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Editors
Prof. Dr. Nizami DURAN
Assoc. Prof. Dr. Meriç ERASLAN

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E-Mail: asos@asosyayinlari.com

Web: www.asosyayinlari.com

Instagram: https://www.instagram.com/asosyayinevi/

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An Investigation of Some Psychological Parameters of Obesity: Causes, and Adverse Outcomes

Aida SAHMUROVA[1], Mustafa Batuhan DEMİR[2], Bilge ALKAN[3]

[1]Antalya Bilim University, Faculty of Health Sciences, Department of Nursing
Antalya, Türkiye, aida.sahmur@antalya.edu.tr, 05333864404

[2]Antalya Bilim University, Faculty of Economics and Administrative Sciences, Department of Psychology
Antalya, Türkiye, batuhan.demir@std.antalya.edu.tr, 05529203038

[3]Antalya Bilim University, Faculty of Economics and Administrative Sciences, Department of Psychology
Antalya, Türkiye, bilge.alkan@std.antalya.edu.tr, 05303095007

Abstract

This paper investigated obesity, its psychological contributors, and its psychological outcomes. Obesity is defined as abnormal, or inordinate fat mass in the body that may cause poor health outcomes. The primary cause of obesity is a long-term inequality between calory intake and energy expenditure. Obesity is a global health concern associated with a range of health conditions, including diabetes, asthma, cancer, cardiovascular diseases, and hypercholesterolemia. There is also growing evidence of psychological reasons of obesity, such as, eating disorders. Binge Eating Disorder (BED), or Night Eating Syndrome (NES) can increase the gap between taken calory and spent energy. In addition, stress may cause overeating, leading to obesity. Acute stress, episodic acute stress, or chronic stress may increase calory intake. Also elevated cortisol levels due to stress also found to be a reason for obesity. Besides eating disorders, or emotional eating that is caused by stressors, or such situations that cause emotional destruction, for example, depression has various impacts on obesity reasons. Depressed individuals often remain at home with a sedentary lifestyle and increased caloric intake, leading to obesity. Once obesity develops, psychological aspects are more evident. In particular, sociocultural influences such as social media, norms, or beliefs may intensify maladaptive eating behaviors. Obesity has a variety of psychological consequences. These may include weight stigma, societal beliefs and norms, body dissatisfaction, feelings of loneliness, low self-esteem, obesity-related weakness and fatigue, social isolation, or low self-efficacy. These may manifest as mood, or anxiety disorders. In conclusion, there are several psychological backgrounds of obesity, such as emotional eating, mood disorders, or stress; however, obesity may initially develop due to physiological mechanisms such as energy imbalance and hormonal dysregulation and, when an individual has obesity, its psychological dimension tends to deepen.

Keywords: Obesity, Eating Disorders, Mood Disorders, Anxiety Disorders, Stress.

1. Introduction

Obesity is a global health problem that threaten individuals' life and defined as a long-term inequality between calory intake and spent energy in a day (1, 2). Body mass index (BMI) which is calculated as individual's weight (counted as kg) is divided by square of height (calculated as m) of the individual (as kg/m^2). Overweight is defined as having between the BMI of 25-29.9 kg/m^2, and obesity is defined as having more than the BMI of 30 kg/m^2 (3,4,5,6). In the human history, depending on the culture, an excess body size has been seen as the representative of prosperity, richness, greater social status, and well health; however, its adverse outcomes for health were cumulatively explored since 20^{th} century (7).

Obesity and overweight prevalence have increased since 1980 (8). Obesity has a negative outcome of physiological functions of patients presenting crucial public health troubles increasing the risk of such disease conditions, for instance, diabetes mellitus, various types of cancers, cardiovascular disease, and

musculoskeletal disorders; besides physiological consequences of obesity, its psychological background is also more profound (9, 10).

Obesity, over the years, has been several times associated with psychological problems, for example, depression, anxiety, stress, low self-esteem, suicide thoughts, and quality of life (11, 12, 13). A study conducted by Pereira-Miranda et al. (2017) found that individuals with obesity are at risk of depression 32% more than those who have not obesity (14). The other study which was conducted by Gariepy, Nitka, and Schmitz (2010) found a positive association between anxiety disorders and obesity (15). Brode and Mitchell (2019) mentioned that there was several psychopathologies can be observed in bariatric surgery candidates with Binge Eating Disorder (BED), such as depression, alcohol abuse, mood disorders, lack of perceives environmental support, and diminished health related quality of life (16). Social variables, moreover, in people with obesity, seem to have influences on mental well-being; negative body image usually results in adverse feelings, depression, social withdrawal, lack of self-confidence (17). Moreover, studies showed evidence about a negative relationship between cognitive function and BMI scores (18). Researchers indicated that manifestation of a mental disorders, such as Attention Deficit and Hyperactivity Disorder (ADHD), or an Eating Disorder (ED) that may cause obesity (19, 20)

In this paper, we investigated the obesity and some psychological parameters that cause obesity, and that are caused by obesity. Given these circumstances, it is essential to find solutions to this global problem; otherwise, serious consequences for public health may arise. Numerous studies have been conducted globally, linking obesity to psychology and other disciplines (21). The present study aims to fill certain gaps in the literature by examining the relationship between obesity and psychological factors. The primary purpose of our research is to define the boundaries of these relationships and clarify their nature.

2. Psychological Reasons of Obesity

The psychological frameworks that trigger obesity are multidimensional. At the forefront are eating habits shaped by global responsibilities and conditions. In a globalizing world, people are undergoing rapid transformation and development. This change brings about not only shifts in human life but also global phenomena such as the pandemic. For instance, during the pandemic, individuals were forced to alter many of their habits, stay at home, and were unable to go to work. Eating and dietary patterns changed due to multiple factors, and many long-standing routines were disrupted (22, 23, 24).

Another factor that disrupted eating habits was the rapid advancement of technology. People's lifestyles have been profoundly transformed. They began to use more vehicles and engage in fewer physical activities. Daily tasks that were once performed manually (such as doing laundry or washing dishes) are now carried out by machines. During this process, people have increasingly confused their needs with their desires, creating a significant problem. One of the most concrete reflections of this issue is the deterioration of dietary habits (25).

People, furthermore, overwhelmed by the fast pace of life, have sought to compensate for lost time by turning to fast food and quick meals. The increase in fast food consumption has led to weight gain (26). Companies industrializing in this field have often acted with commercial concerns. For example, monosodium glutamate (MSG), commonly known as "Chinese salt," enhances the flavor of food, stimulates appetite, and consequently causes individuals to consume more. A large-scale study conducted in China found a significant association between MSG consumption and overweight (27). Review studies have also emphasized that MSG may contribute to obesity (28). Nevertheless, some recent studies have reported that findings are not always consistent. Obesity has rapidly become integrated into both the scientific literature and human life. Unfortunately, obesity severely affects human health and is spreading rapidly. This situation can be compared to cancerous cells in terms of its proliferation. Whereas in the past obesity was more common in older populations, it is now observed even among children (29, 30, 31, 32). Thus, examining obesity and the factors contributing to it has become crucial for both current and future generations.

The factors triggering obesity can be categorized into two groups: physical and behavioral factors, and psychological factors. First, physical and behavioral factors should be considered. The advancement of technology and changes in human behavior are among the fundamental causes of obesity, with most of these factors being physical. People have been eating more while their physical activity needs have substantially declined. For instance, increased time spent at computers and desk jobs has made physical movement largely unnecessary. This has resulted in lower energy expenditure and greater susceptibility to obesity (25). Second, psychological and social factors play a critical role. Among these psychological factors are loneliness, depression, and stress. With the rise of technology, people have increasingly replaced social interactions with machine-based interactions, which has led to a heightened sense of loneliness, anxiety, and depression (33). It

would not be accurate to blame technology alone, however; socio-cultural structures often marginalize those who differ from the majority, pushing them into loneliness. From an economic perspective, individuals with low financial independence often find themselves under intense stress, which can lead them to alter their eating habits for comfort. This, in turn, pushes them toward obesity (21, 24).

2.1. Eating Disorders

People may use eating as a coping mechanism to menage emotional distress, or stress (34, 35, 36). It was multiple times mentioned that individuals who have negative emotions or face stressors tend to eat more unhealthy, high calory foods. Dopamine manifests in human body due to feelings of satisfy after eating motivating food crave urge leading to obesity (37). Researches posit that psychological troubles, for instance, depression, body dissatisfaction, or low self-esteem can be predictors for triggering or sustaining eating disorders; mostly, Binge Eating can be used as temporary coping technique against negative emotions, or situations (38). Goldschmidt and colleagues (2015) found that in a sample of adolescents who were counted as overweight having a depression and body dissatisfaction were at risk for binge eating disorders (39).

The relationship between food starts with two-way interplay between taste and emotions: when the signals coming from gustatory receptors stimulates reward mechanism of brain resulting in dopamine release and instant satisfaction, negative emotions reinforce the cycle directing individuals towards these new pleasant objects; and a as a result of emergence of ‘’Emotional Eating” behavior. (40, 41, 42).

This psychophysiologic basics, when it comes to be combined with such psychopathologies, for example, in Borderline Personality Disorder (BPD) difficulty for emotion regulation that is observed usually, low threshold against negative emotions, and high impulsivity may lead individual to binge eating episodes (43). In addition, vulnerable self-respect that is dependent to others in Narcissistic Personality Disorder (NPD), or strict and punitive thought mechanisms may lead people to apply nearly ‘’Impossible” diet cycles and loss of control on their eating behavior. (44).

Accordingly, emotions and stress may influence eating behaviors; they can increase or decrease appetite and direct somebody to eat more and others to eat less causing emotional eating which is linked with the beginning of eating disorders (11, 45).

Obesity and EDs are defined as abnormal and deleterious eating habits may cause crucial health issues and linked with decreased life expectancy and quality of life (46, 47). There is a cumulative information that suggests that there is a strong connection between obesity and EDs, and Binge Eating (BE) has the highest prevalence among them causing diminished health regarded quality of life; a study conducted by Agüera et al. (2021) found that 30% of female ED patients had lifetime obesity (48, 49, 50, 51, 52). Researchers posit that, considering people who think about bariatric surgery, most common disorder is BED (16). A study pointed that obesity risk 3-6-fold increases in patients with Binge Eating Disorder (BED), and BED was linked with overweight’s early onset (53). It has also several times suggested that eating disorders and obesity are interconnected, lying on the same array of weight related problems (53, 54). Multiple studies also proved that the crucial link between EDs and obesity (55). Consequently, modern obesity approach, beyond simple calory calculations, addresses the problem from the perspective of genetics, environmental factors, and emotional mechanism. (56)

2.2. Stress

Stress have been associated with development of obesity over the years; facing stressors, for example, family issues, financial troubles, stigma, or an illness can cause to an activation of the response system of individuals (57, 58). In addition, Elsenburg et al. (2017) mentioned that, besides environmental stressors, negative childhood experiences (e.g., child abuse) increase the likelihood of being overweight at the ages of between 6-12 years (59). In a study conducted by Sideli et al. (2021), to see COVID-19 lockdown effects on Eds and obesity, showed that such stressors, for example, COVID-19 lockdown make individuals with EDs and obesity report worsening symptoms more than those without diseases (60). Effects of stress should not be underestimated; researches evidenced that maternal stress, anxiety and psychological discomfort during pregnancy, correlated with higher BMI in their children (61); and postnatal maternal stress have been correlated with higher BMI scores up to 5 years (62). Stressors of children, such as jobless parents, or traumatic experiences, for instance, sexual abuse, have been associated with obesity at adolescence or adulthood (63). A diet of an individual can be easily disrupted by stress. Calory restriction, physiologically, triggers a starvation response, slows metabolism, and increases hunger. This situation presents a state of deprivation making individuals vulnerable to quit their health efforts to lose weight (64). Besides the quality of sleep, obstructive

sleep apnea (OSA) is found to have a link with obesity usually presenting in obesity causing sleep disturbance with impaired eating time, hormonal and metabolic imbalances, end eventually resulting in obesity (65). Moreover, Xiao and colleges (2020) suggested that chronic stress triggers metabolic disturbances in fat tissue (66). In addition, Tomiyama (2019) pointed out that exposure to chronic stress makes the situation worse sustaining hypothalamus-pituitary-adrenal (HPA) axis active. Rising cortisol levels, beyond improving appetite, enhances fat accumulation on abdominal area (67)

2.3. Sleep

Sleep, in addition, has been associated with obesity. Low quality of sleep, due to fluctuation of appetite-control hormone levels and unsteady eating times, for example, late night snacking, may result in obesity (68, 69). Taveras et al. (2014) posit that children may be at the risk of having obesity or being overweight due to experienced low quality of sleep from infancy to school ages (70). Shortened sleep duration may cause hormonal problems, for instance, elevated nocturnal cortisol levels, and diminished glucose tolerance influencing cognitive functioning resulting in obesity (71)

2.4. Hormones

One of the notable determinants of obesity occurs on the Hypothalamus-Pituitary-Adrenal axis (72, 73). When a stress is perceived, the hypothalamus produces corticotrophin releasing hormone (CRH), which stimulates the anterior pituitary to release adrenocorticotropic hormone (ACTH), and eventually, cortisol is secreted from the adrenal cortex (74). Cortisol increases appetite and directs individuals to high-calorie foods (75). Leptin is released from fat tissue and it sends satiety signals to the hypothalamus (76). In normal situations, increased fat tissue elevates leptin production and restricts food intake; however, in obese individuals, this mechanism does not work and leptin resistance develops. Even though leptin levels are high, the brain does not respond to leptin signals and individuals feel hunger all the time (77, 78) The other important hormone that may be considered to be a significant reason for obesity is Neuropeptide-Y (NPY); it is located in the hypothalamus and is a strong orexigenic peptide that interacts with cortisol and the hunger hormone ghrelin, and increases appetite (79). Besides, NPY can stimulate angiogenesis in adipose tissue, thereby increasing fat accumulation. Thus, NPY not only increases appetite, it also actively shapes fat tissue (80, 81).

2.5. Depression as a Cause of Obesity

Depression may, in addition, result in obesity by its symptoms which are feeling sad, irritable, or empty, losing interest or pleasure in activities, significant change in appetite, change in sleep patterns that may cause sedentary life, changing eating patterns, and overall weight gain (82, 83). Eating to cope with stress or negative feelings can be seen in depressed patients (84). Disruptions in metabolic, hormonal, and behavioral patterns also have been considered as variables to explain the association between depression and obesity (85). Considering bad mood of depression patients, obesity usually presents due to emotional eating. (86). In a study conducted by Blume et al. (2018) in a population with BED, moreover, suggested that food addiction correlated with higher levels of depression in people with BED (87). Counting quality of life as a parameter of the relationship between obesity and depression, stigma and social withdrawal are crucial risk factors for mood disorders contributing to development of obesity (88). Researches revealed that adolescents who suffer from depression were at significant risk of developing depression comparing to their peers (89, 90). Furthermore, Chu et al (2019) pointed out that depression that is faced in childhood has adverse outcomes in later life, such as obesity in adulthood (91)

3. Adverse Psychological Outcomes of Obesity

As much as obesity has a several psychological reasons to occur, it has also negative effects on mental well-being of individuals with obesity. Besides obesity's physical negative outcomes, psychological adverse side is also more profound, for example, in patients with obesity, loneliness, low self-esteem, stigma, depression, and anxiety may seem in both adults and adolescents comparing to their normal weight environment (92**,** 93, 94). Furthermore, obesity's consequences, negative own body image, adverse influence of overeating, and weight gain contribute to development of psychological symptoms (95). To sum up, individuals with body dissatisfaction are at risk of developing an eating disorder and more likely to experience negative psychological matters, for instance, depression, social withdrawn, low self-confidence, or developing an obsession about losing their weight (96).

3.1. Quality of Life (QoL)

Obesity may disrupt individuals' QoL in numerous ways. First of all, once a person has obesity, it restricts their physical systems having difficulties to apply even daily easy physical responsibilities, such as climb up stairs, or walking towards a market, resulting less daily energy, shortness of breath, tiredness, or joint pain. These consequences of obesity may lead a person to experience troubles in their health, disruption on mental well-being, and restricted attendance to social life or activities, and lack of life satisfaction (97, 98, 99). The other reason to be shown for diminished QoL of obesity patients may be social discrimination or stigma. Experienced stigma or discrimination due to excessive weight- such as the belief that obese people are lazy, even they can be not hired for their applied jobs, or not smart- in a workplace, or school settings directly affect individuals' social being may also lead patients to have many psychological symptoms including depression, lack of self-esteem, maladaptive eating behaviors, exercise avoidance, and body dissatisfaction (98, 100, 101, 102). In a study conducted by Jackson et al. (2015) with class II and class III obese male and females over the age of 50 revealed that obese people usually report weight related discrimination (103). Another study conducted by Kha net al. (2017) found an interesting result pointing that individuals who discriminate or stigmatize overweight or obese people were tend to stigmatize more when they learned the individuals' obesity was caused by psychological disturbances than genetic issues (101). In order to explain QoL of obese people from psychology perspective more, as an example, Lessard and Puhl (2022) pointed out that stigmatization in such places, for instance, education settings, as bullying, or teasing by peers may have more negative effects on individuals' mental well-being leading to exhibit school refusal, decrease in academic performance causing people having in low socio-economic status (104). In addition, several studies posit that obesity disrupts people's socio-economic level leading for a decrease in their QoL *(*105).

The other reason can be considered as social withdrawn- as humans, we are all social beings- affecting work life, social skills, education life, or competitions causing stress, mood disorders, or anxiety disorders (88, 106). Researchers pointed a link between BMI and loneliness; as BMI increases, levels of loneliness also increase (107, 108, 109). In addition, obesity can emerge such adverse mental outcomes influencing individuals' own perspective about themselves due to stigmatization, self-esteem issues, individuals' negative own body image, and maladaptive coping strategies causing loneliness and, as a result, decreased QoL (110, 111). Similarly, considering quality of life, it is mentioned that, in both obese and overweight populations, due to societal beauty standards, are at risk of developing suicidal thoughts more than normal weight population (112,113).

Furthermore, adolescents who are classified as overweight or obese are more likely to have such psychological troubles, for instance, depression, low self-esteem, anxiety, body dissatisfaction, issues in their peer relations (114). Obesity was also associated with early puberty in children, menstrual irregularities in adolescents, and several sleep disorders (115). Moreover, weight-based harassment has been indicated to contribute of such consequences, for instance, eating disorders, substance usage, low academic performance, avoiding school, self-injury, suicidal thoughts, and youth violence; and their psychosocial being may also be at risk being vulnerable to such adverse mental outcomes (116,117).

3.2. Depression as a Cause of Obesity

Over the years, several studies posit that there is a link between obesity and depression; obese or overweighted people are more likely to have mental disorders (118, 119, 120). One of the reasons may be the social demands. Various studies mentioned that differences between appearance and dream body image may cause significant body dissatisfaction; lack of attractiveness, or body dissatisfaction can contribute the emergence of depression (121). Moreover, weight related stigma or discrimination may cause emergence of psychological manifestations, for instance, depression; and also, it can be a huge obstacle to seek treatment for individuals with stigmatized due to presenting humiliation or judgement anxiety (88). Several researchers mentioned the positive correlation between BMI scores and depression risk (122, 123). Frank et al. (2023) found that, in a study they conducted by 240.000 individuals from UK, obese people were at risk of having depression nearly 7-fold more than normal weight individuals (124). In addition, studies showed that overweight gain from childhood to mid-adulthood increases the depression risk in adulthood (125). Furthermore, less communication with their peers in children- due to negative outcomes of obesity, such as stigma, or social withdrawal- can cause high perceived loneliness causing depression (126, 127, 128). In adolescents, bullying related to weight may be count as stressful event in life resulting in depression (117). However, in a study conducted in the sample of geriatric population showed that people over the age of 60 with obesity were less at risk of having depression comparing to their normal weight same age group (129).

3.3. Anxiety

Anxiety is a common disorder that has long-lasting effects on individuals' life and it diminishes person's daily effectiveness. Anxiety presents as having low mood, feeling anxious, empty, guilty, worthless, irritable, helpless, ashamed, feared, or restless. (130). Several studies mentioned about the positive correlation between obesity, BMI, or being overweight and anxiety in different demographic samples (131,132, 133). There are several reasons behind obesity that may cause anxiety, for example, one of them is health related concern that individuals are risk at due to obesity; second one can be considered as environmental pressure on obese people which may be stigmatization, judgement of others, competition, societal beauty norms which decrease body satisfaction of individuals- Pomichter et al. (2025) mentioned that self-body recognition is strongly related with poor psychological well-being (134, 135). Comparing to their normal weight peers, children or adolescents with obesity are tend to develop anxiety due to peer harassment, societal beauty norms, or expected judgements (117, 136, 137, 138,139). Furthermore, hypercaloric diets is considered to diminish fear-regulatory mechanism in prefrontal cortex, amygdala, and hippocampus, and cause to regulate fear leading anxiety (140, 141)

4. Bipolar Disorder and Obesity

Bipolar Disorder (BD) is a significant disorder that is defined by the alternating between depressive, hypomanic, and manic episodes causing high or low energy, cognitive speed, and reward seeking behavior (142, 143). Several studies mentioned the association between BD and overweight/obesity; BD has a role in developing somatic symptoms, including obesity comparing to general population (144, 145, 146). Different variables of BD that result in obesity have been investigated over the years; for example, inflammatory disorders which are more common in individuals with BD contribute to changes in mood, appetite, sleep, and energy changes, so to speak, by causing lifestyle disturbances, resulting in excess weight gain (147). In addition, BD related depressive behaviors can be considered as to be a contributor of the development of obesity in individuals (148). Martin and colleagues (2016) suggested that adolescents with BD have lower quality nutrition and eating habits relating to their peers (149). Besides risks of BD that cause obesity, which may be defined as, including illness's itself, pathophysiology, atypical depressive episodes, and genetic predisposition, treatment of BD have been considered to be crucial contributor of weight gain in individuals; second-generation antipsychotics and lithium, mentioned to cause a raise in leptin levels which may cause obesity (150, 151, 152). Moreover, most medical interpretations for BD are thought to have a contribution qualification on gaining weight (153, 154). Lithium, which is considered to be first interpretation in BD treatment, valproate, and some second-generation antipsychotics are thought to have a triggering qualification for individuals carbohydrate craving (155, 156). In addition, considering obesity and BD relationship, studies indicated that obesity may have effects on course of BD, decreased quality of life, rapid cycling between mood episodes, or significant suicide ideation, or suicide attempt can be counted (157).

5. Obesity and Neuropsychiatric Manifestations

Growing evidence shows that weight stigma within healthcare can distort communication and clinical decision-making for people living with obesity. Providers display measurable implicit/explicit anti-fat attitudes, and observational studies document less emotional rapport and fewer relationship-building behaviors during primary-care encounters with higher-BMI patients; patients likewise report lower levels of patient-centered communication (158, 159). Reviews link these dynamics to reduced uptake of preventive screening, care avoidance, lower adherence, and overall poorer quality and safety of care (160, 161, 162). Safety bodies additionally warn about diagnostic overshadowing the misattribution of new symptoms to weight which can delay or distort diagnoses; targeted countermeasures are recommended (163). International consensus further frames stigma as harmful to health and incompatible with evidence-based obesity care, calling for person-first language, structured anti-stigma training, and system-level changes (164, 165). Collectively, these findings indicate that addressing weight bias is not peripheral but essential for accurate diagnosis and equitable treatment in obesity care.

Beyond these critical systemic barriers, the relationship between obesity and cognitive impairment operates as a complex, self-reinforcing internal loop. While obesity impairs brain health, leading to cognitive decline, diminished cognitive abilities can, in turn, lead individuals to engage in behaviors that perpetuate weight gain. This relationship neurobiologically explains why obesity is not merely a matter of "willpower." Meta-analyses confirm that obesity exerts its most consistent and potent negative impact on executive functions (EF), often considered the "CEO" of the brain (166, 167). These high-level cognitive processes include planning, decision-making, impulse control, working memory, and cognitive flexibility (166). Widespread impairments across all

these domains have been identified in individuals with obesity (166). This cognitive weakness stems from tangible, physical changes in brain structure caused by obesity. Neuroimaging studies have proven that obesity leads to a reduction in gray matter volume, particularly in regions responsible for executive functions, such as the prefrontal cortex. The chronic, low-grade inflammation and metabolic stress associated with obesity directly damage neurons in these brain regions, thereby diminishing cognitive capacity (168, 169). Memory systems are also affected; meta-analyses have shown that obesity has a small but statistically significant negative effect on memory functions (170).

This cognitive decline is only one side of the cycle; conversely, weakened cognitive functions also trigger and sustain obesity. Impairment in executive functions transcends being an abstract mental deficit, producing direct behavioral consequences (166). In particular, a weakness in inhibitory control the ability to suppress inappropriate impulses plays a key role in the continuation of obesity (171). This cognitive frailty makes it difficult for individuals to resist high-calorie, palatable foods and leads to an inability to control abnormal behaviors such as overeating (166, 171). Similarly, impairments in planning and decision-making abilities hinder an individual's capacity to plan healthy meals and adhere to long-term health goals (172). This situation creates a self-perpetuating "Metabolic-Cognitive Cycle," where the biological consequences of obesity sabotage the brain's capacity for self-regulation, and this sabotage, in turn, promotes behaviors that sustain obesity (166).

The neuropsychiatric profile of obesity is not limited to cognitive impairments, as psychological distress is an integral part of this equation and further exacerbates the cognitive cycle. Epidemiological evidence has repeatedly confirmed a strong and bidirectional relationship between obesity and depression (173, 174, 175). Large-scale meta-analyses show that individuals with obesity have a 55% increased risk of developing depression over time, while individuals with depression have a 58% increased risk of becoming obese (173, 88). This relationship strengthens the cognitive cycle in several ways. Depression can lead to weight gain by reducing energy levels and negatively affecting eating behaviors, especially a preference for high-calorie "comfort" foods (175). Conversely, factors such as chronic inflammation, social stigmatization, and negative body image increase the risk of depression (173, 176). Since depression itself depletes cognitive resources, it intensifies the negative impact of obesity on executive functions (178).

Underpinning this cyclical relationship between cognition and psychological distress is a series of neurobiological mechanisms operating at molecular and systemic levels. In obesity, excess adipose tissue transforms into an active endocrine organ that secretes pro-inflammatory cytokines, which increase the permeability of the blood-brain barrier and cause chronic neuroinflammation (176, 179, 180). This process leads to neuronal damage and impairs synaptic plasticity (176, 180). Furthermore, neuroimaging studies have proven that obesity leads to tangible changes in brain structure, including a reduction in gray matter volume in the prefrontal cortex and hippocampus, as well as impaired white matter integrity (180). The disruption of metabolic signals, such as insulin and leptin resistance in the brain, further impairs cognitive functions and has even been linked to the pathology of Alzheimer's disease (175, 176, 177).

6. Conclusion

In conclusion, this investigation affirms that the association between obesity and psychological parameters, as a cause of obesity, and obesity is a cause of mental well-being, obesity and mental well-being strongly associated with each other. Scientific evidences posit that there are several psychological parameters that cause obesity; one of them is considered as eating habits of individuals. Emotional eating that is caused by stressors, psychological distress, or negative emotions may cause overeating that leads obesity. Furthermore, such eating disorders, especially Binge Eating Disorder (BED), cause taken and spent calory imbalance leading obesity. These behaviors temporary neurological relief from adverse feelings, or stressors through dopamine-driven reward mechanism. Borderline Personality Disorder (BPD), individuals who struggle with high impulsivity and have low threshold for emotional distress, or Narcissistic Personality Disorder (NPD), where vulnerable self-esteem can trigger impossible diet cycles and subsequent loss of control, may present maladaptive eating behaviors resulting in obesity. Other contributor of gaining too much weight is depression. Its characteristics, which are loss of interest- causing sedentary life-, change in appetite- causing calory imbalance, result in obesity. All kind of stress, even if it is daily, or chronic stress, can trigger people to consume high calory foods. Such physiological background has also a role in obesity, for example, due to stress, which maintains hyperactivity of the hypothalamic-pituitary-adrenal (HPA) axis, causing persistently heightened cortisol levels result in increased appetite and direct people high calory foods, furthermore, contributes abdominal fat accumulation, and induce leptin resistance. This crucial hormonal impairment represents a breakdown in homeostatic regulation, where the brain cannot receive satiety signals despite high leptin levels secreted from

excessing adipose tissue, thus, this process induces a continuous sensation of hunger and establishes a metabolic condition conducive to weight gain. These effects are intensified by the strong appetite-stimulating properties of Neuropeptide-Y (NPY), which increases under stress and drives both physiological and pleasure-related food consumption, while also promoting the formation of new blood vessels within adipose tissue. Poor sleep quality, in addition, can be considered as a determinant factor for obesity by its consequences, for instance, changing eating times, such as night snacking, diminished hormone levels, ghrelin and leptin, and contributes metabolic imbalances.

Living with obesity has also psychological adverse outcomes. Health related concerns, heightened risk of comorbid conditions like diabetes, cancer, and cardiovascular disease, contribute to development of anxiety. Moreover, stigmatization, fear of being judged, or peer teasing also have a role in developing anxiety. These consequences of having obesity is connected with diminished quality of life; physical limitations, for instance, getting tired rapidly, shortened breaths, have negative psychosocial outcomes, social isolation, loneliness, or discrimination causing lack of satisfaction individual's own life. Due to such problems, people may avoid of being social; workplace discrimination, academic place harassment cause individuals to have such problems, for instance, low academic performance, unemployed, or being single. All the consequences, when they are considered, including social beauty norms, may contribute to development of many psychological problems. All of the experiences that were mentioned enhance body dissatisfaction, internalized shame, social withdrawal, and loneliness causing risk factor for depression, anxiety, or eating disorders.

7. Suggestions and Future Directions

Based on the relationship between obesity and investigated psychological parameters that cause obesity, or caused by obesity carry an important role for public health. First of all, education for society is crucial to understand significance of the relationship. After that, routine psychological screen for individuals who carry risk of such psychological disorders that cause obesity, for example, depression, eating disorders, or chronic stress. Environmental variables that cause obesity bidirectionally should also work with people who suffers from, so to speak, loneliness, social isolation, stigmatization, or such traumas, for instance, physical or psychological abuse. Cognitive Behavioral Therapy (CBT), for instance, may be thought to be an effective interpretation to work on self-worth, perceived stress, or changing maladaptive behaviors. Education, or campaigns, in schools or work places, may also work on weight-related stigmatization, bullying, or teasing.

For future studies, longitudinal studies should be conducted to analyze different mental problems that cause obesity, or caused by obesity. These longitudinal studies may work on, furthermore, development of psychological interpretation techniques. Neurological pathways also should be worked on obese people, or people who are at risk of developing obesity.

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