.918, F(12,606)=2.219, p=.01).

Follow-up analyses indicated significant differences across the means of education levels in terms of perceived social support (F(2,310)= 10.379, p<.001) with a small effect size (η^2p =.063). In further analyses, Games-Howell test revealed that the first group significantly differ from the university degree group (p=.001) and post-graduate degree group (p=.001); however, there were no significant differences between means of the second and the third groups in terms of perceived social support.

On the other hand, the results of MANOVA did not indicate significant differences across the means of education levels groups in terms of food-related impulsivity (F(2,310)= .550, p>.05), on emotion regulation difficulty (F(2,310)= .483, p>.05), on female gender role stress (F(2,310)= .242, p>.05), on self-worth F(2,310)= 1.407, p>.05), and on weight cycles F(2,310)= .032, p>.05). The details of the results are provided in Table 8.

Table 8: Results of Multiple Analysis of Variance in terms of Education Level

	Education Level						
	Primary School/Secondary School/High School	**University Degree**	**Post Graduate Degree**	**Mean**	**SD**	**F**	**η^2p**
Food-Related Impulsivity	48,00	44,33	42,90	44,21	11,45	.550	.004
Emotion Regulation Difficulty	36,95	35,28	35,68	35,77	12,37	.483	.003
Perceived Social Support	59,03	66,22	67,95	64,79	13,45	**10.379***	**.063**
Female Gender Role Stress	31,61	30,44	30,39	30,72	12,87	.242	.002
Self-Worth	30,72	33,94	30,74	32,50	16,79	1.407	.009
# of WC	1.35	1.40	1.44	1.40	2.21	.032	.000

3.3.3 Group Comparisons Based on Working Status

An independent samples t-test was conducted to compare study variables between employed participants and unemployed participants. Considering the unequal sample sizes, the results were analyzed based on equal variances not assumed calculations. The results of the

independent samples t-test revealed a significant difference in perceived social support (t(76.06)=3.309, p=.001) and female gender role stress (t(64.34)=-1.989, p=.05) between the two groups. In further examination, employed participants have significantly higher scores in perceived social support than unemployed participants, while unemployed participants have significantly higher scores in female gender role stress than employed participants. The details of the results are provided in Table 9.

Table 9: Results of Independent Samples t-test in terms of Working status

		Employed	Unemployed	T
Food-Related Impulsivity	Mean	44.47	43,05	.79
	SS	11,29	12,20	
Emotion Regulation Difficulty	Mean	35,71	36,07	-.19
	SS	12,41	12,28	
Perceived Social Support	Mean	65,98	59,23	**3.31****
	SS	13,08	13,86	
Female Gender Role Stress	Mean	29,86	34,76	**-1.99***
	SS	11,49	17,51	
Self-Worth	Mean	32,80	31,11	.61
	SS	16,26	19,15	
# of WC	Mean	1,27	2,00	-1.72
	SS	1,99	3,00	

3.3.4 Group Comparisons Based on Household Income

The mean differences according to household income groups in terms of food-related impulsivity, emotion regulation difficulty, perceived social support, female gender role stress, self-worth, and the number of lifetime weight cycles were examined using a MANOVA. In the analysis, first group consists of those with a household income below hunger threshold, the second group consists of those with a household income above hunger threshold and below poverty line, and the third group consists of those with a household income above poverty line. The overall analysis revealed significant differences across the means of household income levels in terms of perceived social support and female gender role stress (Wilks' Lambda=.931, F(12,606)=1.825, p<.05).

Follow-up analyses indicated significant differences across the means of household income levels in terms of perceived social support ($F(2,310)= 7.663$, $p=.001$) with a small effect size ($\eta^2p =.047$), and female gender role stress ($F(2,310)= 3.541$, $p<.05$) with a small effect size ($\eta^2p =.022$). In further analyses, Games-Howell test revealed that the first group differ from the second group ($p<.05$) and the third group ($p=.001$); however, there were no significant differences between the second and the third groups in terms of perceived social support. In terms of female gender role stress, Games-Howell tests did not reveal significant differences across groups of household income. Likewise, the results of MANOVA did not indicate significant differences across the means of household income levels in terms of food-related impulsivity ($F(2,310)= 1.321$, $p>.05$), emotion regulation difficulty ($F(2,310)= 1.451$, $p>.05$), on self-worth $F(2,310)= 1.690$, $p>.05$), and weight cycles $F(2,310)= .086$, $p>.05$). The details of the results are provided in Table 10.

Tablo 10: Results of Multiple Analysis of Variance in terms of Household Income

Household Income							
	Below Hunger Threshold (<4750 TL)	**Above Hunger Threshold and Below Poverty Line (4750 TL<X<16.000 TL)**	**Above Poverty Line**	**Mean**	**SS**	**F**	η^2p
Food-Related Impulsivity	44,69	43,45	45,90	44,21	11,45	1.321	.009
Emotion Regulation Difficulty	38,81	35,06	36,16	35,77	12,37	1.451	.009
Perceived Social Support	57,80	64,71	68,16	64,79	13,45	**7.663****	**.047**
Female Gender Role Stress	35,31	30,79	28,48	30,72	12,87	3.541	.022
Self-Worth	27,69	33,02	33,41	32,50	16,79	1.690	.011
# of WC	1,33	1,44	1,33	1.40	2.21	.086	.001

3.3.5 Group Comparisons Based on BMI Group

The mean differences according to BMI levels, as defined by WHO (2008), in terms of food-related impulsivity, emotion regulation difficulty, perceived social support, female gender role stress, self-worth, and the number of lifetime weight cycles were examined using a

MANOVA. The overall analysis revealed significant differences across the means of BMI levels in terms of study variables (Wilks' Lambda=.723, F(18,854)=5.758, p<.001).

Follow-up analyses indicated significant differences across the means of BMI levels in terms of food-related impulsivity (F(3,310)= 5.476, p=.001) with a small effect size (η^2p =.051), female gender role stress (F(3,310)= 10.380, p<.001) with a small effect size (η^2p =.092), and on weight cycles (F(3,310)= 18.709, p<.001) with a moderate effect size (η^2p =.155). In further analyses, Games-Howell test revealed that the group with obesity significantly differ from the underweight group (p<.01) and the normal weight group (p<.01) in terms of food-related impulsivity; however, there were no significant differences between overweight group and the other groups. In terms of female gender role stress, Games-Howell tests revealed that the group with obesity significantly differ from the underweight group (p=.001) and the normal weight group (p<.01), while the underweight group significantly differ from the overweight group (p<.05). Lastly, Games-Howell tests revealed that the number of weight cycles of underweight group are significantly different than the normal weight group (p<.001), the overweight group (p<.001), and the obese group (p<.001); in addition, the normal weight group significantly differ from the overweight (p<.001) and the obese group (p<.01) in terms of the number of weight cycles. However, there was no significant difference between the overweight and the obese group in the tests (p>.05).

On the other hand, the results of MANOVA did not indicate significant differences across the means of BMI levels in terms of emotion regulation difficulty (F(3,310)= 2.059, p>.05), perceived social support F(3,310)= 2.041, p>.05), and self-worth (F(3,310)= 1.320, p>.05). The details of the results are provided in Table 11.

Tablo 11: Results of Multiple Analysis of Variance in terms of BMI

BMI								
	Underweight (BMI<18.5)	**Normal Weight (18.5<BMI<25)**	**Overweight (25.1<BMI<30)**	**Obese (30<BMI)**	**Mean**	**SS**	**F**	**η^2p**
Food-Related Impulsivity	40,35	42,81	45,20	50,18	44,21	11,45	**5.476****	**.051**
Emotion Regulation Difficulty	41,30	35,55	34,20	37,42	35,77	12,37	2.059	.020
Perceived Social Support	66,95	65,51	65,07	59,89	64,79	13,45	2.041	.020

Female Gender Role Stress	25,30	28,58	32,02	39,94	30,72	12,87	**10.380****	**.092**
Self-Worth	28,45	32,81	34,37	29	32,50	16,79	1.320	.013
# of WC	.10	.78	2.26	2.79	1.40	2.21	**18.709****	**.155**

3.3.6 Group Comparisons Based on Marital Status

An independent samples t-test was conducted to compare study variables between single participants and married participants. Considering the unequal sample sizes, the results were analyzed based on equal variances not assumed calculations. The results of the independent samples t-test revealed a significant difference in emotion regulation difficulty ($t(253.47)=2.743$, $p<.01$, two tailed), self-worth ($t(263.36)=-2.025$, $p<.05$, two tailed), and the number of weight cycles ($t(300.16)=-2.129$, $p<.05$, two tailed) between single and married participants. In further examination, single participants have significantly higher scores of emotion regulation difficulty than married participants, while married participants have significantly higher scores in self-worth and the number of weight cycles. The details of the results are provided in Table 12.

Tablo 12: Results of Multiple Analysis of Variance in terms of Marital Status

		Single	**Married**	**T**
Food-Related Impulsivity	Mean	44,94	43,73	.93
	SS	10.86	11,84	
Emotion Regulation Difficulty	Mean	38,13	34,19	**2.74****
	SS	12,74	11,89	
Perceived Social Support	Mean	64,42	65,03	-.39
	SS	13,08	13,71	
Female Gender Role Stress	Mean	29,74	31,38	-1.09
	SS	13,10	12,70	
Self-Worth	Mean	30,15	34,07	**-2.03***
	SS	16,86	16,60	
# of WC	Mean	1,09	1,61	**-2.12***
	SS	1,90	2,39	

3.4 Correlational Analyses

Pearson's bivariate correlations were performed to understand the relationships among the study variables. Unlike previous analyses, age and BMI were included in the correlational analysis as continuous variables. The analyses showed that age is positively correlated with BMI ($r = .37$, $p < .01$), number of weight cycles ($r = .26$, $p < .01$), and female gender role stress ($r = .25$, $p < .01$); while it is negatively correlated with emotion regulation difficulty ($r = -.19$, $p < .01$), and food-related impulsivity ($r = -.11$, $p < .05$). Therefore, as they get older, their BMI, the number of weight cycles, and female gender role stress levels increase while emotion regulation difficulty and food-related impulsivity decrease. BMI value positively correlated with the number of weight cycles ($r = .36$, $p < .01$), female gender role stress ($r = .29$, $p < .01$), and food-related impulsivity ($r = .20$, $p < .01$); it is negatively correlated with perceived social support ($r = -.14$, $p < .05$). Number of weight cycles is positively correlated with food-related impulsivity ($r = .21$, $p < .01$), and female gender role stress ($r = .16$, $p < .01$). Food-related impulsivity is positively correlated with emotion regulation difficulty ($r = .33$, $p < .01$) and negatively correlated with self-worth ($r = -.15$, $p < .01$). Emotion regulation difficulty is positively correlated with female gender role stress ($r = .17$, $p < .01$), while it is negatively correlated with self-worth ($r = -.54$, $p < .01$) and perceived social support ($r = -.28$, $p < .01$). Perceived social support positively correlated with self-worth ($r = .44$, $p < .01$), and negatively correlated with female gender role stress ($r = -.29$, $p < .01$). Lastly, self-worth is negatively correlated with female gender role stress ($r = -.23$, $p < .01$).

Tablo 13: Pearson Correlation Coefficients among Variables

	1	2	3	4	5	6	7	8
1-Age	1							
2- Body Mass Index	**,37****	1						
3- Lifetime Weight Cycle	**,26****	**,36****	1					
4- Food Related Impulsivity	**-,11***	**,20****	**,21****	1				
5-Emotion Regulation Difficulty	**-,19****	-,04	,03	**,33****	1			
6- Perceived Social Support	-,10	**-,14***	-,05	,04	**-,28****	1		
7-Female Gender Role Stress	**,25****	**,29****	**,16****	,08	**,17****	**-,29****	1	
8- Self-worth	0,09	,003	,07	**-.15****	**-,54****	**,44****	**-,23****	1

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

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

3.5 Hierarchical Regression Analyses

Hierarchical regression analysis is commonly used to understand the unique contribution of a set of variables while controlling for the effects of other variables (Cohen et al., 2013). Considering the correlation coefficient values between BMI, age, food-related impulsivity, emotion regulation difficulty, perceived social support, female gender role stress, self-worth, and the number of weight cycles, a hierarchical regression analysis was conducted to determine the relationship between the predictor variables, the outcome variable, and sociodemographic variables.

Based on the correlational analysis results, age, and BMI were included in the first two steps of the analysis as control variables. In the first step, age was included in the analysis as a control variable considering the confounding role of lifetime period in predicting the number of weight cycles in a lifetime. In the second step, BMI was included as an associate of weight cycling based on literature and the correlation analysis. In the third step, the psychological

variables- namely perceived social support, food-related impulsivity, female gender role stress, emotion regulation difficulty, and self-worth were included in the analysis as predictor variables, while the number of lifetime weight cycles was the outcome variable. A detailed summary of the results concerning hierarchical regression analysis is given in Table 9.

In the first block, age accounted for a significant amount of variance in the number of lifetime weight cycles, $F(1,309) = [22.367]$, $p < .001$, $\Delta R^2 = [.064]$. In the second block, BMI accounted for an additional significant amount of variance, $F(2.308) = [26,911]$, $p < .001$, $\Delta R^2 = [.081]$. The second model, including age and BMI, accounted for 14% of the variance.

In the third block, food-related impulsivity was a significant predictor of the number of lifetime weight cycles, $\beta = [.171]$, $SE = [.011]$, $t = [2,964]$, $p < .01$; and, self-worth was a significant predictor of the number of lifetime weight cycles, $\beta = [.148]$, $SE = [.009]$, $t = [2,237]$, $p < .05$, while emotion regulation difficulty, perceived social support, and female gender role stress do not have unique significant prediction value over the number of lifetime weight cycles. The third block accounted for an additional 4% of the variance controlling for the effect of age and BMI. The final model, including age, BMI, and psychological predictors, was statistically significant, $F(7,303) = [10,304]$, $p < .001$, R-squared = [.174], and accounted for 17% of the variance in the number of weight cycles.

Table 14: Hierarchical regression analysis results

	Beta (β)	***t***	***R***	***Adj. R2***	***R2 Ch.***	***F***
1st Step			.26	.064	.067***	22.367
Age	.26	4.729***				
2nd Step			.39	.143	.081***	26.911
BMI	.31	5.422***				
3rd Step			.44	.174	.044**	10.304
Food-Related Impulsivity	.17	2.964**				
Emotion Regulation Difficulty	.09	1.304				
Perceived Social Support	.04	.619				
Female Gender Role Stress	.04	.613				
Self-Worth	.15	2.237*				

p<.001***
p<.01**
p<.05*

CHAPTER 4: DISCUSSION

This thesis study aimed to investigate the predictive value of psychological factors on the number of lifetime weight cycles. Following this aim, three hypotheses were formed: **(H1)** There is a significant relationship between psychological factors including food-related impulsivity, perceived social support, emotion regulation difficulty, self-worth, female gender-role stress, and the number of lifetime weight cycles among Turkish adult women; **(H2)** There is a significant difference across the groups of sociodemographic variables (age, marital status, working status, education level, household income , BMI) in terms of food-related impulsivity, emotion regulation difficulty, perceived social support, female gender role stress, self-worth and the number of weight cycles; **(H3)** Psychological factors including food-related impulsivity, perceived social support, emotion regulation difficulty, self-worth, and female gender-role stress significantly predict the number of lifetime weight cycles among Turkish adult women.

Accordingly, a correlational analysis was conducted to test the first hypothesis; a series of MANOVA and independent samples t-tests were conducted to test the second hypothesis; and, a hierarchical regression analysis was conducted to examine the predictive value of emotion regulation difficulty, perceived social support, self-worth, food-related impulsivity, and female gender role stress on the number of lifetime weight cycles after controlling for age and BMI.

4.1 Discussion of the Relationship Between Study Variables

In the correlational analysis, the relationships between study variables were reflected. Accordingly, emotion regulation difficulty has a positive relationship with female gender role stress and food-related impulsivity, while it has a negative relationship with age, self-worth, and perceived social support. Food-related impulsivity has a positive relationship with BMI, number of lifetime WC, and emotion regulation difficulty, while it has a negative relationship with age and self-worth. Perceived social support has a positive relationship with self-worth, while it has a negative relationship with female gender role stress, emotion regulation difficulty, age, and BMI. Female gender role stress has a positive relationship with emotion regulation difficulty, number of lifetime WC, BMI, and age, while it has a negative relationship with self-worth and perceived social support. Lastly, self-worth has a positive relationship with perceived social support while it has a negative relationship with emotion regulation difficulty, food-

related impulsivity, and female gender role stress. Considering that the relationships involving WC will be discussed in the following chapters, only the correlations between psychological variables are examined in this chapter in light of the previous literature.

Among these, emotion regulation difficulty and food-related impulsivity are two related transdiagnostic constructs that are frequently used together in predicting mental health outcomes; therefore, the findings that they were positively correlated are in line with the literature. In a meta-analytic review, higher levels of impulsivity were associated with a higher tendency to engage in maladaptive emotion regulation strategies like avoidance or suppression (Aldao et al., 2010). Addiction studies reflect the coactivation of impulsivity and emotion regulation in predicting the tendency to develop addiction (Jakubczyk et al., 2018; Pivarunas & Conner, 2015; Kozak et al., 2019). Moreover, models focusing on the path from impulsivity to addictive-like eating behaviors including food addiction, binge eating, or self-starvation present the mediation of emotion regulation difficulty (Forsen Mantilla et al., 2022). Likewise, in another study, food-related impulsivity and emotion dysregulation predicted food addiction (Pivarunas & Conner, 2015). The association between emotion regulation difficulty and impulsivity can be explained through the activation of overlapping brain regions in the prefrontal cortex that is responsible for regulatory functions like cognitive control, executive functioning, or self-regulation (Nigg, 2017; Friedman & Robbins, 2022). More specifically, the relationship between food-related impulsivity and emotion regulation difficulty can be explained through alexithymia (Shank et al., 2019) or emotional eating, which is referred to in case of negative affect to get relief, as detailed in previous chapters (Willem et al., 2020).

On the other hand, the association between emotion regulation difficulty and female gender role stress can be explained through the circular relationship between emotion regulation processes and chronic stress. Stress management includes two major components: perceived stress and emotion regulation process, both of which moderates the stress response. Studies reflect the positive effect of increased stress on referral to maladaptive ER strategies namely rumination or self-blame (Miklosi et al., 2014; Ferreira et al., 2021), which in turn predicts higher levels of anxiety. According to Flores-Kanter and his colleagues (2021), there are different neurocognitive processes taking place during stress and recovery periods that creates a cycle of chronic stress in case of emotion dysregulation. More specifically, in response to stress, the brain automatically activates subcortical structures like amygdala which intensifies negative emotions and promotes repetitive negative thinking. While emotion dysregulation fuels stress through mechanisms like rumination, chronic stress leads to an imbalance in stress

regulation mechanisms due to the overactivation of subcortical and upper cortex structures and the overwhelming of the working memory with negative information. Therefore, the accumulation of stress and emotional burden due to emotion dysregulation brings about more stress in turn. Supporting that, the Emotion Dysregulation Model suggests that individuals who tend to use maladaptive emotion regulation strategies have difficulty managing emotions effectively, which can intensify and escalate stress levels over time (Suveg et al., 2010). As a specific type of stress, female gender role stress refers to the stress arising from failure to meet cultural norms and expectations regarding gender roles; according to Gender Role Strain Paradigm, both feminine and masculine gender roles imposed by society prescribe certain attitudes that may be contradictory and stressful for those who do not fit into these roles (Levant & Povell, 2017). It is expectable that in cultures with higher expectations regarding gender roles, there would be increased gender role stress. In the qualitative study conducted with Turkish adult women, they stated the lack of social support and overwhelming expectations regarding their roles in society as major sources of stress (Dikyol Mutlu et al., 2022).

Thirdly, the strong and negative correlation between emotion regulation difficulty and self-worth has been reflected in various studies in the literature (Antunes et al., 2021; Bai et al., 2016; Ronningstam, 2017). The relationship can be explained through the mediation of increased levels of anxiety or sadness caused by emotion regulation difficulty, which may diminish self-esteem in the end (Boemo et al., 2022). Those who have difficulty in emotion regulation may feel overwhelmed with negative emotions and may struggle to maintain their relationships and well-being (Daros et al., 2021). On the other hand, low self-worth may relate to emotion regulation difficulty through the individuals' lack of belief in self-sufficiency in coping with negative emotions. Therefore, in mutual reinforcement, while emotion regulation difficulty impacts self-perception, low self-worth may undermine emotion regulation abilities. In a study conducted with adolescents, emotion regulation difficulty was significantly and positively associated with loneliness scores (Shekhar & Pangotra, 2017).

Likewise, the negative association between perceived social support and difficulties in emotion regulation was in line with the literature; as such, perceived social support was presented as a significant moderator in the relationship between emotion regulation and quality of life in literature (Wu et al., 2020). The social background hypothesis posits the role of social context in moderating emotion regulation through adaptive or maladaptive strategies (Marrroquin & Nolen-Hoeksema, 2015); more specifically, individuals with high perceived social support are more likely to feel understood and cared for, which provides emotional

stability and paves the way for positive psychological changes; however, in case of low perceived social support, feelings of insecurity may lead to emotional suppression, imbalance, and emotion regulation difficulties (Marrroquin & Nolen-Hoeksema, 2015). Supporting that, expressive suppression, as a maladaptive emotion regulation strategy, is associated with higher depression and anxiety through low perceived social support while cognitive reappraisal, as an adaptive emotion regulation strategy, is associated with lower depression through high perceived social support (D'Arbeloff et al., 2018).

Supporting the findings, perceived social support has been highly associated with self-esteem and self-worth (Huang et al., 2022), among married women in Saudi Arabia (Kazi, 2021), among hospitalized patients due to burns in Iran (Gorbani et al., 2021), among pregnant women in Jordan (Al-Amer et al., 2022), among patients with chronic heart failure (Fivecoat et al., 2018) etc. Researchers have offered multiple explanations for the relation. For example, self-determination theory posits relatedness as one of the three basic psychological needs necessary for individual psychological health and well-being (Ryan & Deci, 2000). Social support can promote a sense of self-worth by fulfilling this need. On the other hand, social identity theory explains how individuals tend to perceive themselves in relation to others in a social context; according to the theory, individuals tend to identify with social groups in which they feel a sense of belongingness, social support, and self-worth to the degree that they conform to the group norms and values (Tajfel & Turner, 1979). Supporting these, the meta-analysis revealed the relationship between perceived social support and self-compassion with a moderate effect size (Wang & Lou, 2022). Therefore, the correlation between perceived social support and self-worth has a well-established ground in the literature.

The negative correlation between female gender role stress and self-worth was in line with the literature (Kargin et al., 2021), and this correlation within the sample of Turkish adult women can be explained through social psychological theories. As stated above, gender role stress arises from the discrepancy between the individual's attitudes and societal expectations regarding his/her gender. According to Sociocultural theory, cultural factors have a significant role in shaping individuals' self-perception; as such, individuals' sense of self-worth is tied to the internalization of and conformity to societal expectations. Likewise, Looking-Glass Self theory (Yeung &Martin, 2003) suggests that individuals built their self-perception through how they believe others perceive them; hence, in collective cultures, where one's place in the group is deemed very important, societal standards may become the criteria through which individuals determine their self-worth. As members of a collective culture, the participants may have been

believing that their worth is contingent upon fulfilling their roles in the social group by conforming to societal norms and expectations; thereby, failing to meet these expectations may lead to feelings of guilt, shame, and a low sense of self-worth. On the other hand, studies frequently point to the disadvantaged position of women in this relationship. In a study, decreased feelings of femininity, but not masculinity, were associated with lower self-esteem, especially for those who have higher gender role stress (Harrington et al., 2022).

Although there are few studies directly associating impulsivity with self-esteem, high impulsivity and low self-esteem frequently coexist in literature in predicting other mental health outcomes like pathological gambling (Choi & Kim, 2021; Rogier & Velotti, 2017; Suen et al, 2017), negative affect (Morley, 2017), or impulsive buying (Dhandra, 2020) etc. Specifically, the negative correlation between food-related impulsivity and self-worth can be explained through perceived loss of control, emotional eating, or body dissatisfaction. Food-related impulsivity is associated with a perceived loss of control (Waltman et al., 2021), which is in turn associated with low self-esteem (Goldschmidt et al., 2015). On the other hand, low self-worth is associated with body dissatisfaction (Soohinda et al., 2019), and emotional eating (Izydorczyk et al., 2019), while they are associated with impulsivity (Benzerouk et al., 2021). Therefore, food-related impulsivity may have been indirectly related to self-worth in the analysis.

Lastly, perceived social support was negatively correlated with female gender-role stress. Considering the studies and theories given in relation to gender-role stress above, this relationship can be interpreted as unsurprising. As explained above, gender-role stress arises from nonconformity to societal expectations regarding one's gender. Since individuals face societal expectations through their social groups, their lack of support may make traditional gender roles more challenging, and deviating from these roles may become more stressful. In a meta-analysis including data from 58 countries, work-family conflict was moderated by culture, as such the conflict rates were higher in collectivist countries with increased gender inequality and gender role expectations (Allen et al., 2020).

4.2 Discussion of the Group Comparisons

In a series of multiple analyses of variance and independent samples t-tests, changes in psychological variables (food-related impulsivity, emotion regulation difficulty, perceived social support, female gender role stress, self-worth) across the levels of demographic variables

(age, education, working status, household income, BMI, marital status) were examined. In the analyses, age has a statistically significant effect on emotion regulation difficulty, female gender role stress, and the number of weight cycles. Accordingly, as the age increases from 19-25 to 36-45, emotion regulation difficulty decreases; in other words, older participants have less difficulty in emotion regulation, which is in line with the literature (Isaacowitz, 2022). Socioemotional selectivity theory explains this by older adults' focusing on more positive aspects of life because of their increased perception of limited time (Carstenson et al., 1999). On the other hand, their perceived female gender role stress increases with age. Therefore, even though they get better at regulating their emotions by age, their perception of female gender role stress or the discrepancy between societal gender role expectations and their fulfillment of these expectations also increases. This relationship may be explained by the increased conflict of roles expected from older women; since older women are more likely to have multiple roles like caregiver and homemaker as well as employee, they are more likely to face stress due to work-family conflict (Chen et al., 2022). Moreover, societal expectations toward femininity may force women to take good care of their physical appearance whiles fulfilling other roles, which may lead to feeling overwhelmed for those who have multiple roles.

In terms of weight cycling, older adult women have an increased number of weight cycles in the analysis, which is in line with other studies examining the role of age in weight regain or weight cycling in the general population (Koutras et al., 2021; Kakinami et al., 2020), and among patients with obesity (Yang et al., 2021; Monaco-Ferreira & Leandro- Merhi, 2017). However, the result contradicts the systematic review including studies from 2006 to 2016 examining the predictors of WLM (Varkevisser et al.,2018) and the population-based study examining lifetime weight cycling (Quinn et al., 2020).

The positive relationship between age and weight cycling can be understood through an increased number of stressful life experiences or simply going through different stages of life that may result in changes in eating behavior, or activity levels, as well as age-related physiological changes that complicate weight loss maintenance. Ageing is associated with slower metabolism which arises from a reduced capacity for skeletal muscle protein synthesis and makes it difficult to burn calories and lose weight. Therefore, even though the previous physical activities are preserved in older ages, people tend to have higher weights due to slower metabolism. Furthermore, hormonal changes, brought about by aging, can affect appetite and energy levels which makes it more difficult to adhere to an exercise routine and a healthier diet. It has been established that older adults tend to engage in less physical activity than their

younger counterparts, and that physical activity levels tend to decline with age (Suryadinata et al., 2020; TSI, 2021). Therefore, the combination of a slower metabolism and limited physical activity may pave the way for a high prevalence of sarcopenic obesity among older adults, which arises with a significant amount of muscle loss along with increased visceral fat accumulation (Cruz-Jentoft et al., 2014). Hence, the relationship between weight cycling and age can be elucidated through changes in body composition and lifestyle.

In the second analysis, education level has a statistical effect on perceived social support, which arises from the difference between those who have at least a university degree and those who do not have a university degree. That may be understood by the gains provided by university education like a broader social network, enhanced social skills, or upward social mobility. Education level contributes to arriving at higher socioeconomic positions that may provide improved social resources and more supportive environments (Forrest et al., 2011).

Supporting the previous statements, in the third analysis, household income had a statistical effect on perceived social support. As the income increases from "below the hunger threshold" to "above the hunger threshold" and to "above the poverty line", perceived social support increases. Several theories explain the relationship between education level, household income, and perceived social support. According to social capital theory, social support is a form of social capital, and higher education and higher income levels contribute greatly to accessing and maintaining social connections (Lindström, 2022). Likewise, social network theory emphasizes that both higher education levels and increased household income provide a broader social network in which individuals' perceived social support is enhanced (Valente & Pitts, 2017). Therefore, perceived social support can be understood in a close relationship with a socioeconomic status that is largely affected by education level and income.

On the other hand, in literature, education level and socioeconomic status were indirectly related to weight regain or BMI through the mediation of environmental factors like food environment, poverty, or chronic stress in previous studies (Koutras et al., 2021; Watts et al., 2016; Zhang et al., 2021; Ball & Crawford, 2005; Newton et al., 2017; Loman et al., 2013). Therefore, that may be more appropriate to analyze the effect of education and household income on weight cycling in relation to other factors that have an impact on the physical environment.

In the fourth analysis, perceived social support and female gender role stress statistically changes according to working status. While employed women have higher perceived social support than unemployed women, those who do not work have higher female gender role stress compared to those who work. For those who employed, perceived social support can be explained with the theories below, since employment provides broader social context gained through the working environment, and an increased life satisfaction (Cimarolli & Wang, 2006; Perreault et al., 2016) even among elderly (Aquino et al., 1996). Considering the negative relationship between female gender role stress and perceived social support, employed participants may feel decreased gender role stress by increased social support. On the other hand, increased gender role stress among unemployed women may result from their increased perception of the expectations toward being a competent homemaker, caregiver, as well as a good wife due to economic dependence, or limited autonomy. Lack of validation from society due to inability to fulfilling these roles may bring about increased gender role stress among unemployed women. Moreover, based on the qualitative study conducted with Turkish adult women, being a housewife is associated with a life restricted mostly to home and traditional gender roles; in these life conditions, fulfilling societal expectations toward gender roles may become the prior source of self-perception. Therefore, increased female gender role stress among unemployed women can be examined through the lenses of Turkish culture in this study.

In the fifth analysis, BMI value has a statistical effect on female gender role stress and number of weight cycles. As the body mass index increases from underweight to normal, overweight, and obese, female gender role stress increases. Although there is only one study examining directly this relationship (Susanszky & Döbrössy, 2019), there are various studies investigating higher body dissatisfaction due to increased importance of appearance among women in general (Quittkatt et al., 2019), and among women with high BMI value (Runfola et al., 2013; Weinberger et al., 2016). “Ideal appearance” is one of the prominent expectations of society from female gender, which results in increased body dissatisfaction to the degree that they diverge from this “ideal look”. Therefore, it can be expected that those who diverge from “ideal thin look” tend to experience higher gender role stress.

On the other hand, as expected, number of weight cycles increases as the BMI value increases. In literature, BMI has not only been associated with an experience of weight cycling but the number of lifetime weight cycles (Quinn et al., 2020; Allen et al., 2021; El Ghoch et al., 2018; Koutras et al., 2021; Torrego-Ellarucia et al., 2021). There are certain mechanisms that may explain the linear relationship between BMI value and the number of weight cycles. One

of those is metabolic adaptation. Weight loss brings about a decreased metabolic rate, which leads to a lower weight and fat mass loss in the later parts of the low-energy diet (Martins et al., 2021). A recent study provided a mathematical model explaining how weight cycling contributes to and maintains obesity through the mechanism "body composition autoregulation"; according to the authors, when people lose weight, their metabolic rates tend to decrease while their hunger levels tend to increase due to changes in body composition towards a higher proportion of fat tissue, which eventually makes it more difficult to lose weight along with making it easier to regain the weight (Jacquet et al., 2020). Moreover, "adipocyte memory" or "metabolic signature" reflects the lasting effects of obesity even after weight loss; according to an experimental study, changes in fat cells during weight gain remain persistent after weight loss and pave the way for weight regain through easier storage of fat mass (Hernandez-Carretero et al., 2018). In fact, they associated this metabolic memory with the activation of *ATP6v0a1* gene (Zapata et al., 2022).

In addition, hormonal imbalance contributes to weight regain after weight loss; more clearly, hormones that regulate appetite and food intake like leptin or ghrelin tend to decrease or increase during weight loss in the way that they trigger hunger and food intake, which complicates weight loss maintenance (El Ansari & Elhag, 2021). Likewise, cortisol is known to act on glucocorticoids in response to stress and increase the consumption of high-fat food. Considering the higher tendency to have higher cortisol levels among people with obesity, stress during the weight loss process may be more difficult to cope with, which eventually makes them more prone to weight regain through the cortisol response to stress (Hewagalamulage et al., 2016). In line with this, emotion regulation difficulty or emotional eating, as well-detailed above, can be relevant mechanisms in this relationship.

In the last analysis, marital status had a statistical effect on emotion regulation difficulty, self-worth, and the number of weight cycles. Single women have higher emotion regulation difficulty than their married counterparts. This result may be explained through social support they receive from their partners; however, perceived social support did not statistically change between married and single women. Moreover, while studies focus on the positive effect of emotion regulation ability on marital satisfaction, there are limited number of studies examining directly the relationship between marital status and emotion regulation ability. On the other hand, this relationship may be examined by considering age; since married women are likely to be older than single women, age may be an important factor in emotion regulation apart from marital status based on the previous analyses.

On the other hand, married women have higher self-worth than single women in this study, which is in line with literature reflecting that both men and women rely on relationships for self-worth (Kwang et al., 2013; Horberg & Chen, 2010). Increased self-worth among married individuals can be examined through social comparison theory, considering the importance of one's place in society in collective cultures like Turkey (Chung & Mallery, 1999). Social comparison theory emphasizes that individuals' self-perception and self-worth are constructed through comparison of themselves to the others (Festinger, 1954); in case of marriage, people may tend to attribute their self-worth to being married to the degree that marriage is deemed important by societal expectations and cultural values.

However, despite the results above on behalf of married women, they tend to have increased number of weight cycles compared to single women, which is in line with previous studies that have shown a positive relationship between being married and increased BMI (Dinour et al., 2012; Sobal et al., 2003; Teachman, 2016; Sato, 2020), and weight regain (Koutras et al., 2021). This result may be explained in association with changes in lifestyle after getting married. In an adjustment to a married life, individuals may need to change priorities in accordance with their partners and in accordance with household responsibilities, mostly to women's disadvantage (Modiri & Sadeghi, 2021). In a study comparing married and single individuals in terms of TV watching and physical activity, married women were less likely to physical activity more than 150 min of activity per week than single women (Cavazzotto et al., 2022). On the other hand, marriage brings about emotional and psychological changes that may mitigate or induce stress depending on marital satisfaction (Falconier et al., 2015).

4.3 Discussion of the Regression Analysis

With the aim of investigating the predictive value of psychological factors on the number of lifetime WC, a hierarchical regression analysis was conducted. In the analysis, age, BMI, food-related impulsivity, and self-worth significantly predicted the number of lifetime WC, while emotion regulation difficulty, perceived social support, and female gender role stress did not have a significant prediction value. These results are discussed in detail in light of the existing literature in this chapter.

In the analyses, food-related impulsivity predicted the number of lifetime weight cycles among Turkish adult women after controlling for age. Since weight cycling is a relatively new issue in obesity, there are very few studies examining this relationship. However, the path from

food-related impulsivity to the number of weight cycles can be analyzed through the difficulty in impulse control in weight gain, weight loss, and weight loss maintenance periods. As stated above, individuals need to cope with tension effectively by regulating eating behavior and their relationship with food to maintain weight loss. However, those with higher impulsivity may face increased difficulty during this period. In a population study conducted with more than 50 thousand adults, impulsivity was associated with snacking behavior (Benard et al., 2018). Impulsivity has been closely associated with inhibitory control in behavior and impulse regulation. Neuroimaging studies examining this relationship reflect increased impulsive behavior patterns like unhealthy eating in the presence of inhibitory control deficiency (Jasinska et al., 2012; Julio et al., 2019; Tremblay et al., 2020; Wegmann et al., 2020). In the meta-analysis of neurocognitive studies, significantly impaired inhibitory control was found among both adults and children with obesity, which is associated with lower prefrontal cortex activity that is responsible for planning and decision-making (Lavagnino et al., 2016). Supporting that, studies examining delay discounting among individuals with obesity reflect the difficulty in resisting immediate rewards over positive future outcomes (Miranda-Olivos et al., 2021).

In previous studies, food-related impulsivity or loss of control eating predicted increased BMI (Garcia-Garcia et al., 2022; Meule & Blechert, 2016; Bénard et al., 2017; Meyre et al., 2019; Giel et al., 2017), weight regain (Karmali et al., 2013; Bajerska et al., 2020; Neve & Isaacs, 2022; Yeo et al., 2021), and weight cycling (Varkevisser et al., 2019; Johnson & Annesi, 2018). In a case-control study, food addiction was associated with increased impulsivity and more frequent weight cycling (Sönmez-Güngör et al., 2021). Likewise, in a cross-sectional study, impulsivity was associated with decreased odds of weight loss maintenance (Koutras et al., 2021). Based on the findings and the previous literature, food-related impulsivity can be interpreted as a risk factor for increased BMI and the inability to sustain weight loss.

Therefore, in the relationship between food-related impulsivity and the number of weight cycles, a deficit in inhibitory control mechanisms can be an important element. In an intervention program to improve inhibitory control and emotion regulation abilities, there was a significantly greater weight reduction and decreased number of binge episodes compared to the pre-intervention period (Preuss et al., 2017). On the other hand, according to Impulsivity-Compulsivity Axis model, impulsivity and compulsivity are two ends of one spectrum (Everitt & Robins, 2005; Cassu-Ponsati et al., 2021); from this point of view, it may be plausible for certain individuals to conduct compulsive restrictive diets followed by impulsive eating periods

(Carlson, 2008; Forsen Mantilla et al., 2022). Thereby, subsequent periods of eating and dieting may lead to weight cycling.

Secondly, self-worth had a predictive value on the number of weight cycles in regression analysis, which is in line with the literature. In previous studies, self-referential concepts like body image, self-worth, self-esteem, or self-efficacy were associated with weight regain (Athanasiadis et al., 2021; Marion, 2018; Varkevisser et al., 2019; Johnson & Annesi, 2018). In a comprehensive review including studies from 1960 to 2008, sense of self-worth and self-efficacy were positively associated with weight loss maintenance (Cochrane, 2008). Likewise, in another review, weight maintenance was associated with self-efficacy among other factors (Elfhag & Rossner, 2005). The link between self-worth or self-perception and weight cycling can be explained through the relationship between self-worth and obesity explained in previous chapters. Accordingly, a high BMI may bring about body dissatisfaction and a reduced sense of self-worth.

In the third path, emotion regulation difficulty did not have a prediction value over the number of WC with or without the mediation of BMI after controlling for age. As explained in detail in previous chapters, literature studies suggest a link between emotion regulation difficulty and weight regain (Konttinen et al., 2019; *Karmali et al., 2013; Ünal, 2016; Thom et al., 2020; Fisher et al., 2021; Youssef et al., 2021; Johnson & Annesi, 2018; Thom et al., 2021; Ingels & Zizzi, 2018*), or weight loss maintenance (Risica et al., 2021). Therefore, our findings are not in line with literature. Moreover, based on the literature, it was expected that emotion regulation difficulty has a correlation with BMI value; however, the correlation between these variables was not statistically significant. While this finding suggests that there is insufficient evidence to infer a relationship between the predictor and the outcome variable, that does not necessarily prove the absence of a relationship.

In the fourth path, perceived social support did not have a significant prediction value over the number of weight cycles, which is not in line with the findings of previous studies suggesting the association between lack of support and difficulty in weight loss maintenance (Middleton et al., 2012). While this finding does not necessarily prove the absence of the relationship, that can be explained by the validity of the measurement. In this study, participants were asked about the overall support they have in their lives, unlike the previous studies which focus on support they receive during weight loss. Therefore, social and professional support

during their weight loss processes and the general sense of social support may not refer to the same constructs for the participants. In further studies that may be taken into consideration.

Lastly, in the fifth path, female gender role stress did not have a significant prediction value over the number of weight cycles. As explained in previous chapters, chronic stress has a close relationship with emotional eating, which in turn links to obesity and difficulty in weight loss maintenance. This link may not be built directly between female gender role stress and the number of weight cycles. However, the absence of the relationship in the findings does not mean the absence of it altogether, considering the correlation of female gender role stress with BMI and the number of weight cycles. Therefore, while this finding suggests that there is insufficient evidence to infer a relationship between the predictor and the outcome variable, that does not necessarily prove the absence of a relationship.

4.4 Implications

Despite the policies and intervention programs at the global level, prevalence rates of the obesity epidemic have been substantially increasing around the world. In this struggle, in which Turkey has a leading position in both childhood and adult obesity rates among European countries, weight cycling is a major obstacle in the treatment of obesity. Considering the limited research on weight cycling in the scope of obesity in literature, this study aimed to understand the predictive value of psychological factors that have been most frequently associated with weight regain, as well as the demographic variables, on weight cycling, among Turkish adult women.

For these purposes, this study has shed light on the predictive value of food-related impulsivity, emotion regulation difficulty, perceived social support, female gender role stress, and self-worth on the frequency of weight cycles in general population of adult women. Understanding the role of psychological factors in subsequent cycles of weight loss and regain is expected to provide a better and more comprehensive building of strategies for coping with the development and maintenance of obesity. Accordingly, this study revealed the significant role of food-related impulsivity and self-worth in predicting Turkish adult women's tendency to weight regain. These results may pave the way for intervention programs that aim to manage impulsivity, and low self-esteem among women in the struggle towards obesity.

This study represents a noteworthy contribution to the existing literature of food-related impulsivity in the context of obesity and weight cycling among Turkish adult women. Moreover, this study provided a significant contribution to the literature by revealing the relationship between self-worth and cycles of weight loss and regains through body mass index. In weight management, culture-specific intervention programs have been proven more effective. Considering the engagement of culture and female gender role stress, in further studies, the role of gender role stress on eating behavior can be further investigated, and intervention programs built upon the management of female gender role stress can be developed to struggle with obesity in a culture-specific way..

On the other hand, while there are a limited number of studies investigating weight cycling in nonclinical population, this study is the first to investigate the associates and describe the frequencies of weight cycling among Turkish adult women.

4.5 Limitations and Further Studies

Along with the contributions, this thesis study has certain limitations. First of all, the participants were included through convenience sampling rather than random sampling, which may interfere with the generalizability of the results even though the study was conducted in general population. Secondly, the data were collected as self-reports of the participants, which may be considered a limitation to the reliability of the results.

In demographics, participants' marital status was categorized as married and single; the other options like divorce or cohabitation were not detailed; which may have misled the results. In addition, household income level was based on the Turkish Statistical Institute's data of hunger threshold and poverty line. Because of the recent problems Turkey had faced at that time, there was a significant amount of gap between the hunger threshold and poverty line in terms of Turkish Lira. Therefore, the analyses including household income level may not reflect subgroups within the "above hunger threshold" and "below poverty line" group.

On the other hand, in this study, BMI value was used as the source of obesity to explain the associations between obesity and demographic factors, by its convenience and accessibility Considering the limited reliability of BMI value compared to waist circumference in explaining obesity and its outcomes, in further studies, waist circumference could be referred.

Lastly, as explained above, weight cycling does not have an established operational definition yet; in this study, it has been defined based on the previous studies in literature, which may interfere with the reliability of the measurement of weight cycling. In previous studies, weight cycling was defined as a set of intentional weight loss and unintentional weight regain of 5 kg or more. This definition can pose problems in two respects: firstly, 5 kg may correspond to 10% of body weight for a person while it may refer to 2% for another person, therefore losing or regaining 5 kg does not mean the same loss according to the established body size; secondly, the rate at which this amount of weight is lost and regained can hold diverse implications concerning the individual experiencing it. In future studies, weight cycling can be defined as the process whereby an individual losses and regains a specific percentage of body weight within a defined timeframe; such a definition may provide a wealth of additional information regarding individuals experiencing weight cycling. Moreover, employing a longitudinal research design instead of a cross-sectional may further enrich the findings.

5. CONCLUSION

Obesity has become a public health concern that causes a significant burden to individuals and societies. It was predicted that Turkey will be in the leading position in obesity among European countries by 2030. Although exercise and a healthy diet are important in the struggle against obesity, most people experience weight regain in the long run. For this reason, weight cycling is a major issue to overcome in the treatment of obesity.

While obesity has been defined as a multifactorial problem caused by the interaction of genetic, environmental, and psychosocial factors, studies investigating psychosocial factors were insufficient compared to the other factors. Accordingly, this study was conducted with the aim of understanding the predictive value of food related impulsivity, emotion regulation difficulty, perceived social support, female gender role distress, and self-worth on the number of lifetime weight cycles among Turkish adult women. In the analyses, age, BMI, food-related impulsivity, and self-worth significantly predicted the number of lifetime WC, while emotion regulation difficulty, perceived social support, and female gender role stress did not have a significant prediction value. These findings are expected to contribute to the understanding of weight management and eating behavior among Turkish adult women.

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APPENDICES

APPENDIX-I INFORMED CONSENT

Bu çalışma, Etlik Zübeyde Hanım Kadın Hastalıkları Eğitim Araştırma Hastanesi'nde görevli Psikolog Ayşe Mutlu tarafından Ankara Yıldırım Beyazıt Üniversitesi'ndeki Psikoloji Yüksek Lisans eğitimi kapsamında Doç. Dr. Hüdayar CİHAN danışmanlığında yürütülmektedir.

Çalışmanın amacı kilo verme ve kilo alma davranışını etkileyen muhtemel faktörlerin belirlenmesi, ve bu doğrultuda etkin kilo kontrol programlarının oluşturulmasının sağlanmasıdır. İleride oluşturulabilecek bu müdahale programlarının ortaya konulmasında, paylaşacağınız bilgiler oldukça önemli bir yer tutmaktadır.

Çalışma boyunca sizden kimliğinizi belirleyecek herhangi bir beyanda bulunmanız beklenmemektedir. Dolayısıyla, sağlayacağınız bilgiler araştırmacıya anonim olarak ulaşacaktır. Buna rağmen, katılımcılar tarafından sağlanan ham veriler yalnızca araştırmacının ulaşımında olacaktır.

Çalışma farklı alt bölümlerden oluşmakla birlikte toplamda yaklaşık olarak 15 dakika sürmesi planlanmaktadır. Bir sonraki bölüme geçebilmek için, o sayfayı tamamlamanız beklenmektedir.

Çalışma tamamen gönüllülük esasına dayanmakta olup, soru veya şıklardan rahatsız olduğunuz noktada çalışmayı terk etme hakkına sahipsiniz. Ancak yukarıda belirtildiği üzere, katılımınız ve sağlayacağınız bilgilerle katacağınız zenginlik oldukça önemli.

Çalışmaya dair herhangi bir soru ve/veya önerinizde araştırmacıya aysedikyol@gmail.com adresinden veya 03125674774 numaralı telefondan ulaşabilirsiniz.

Yukarıda sağlanan bilgileri okudum, anlaşılmayan noktaları araştırmacı ile netleştirdim. Çalışmaya gönüllü olarak katılmayı ve bilgilerimin, gizlilik esasına dayanarak, kullanılmasını onaylıyorum.

APPENDIX-II DEMOGRAPHICS FORM

1. Yaşınız:
2. Medeni Durumunuz: ( ) Evli ( ) Bekar
3. Mesleğiniz: ……
4. En uzun süreyle yaşadığınız yeri yazınız: .....
5. Şu anda kim(lerle) yaşıyorsunuz:

☐ Yalnız ☐ Çekirdek aile (Bekar- anne, baba)

☐ Çekirdek aile (Evli- eş ve çocuklar) ☐ Büyük aile (eş, çocuklar, anneanne/babaanne/dede)

6. Eğitim durumunuz (en son bitirdiğiniz okul):

☐ İlkokul ☐ Ortaokul ☐ Lise

☐ Üniversite ☐ Yüksek Lisans/Doktora

7. Toplumun geneline göre ailenizin aylık ortalama gelir düzeyi?

☐ <4500 TL ☐ 4500 TL- 16.000 TL ☐ 16.000 TL <

8. Boyunuz: ……...cm 9. Kilonuz:…....kg

10: Daha önce hiç kendi isteğinizle 5 kg veya daha fazlasını verdiniz mi?

☐ Evet ☐ Hayır

11. Evet ise; bu süreçte hangi yöntemleri kullandınız?.....

12. Evet ise; bu süreci kaç kez yaşadınız? ……..

13. Daha önce hiç kilo verdikten sonra 5 kg veya daha fazlasınız aldığınız oldu mu?

☐ Evet ☐ Hayır

14. Evet ise; bu süreci (kilo verdikten sonra yeniden almayı) kaç kez yaşadınız?

APPENDIX-III DUYGU DÜZENLEME GÜÇLÜĞÜ ÖLÇEĞİ- KISA FORM (DERS-16)

Aşağıdaki ifadelerin size ne sıklıkla uyduğunu, her ifadenin yanında yer alan 5 dereceli ölçek üzerinden değerlendiriniz. Her bir ifadenin altındaki 5 noktalı ölçekten, size uygunluk yüzdesini de dikkate alarak, yalnızca bir tek rakamı yuvarlak içine alarak işaretleyiniz.

	Hemen hemen hiç (% 0-% 10	Bazen (% 11-% 35)	Yaklaşık Yarı yarıya (% 36-% 65)	Çoğu zaman (% 66-% 90)	Hemen hemen her zaman (% 91-% 100)
1. Duygularıma bir anlam vermekte zorlanırım.					
2. Ne hissettiğim konusunda karmaşa yaşarım.					
3. Kendimi kötü hissettiğimde işlerimi bitirmekte zorlanırım.					
4. Kendimi kötü hissettiğimde kontrolden çıkarım.					
5. Kendimi kötü hissettiğimde uzun süre böyle kalacağına inanırım.					
6. Kendimi kötü hissetmenin yoğun depresif duyguyla sonuçlanacağına inanırım.					
7. Kendimi kötü hissederken başka şeylere odaklanmakta zorlanırım.					
8. Kendimi kötü hissederken kontrolden çıktığım korkusu yaşarım.					
9. Kendimi kötü hissettiğimde bu duygumdan dolayı kendimden utanırım.					
10. Kendimi kötü hissettiğimde zayıf biri olduğum duygusuna kapılırım.					
11. Kendimi kötü hissettiğimde davranışlarımı kontrol etmekte zorlanırım.					
12. Kendimi kötü hissettiğimde daha iyi hissetmem için yapabileceğim hiçbir şey olmadığına inanırım.					
13. Kendimi kötü hissettiğimde böyle hissettiğim için kendimden rahatsız olurum.					
14. Kendimi kötü hissettiğimde kendimle ilgili olarak çok fazla endişelenmeye başlarım.					
15. Kendimi kötü hissettiğimde başka bir şey düşünmekte zorlanırım.					
16. Kendimi kötü hissettiğimde duygularım dayanılmaz olur.					

APPENDIX -IV BENLİK SAYGISI DEĞERLENDİRME ÖLÇEĞİ

Aşağıdaki cümleler kendiniz hakkında hissettiklerinizi ölçmek için düzenlenmiştir. Size uygun şıkkı işaretleyiniz.

Olumlu Boyutlar

1) Diğer insanlarla birlikteyken onların benimle olmaktan hoşnut olduklarını hissederim.

a)Hiçbir zaman **b)**Nadiren **c)**Zamanın az bir kısmında **d)**Bazı zamanlar

e)Zamanın önemli bir kısmında **f)**Çoğu zaman **g)**Her zaman

2) İnsanların benimle konuşmaktan gerçekten hoşlandıklarını hissederim.

a)Hiçbir zaman **b)**Nadiren **c)**Zamanın az bir kısmında **d)**Bazı zamanlar

e)Zamanın önemli bir kısmında **f)**Çoğu zaman **g)**Her zaman

3) Arkadaşlarımın beni ilgi çekici bulduklarını hissederim.

a)Hiçbir zaman **b)**Nadiren **c)**Zamanın az bir kısmında **d)**Bazı zamanlar

e)Zamanın önemli bir kısmında **f)**Çoğu zaman **g)**Her zaman

4) İnsanların benimle birlikteyken iyi zaman geçirdiklerini hissederim.

a)Hiçbir zaman **b)**Nadiren **c)**Zamanın az bir kısmında **d)**Bazı zamanlar

e)Zamanın önemli bir kısmında **f)**Çoğu zaman **g)**Her zaman

5) Arkadaşlarım bana çok değer verir.

a)Hiçbir zaman **b)**Nadiren **c)**Zamanın az bir kısmında **d)**Bazı zamanlar

e)Zamanın önemli bir kısmında **f)**Çoğu zaman **g)**Her zaman

6) İnsanlarla geçinme konusunda kendime güvenirim.

a)Hiçbir zaman **b)**Nadiren **c)**Zamanın az bir kısmında **d)**Bazı zamanlar

e)Zamanın önemli bir kısmında **f)**Çoğu zaman **g)**Her zaman

7) Başka insanlar üzerinde iyi bir izlenim bıraktığımı hissederim.

a)Hiçbir zaman **b)**Nadiren **c)**Zamanın az bir kısmında **d)**Bazı zamanlar

e)Zamanın önemli bir kısmında **f)**Çoğu zaman **g)**Her zaman

8) İyi bir espri anlayışım olduğunu hissederim.

a)Hiçbir zaman **b)**Nadiren **c)**Zamanın az bir kısmında **d)**Bazı zamanlar

e)Zamanın önemli bir kısmında **f)**Çoğu zaman **g)**Her zaman

9) Çok becerikli bir kişi olduğumu hissederim.

a)Hiçbir zaman **b)**Nadiren **c)**Zamanın az bir kısmında **d)**Bazı zamanlar

e)Zamanın önemli bir kısmında **f)**Çoğu zaman **g)**Her zaman

10) İstediğim zaman yeni ilişkiler başlatabileceğime dair güvenim tamdır.

a)Hiçbir zaman **b)**Nadiren **c)**Zamanın az bir kısmında **d)**Bazı zamanlar

e)Zamanın önemli bir kısmında **f)**Çoğu zaman **g)**Her zaman

Olumsuz Boyutlar

11) Başka biri olmayı isterdim.

a)Hiçbir zaman **b)**Nadiren **c)**Zamanın az bir kısmında **d)**Bazı zamanlar

e)Zamanın önemli bir kısmında **f)**Çoğu zaman **g)**Her zaman

12) Başka insanlara göre kendimi daha aşağıda hissederim.

a)Hiçbir zaman **b)**Nadiren **c)**Zamanın az bir kısmında **d)**Bazı zamanlar

e)Zamanın önemli bir kısmında **f)**Çoğu zaman **g)**Her zaman

13) Başkalarına aptal gibi göründüğümü hissederim.

a)Hiçbir zaman **b)**Nadiren **c)**Zamanın az bir kısmında **d)**Bazı zamanlar

e)Zamanın önemli bir kısmında **f)**Çoğu zaman **g)**Her zaman

14) Bu şekilde biri olduğum için kendime kızarım.

a)Hiçbir zaman **b)**Nadiren **c)**Zamanın az bir kısmında **d)**Bazı zamanlar

e)Zamanın önemli bir kısmında **f)**Çoğu zaman **g)**Her zaman

15) Başkalarının benden çok daha iyi şeyler yaptığını hissederim.

a)Hiçbir zaman **b)**Nadiren **c)**Zamanın az bir kısmında **d)**Bazı zamanlar

e)Zamanın önemli bir kısmında **f)**Çoğu zaman **g)**Her zaman

16) Kendimden utanırım.

a)Hiçbir zaman **b)**Nadiren **c)**Zamanın az bir kısmında **d)**Bazı zamanlar

e)Zamanın önemli bir kısmında **f)**Çoğu zaman **g)**Her zaman

17) Başkaları gibi olabilseydim o zaman kendimi daha iyi hissederdim.

a)Hiçbir zaman **b)**Nadiren **c)**Zamanın az bir kısmında **d)**Bazı zamanlar

e)Zamanın önemli bir kısmında **f)**Çoğu zaman **g)**Her zaman

18) Başka insanlarla birlikteyken ortadan kaybolmayı isterdim.

a)Hiçbir zaman **b)**Nadiren **c)**Zamanın az bir kısmında **d)**Bazı zamanlar

e)Zamanın önemli bir kısmında **f)**Çoğu zaman **g)**Her zaman

19) Yaptığım şeylerde başarısız olabileceğimi hissederim.

a)Hiçbir zaman **b)**Nadiren **c)**Zamanın az bir kısmında **d)**Bazı zamanlar

e)Zamanın önemli bir kısmında **f)**Çoğu zaman **g)**Her zaman

20) Başkalarına kıyasla daha fazla itilip kakıldığımı hissederim.

a)Hiçbir zaman **b)**Nadiren **c)**Zamanın az bir kısmında **d)**Bazı zamanlar

e)Zamanın önemli bir kısmında **f)**Çoğu zaman **g)**Her zaman

APPENDIX-V BESİN GÜCÜ ÖLÇEĞİ

.	Kesinlikle Katılmıyorum	Katılmıyorum	Fikrim Yok	Katılıyorum	Kesinlikle Katılıyorum
1. Fiziksel olarak aç olmadığım zamanlarda bile kendimi yiyecek düşünürken buluyorum					
2. Yemek yemek, başka bir şey yapmaktan daha çok zevk veriyor.					
3. Sevdiğim bir yemeği gördüğüm ya da yemeğin kokusunu aldığım zaman, biraz yemek için güçlü bir dürtü hissederim.					
4. Bulunduğum ortamda sevdiğim yağlı/şişmanlatıcı yiyecekler varsa, kendimi tatlarına bakmak için durdurmakta zorlanıyorum.					
5. Besinlerin üzerimdeki gücünü düşünmek oldukça korkutucu					
6. Lezzetli bir yemeğin hazırda var olduğunu bildiğimde, onu yeme konusunda kendime engel olamıyorum.					
7. Bazı besinlerin tadını o kadar çok seviyorum ki, benim için zararlı olduklarını bilsem bile onları yemeyi bırakamıyorum.					
8. Çok sevdiğim bir besini tatmadan önce, o besinle ilgili yoğun bir beklenti içerisine giriyorum.					
9. Lezzetli bir yemek yediğimde, tadının ne kadar iyi olduğuna çok odaklanıyorum					
10. Bazı zamanlarda günlük aktiviteler yaparken, aniden yemek yeme isteği duyuyorum (belirgin bir sebep yokken)					
11. Diğer insanlara göre yemek yemekten daha fazla zevk aldığımı düşünüyorum.					
12. Biri bana çok güzel bir yemeği tarif ettiğinde, bir şeyler yeme isteği duyuyorum					
13. Aklımın sürekli yemekle meşgul olduğunu düşünüyorum.					
14. Yediğim besinlerin mümkün olduğunca lezzetli olması benim için çok önemlidir.					
15. Çok sevdiğim bir besini yemeden önce ağzımın sulandığını hissediyorum.					

APPENDIX-VI ÇOK BOYUTLU ALGILANAN SOSYAL DESTEK ÖLÇEĞİ

Aşağıda 12 cümle ve her bir cümle altında da cevaplarınızı işaretlemeniz için 1'den 7'ye kadar rakamlar verilmiştir. Her cümlede söylenenin sizin için ne kadar çok doğru olduğunu veya olmadığını belirtmek için o cümle altındaki rakamlardan yalnız bir tanesini daire içine alarak içine alarak işaretleyiniz. Bu şekilde 12 cümlenin her birine bir işaret koyarak cevaplarınızı veriniz. Lütfen hiçbir cümleyi cevapsız bırakmayınız. Sizce doğruya en yakın olan rakamı işaretleyiniz.

1. Ailem ve arkadaşlarım dışında olan ve ihtiyacım olduğunda yanımda olan bir insan (örneğin, flört, nişanlı, sözlü, akraba, komşu, doktor…) var.
Kesinlikle hayır 1, 2, 3, 4, 5, 6, 7 kesinlikle evet.
2. Ailem ve arkadaşlarım dışında olan ve sevinç ve kederlerimi paylaşabileceğim bir insan (örneğin, flört, nişanlı, sözlü, akraba, komşu, doktor…) var.
Kesinlikle hayır 1, 2, 3, 4, 5, 6, 7 kesinlikle evet.
3. Ailem (örneğin, annem, babam, eşim, çocuklarım, kardeşlerim) bana gerçekten yardımcı olmaya çalışır.
Kesinlikle hayır 1, 2, 3, 4, 5, 6, 7 kesinlikle evet.
4. İhtiyacım olan duygusal yardımı ve desteği ailemden (örneğin, annem, babam, eşim, çocuklarım, kardeşlerimden) alırım.
Kesinlikle hayır 1, 2, 3, 4, 5, 6, 7 kesinlikle evet.
5. Ailem ve arkadaşlarım dışında olan ve beni gerçekten rahatlatan bir insan (örneğin, flört, nişanlı, sözlü, akraba, komşu, doktor…) var.
Kesinlikle hayır 1, 2, 3, 4, 5, 6, 7 kesinlikle evet.
6. Arkadaşlarım bana gerçekten yardımcı olmaya çalışırlar.
Kesinlikle hayır 1, 2, 3, 4, 5, 6, 7 kesinlikle evet.
7. İşler kötü gittiğinde arkadaşlarıma güvenebilirim.
Kesinlikle hayır 1, 2, 3, 4, 5, 6, 7 kesinlikle evet.
8. Sorunlarımı ailemle (örneğin, annem, babam, eşim, çocuklarım, kardeşlerimle) konuşabilirim.
Kesinlikle hayır 1, 2, 3, 4, 5, 6, 7 kesinlikle evet.
9. Sevinç ve kederlerimi paylaşabileceğim arkadaşlarım var.
Kesinlikle hayır 1, 2, 3, 4, 5, 6, 7 kesinlikle evet.
10. Ailem ve arkadaşlarım dışında olan ve duygularıma önem veren bir insan (örneğin, flört, nişanlı, sözlü, akraba, komşu, doktor…) var.
Kesinlikle hayır 1, 2, 3, 4, 5, 6, 7 kesinlikle evet.
11. Kararlarımı vermede ailem (örneğin, annem, babam, eşim, çocuklarım, kardeşlerim) bana yardımcı olmaya isteklidir.
Kesinlikle hayır 1, 2, 3, 4, 5, 6, 7 kesinlikle evet.
12. Sorunlarımı arkadaşlarımla konuşabilirim.
Kesinlikle hayır 1, 2, 3, 4, 5, 6, 7 kesinlikle evet.

APPENDIX-VII KADINA PSİKOLOJİK EZİYET ENVANTERİ-KISA FORMU

		1	2	3	4	5	GD= 0 (Sıfır)
		Hiçbir zaman	Nadiren	Ara sıra	Sıklıkla	Çok sıklıkla	Geçerli değil
1	Partnerim duygularıma karşı duyarsız davrandı.						
2	Partnerim çocuklara bakım şeklimi kötüledi.						
3	Partnerim yaptığım ev işlerini eleştirdi.						
4	Partnerim bana nispet yapmak için bir şey söyledi.						
5	Partnerim beni incitmek için geçmişte olmuş bir konuyu açtı.						
6	Partnerim bana bağırdı.						
7	Partnerim bana surat astı ya da bir sorunu konuşmayı reddetti.						
8	Partnerim ben orada değilmişim gibi davrandı ya da "sessiz muameleye" maruz bıraktı.						
9	Partnerim yapılması gerektiğini düşündüğü çamaşır,yemek ya da diğer ev işleri yapılmadığı için bozuldu.						
10	Partnerim ev işlerinin üzerine düşen kısmını yapmadı.						
11	Partnerim ailemizi desteklemek için yeterli katkıda bulunmadı.						
12	Partnerim kadın arkadaşlarımla sosyalleşmemi istemedi.						
13	Partnerim araba kullanımımı kısıtladı.						
14	Partnerim telefon kullanımımı kısıtladı.						
15	Partnerim kendi şiddet davranışı için beni suçladı.						
16	Partnerim kendimi deli gibi hissettirmeye çalıştı.						
17	Partnerim beni, onu terk edersem kendine zarar vermekle tehdit etti.						
18	Partnerim beni terk etmekle tehdit etti.						

ÖZGEÇMİŞ

EĞİTİM

2020 Eylül – 2023 Haziran	**Ankara Yıldırım Beyazıt Üniversitesi, Fen-Edebiyat Fakültesi**, Ankara **Genel Psikoloji Yüksek Lisans Derecesi (İngilizce)**
2016 Eylül-2017 Mart	**Leuphana Universitat, Wirscahftspsychologie,** Lüneburg Almanya
2012 - 2018	**Orta Doğu Teknik Üniversitesi, Fen-Edebiyat Fakültesi**, Ankara **Psikoloji Lisans Derecesi (İngilizce)** GPA: 3.12/4.00
2008 - 2012	**Eskişehir Anadolu Lisesi**, Eskişehir GPA: 3.50/4.00

MESLEKİ EĞİTİMLER

2018	AGTE, Metropolitan Okul Olgunluğu Testi, Peabody Resim Kelime Tanıma Testi, Catell 2A, Catell 3A Objektif Ölçme Araçları Eğitimi.
2022	**CETAD**, Cinsellik ve Cinsel İşlev Bozuklukları Temel Eğitimi
2022	**Bilişsel Davranışçı Terapiler Derneği,** 50 saatlik Bilişsel Davranışçı Terapi Kuramsal Eğitimi

DENEYİM

2022 Kasım- Halen	**Ankara Etlik Şehir Hastanesi, Ankara** Psikiyatri servisinde MMPI, WAIS-R, Beier Cümle Tamamlama Testi uygulamaları ile hasta anamnez görüşmeleri Duygudurum bozuklukları, kişilik bozuklukları, yeme bozuklukları gibi çeşitli alanlarda psikoterapi ile hasta takibi
2020 Mart- 2022 Ekim	**Ankara Etlik Zübeyde Hanım Kadın Hastalıkları Eğitim ve Araştırma Hastanesi**, Ankara - Psikiyatri polikliniğinde duygudurum bozuklukları ve kişilik bozukluklarına yönelik gözlem ve süpervizyon eşliğinde psikoterapi hizmeti, - Cinsel işlev bozuklukları polikliniğinde hasta gözlem ve takibine katılım, - Obezite servisinde hizmet almakta olan hastaların duygusal yeme davranışına yönelik terapi hizmeti, - Gebelik, doğum ve doğum sonrası döneme yönelik destekleyici psikoterapi hizmeti,

2019 Temmuz –2020 Mart	**Abdullah Gül Üniversitesi,** Kayseri Araştırma görevlisi
2019 Mart- 2020 Mart	**ODTÜ AYNA Klinik Psikoloji Destek Ünitesi,** Ankara Süpervizyon eşliğinde psikoterapi uygulaması
Yaz dönemi 2015	**Osmangazi Üniversitesi Tıp Fakültesi**, Eskişehir Psikiyatri polikliniği psikiyatri servisi stajı - MMPI, Rotter Kelime tamamlama testi, Nörolojik testbataryası -Psikolojik tanı almış 26 hastanın gözlem ve tedavi takibi (Bipolar bozukluk, şizofreni, anksiyete bozuklukları vs) -Psikolojik test gözlemi -Süpervizyon ve vaka tartışmalarına katılım
2013 – 2015	**LÖSEV'de Gönüllülük**, Ankara Çeşitli tanıtım ve organizasyonlarda görev alma.
2013 – 2014	**ANOBDER'de Gönüllülük**, Ankara Otizmli bir çocukla haftada iki gün etkin zaman geçirmek.
2012 - 2013	**TEGV'de Gönüllülük**, Ankara Bölgedeki çocuklara gönüllü öğretmenlik.

DERECELER

2014	**Akademik başarı**, Yüksek Onur derecesi 3.53 GPA
09.2017	**YDS** 86,25
05.2019	**ALES** 92,63
11.2019	**YÖKDİL** 95,00

YAYINLAR

Tetik, S., Mutlu, A. & Ünlübilgin E. (2021). Cinsel Saldırı Olgularında Psikolojik İlk Yardım. *Psikiyatride Güncel Yaklaşımla*r. 13(4):751-762. doi: 10.18863/pgy.880465

Mutlu A., Cihan, H. & Köksal, Z. (2022). Perceived Role of Food and Eating among Turkish Women with Obesity: A Qualitative Analysis. *Current Psychology*. In press. Doi: 10.1007/s12144-022-03778-5

Mutlu A., Örsel, S. (2023). Sağlıklı Yaşam Biçimi Geliştirilmesi, Obezitede Yeme Davranışları, Risk Faktörleri ve Önleme Programları. Türkiye Klinikleri. In press.

EK BİLGİ

Bilgisayar yetileri: SPSS, MAXQDA, Microsoft Office

Dil bilgisi: İngilizce (Okuma-Çok iyi, Yazma-Çok iyi, Konuşma- Çok iyi)
Almanca (Okuma- Orta, Yazma -Orta, Konuşma-Orta)