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FEATURES OF MENTAL DISORDERS IN PERSONS WITH OBESITY CAUSED BY EXCESS SUPPLY OF ENERGY RESOURCES: A LITERATURE REVIEW

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ABSTRACT

Obesity, a multifactorial condition influenced by genetic, environmental, and behavioral factors, has reached epidemic proportions globally. While the physical health implications of obesity are well-documented, its impact on mental health is an area of growing concern. Obesity is not merely a physical condition but a complex interplay of biological, psychological, and social factors. Beyond the physical burden of excess weight, individuals living with obesity often face profound psychological challenges that can significantly impact their quality of life.The relationship between obesity and mental health is intricate and bidirectional. On one hand, obesity can contribute to the development or exacerbation of various mental disorders, including depression, anxiety, and eating disorders. This literature review explores the intersection between obesity and mental disorders, focusing on the psychological features associated with obesity resulting from an excess supply of energy resources.

Keywords: obesity, psychological features, mental disorders, energy intake.

INTRODUCTION

Obesity, characterized by excessive accumulation of body fat, has emerged as a significant public health concern worldwide. The prevalence of obesity has risen at an alarming rate over the past few decades, with nearly every region experiencing a surge in obesity rates. This increase is attributed to various factors, including changes in dietary patterns, sedentary lifestyles, genetic predispositions, and environmental influences. While the physical health consequences of obesity, such as cardiovascular disease, type 2 diabetes, and certain cancers, are well-documented, the impact on mental health is an area that warrants greater attention. Obesity is not merely a physical condition but a complex interplay of biological, psychological, and social factors. Beyond the physical burden of excess weight, individuals living with obesity often face profound psychological challenges that can significantly impact their quality of life. This review aims to delve into the psychological features associated with obesity, particularly focusing on the mental disorders that may arise from the excess supply of energy resources, such as high-calorie diets and overconsumption of processed foods.

The relationship between obesity and mental health is intricate and bidirectional. On one hand, obesity can contribute to the development or exacerbation of various mental disorders, including depression, anxiety, and eating disorders. On the other hand, individuals with pre-existing mental health conditions may be at heightened risk of obesity due to factors such as emotional eating, medication side effects, or reduced motivation for physical activity. Furthermore, the societal stigma and discrimination faced by individuals with obesity can exacerbate psychological distress, perpetuating a vicious cycle of weight gain and mental health challenges. Understanding the psychological features of obesity, particularly in the context of excess energy intake, is essential for providing comprehensive care to affected individuals. By elucidating the intricate interplay between obesity and mental health,

healthcare professionals can develop tailored interventions that address both the physical and psychological aspects of this complex condition. Moreover, raising awareness about the mental health implications of obesity is crucial for combating weight bias and promoting a more compassionate and inclusive society. In this literature review, we will explore the psychological features associated with obesity resulting from an excess supply of energy resources. By synthesizing existing research findings, we aim to shed light on the multifaceted nature of obesity and its implications for mental health. Ultimately, this review seeks to inform future research directions and guide the development of holistic approaches to obesity prevention and treatment.

METHODOLOGY

A comprehensive search of electronic databases including PubMed, PsycINFO, and Google Scholar was conducted using keywords such as "obesity," "mental disorders," "psychological features," and "energy intake." Articles published between 2010 and 2023 were included to ensure relevance to contemporary understanding. Studies investigating the relationship between obesity and mental health, particularly those addressing the psychological impact of excess energy intake, were selected for inclusion.

Psychological Features of Obesity

Obesity is associated with a range of psychological features, including depression, anxiety, low self-esteem, and disordered eating behaviors. Research indicates bidirectional relationships between obesity and mental disorders, with obesity increasing the risk of developing psychiatric conditions and vice versa. One contributing factor to the psychological distress associated with obesity is societal stigma and discrimination, which can lead to social isolation and negative self-perception.

The findings presented by Taner DEĞİRMENCİ and Nalan KALKAN-OĞUZHANOĞLU, the relationship between depression and anxiety symptoms and their impact on quality of life and self-esteem in individuals with obesity was examined. The study involved 52 obese subjects with a Body Mass Index (BMI) of 30 kg/m² and above, compared to 43 control subjects with normal BMI.

The findings revealed several key points:

- Depression and anxiety symptoms were found to be significantly higher in the obese group compared to the control group.
- Quality of life, particularly in the physical domain, was lower in the obese group.
- Self-esteem scores did not differ significantly between the obese and control groups.

In the obese group, depression and anxiety symptoms showed a negative correlation with quality of life in the physical domain, while showing a negative correlation with self-esteem, and a positive correlation with problematic eating attitudes. There was no correlation observed between depression/anxiety symptoms and BMI.

Overall, these results suggest that individuals with obesity experience higher levels of depression and anxiety, alongside poorer quality of life, particularly in physical aspects. These psychological symptoms appear to have adverse effects on self-esteem and eating attitudes. The study emphasizes the importance of providing psychiatric support to improve the quality

of life and self-esteem of individuals with obesity, in addition to addressing their psychological symptoms.

The study conducted by Barry V. O'Neill, Edward T. Bullmore, and colleagues aimed to explore the relationship between fat mass and behavioral measures of eating and obesity-related psychological traits in overweight and obese individuals. The findings shed light on the intricate interplay between neurobehavioral factors and body composition in the context of obesity. The primary analyses, utilizing principal component analysis (PCA), revealed significant associations between behavioral measures of overeating or binge eating and fat mass. Specifically, a latent variable representing overeating behavior was strongly correlated with fat mass, suggesting that certain subgroups of individuals may be predisposed to obesity due to behavioral factors related to eating. The study highlights the limitations of traditional anthropometric measures, such as body weight and BMI, in capturing the nuances of body composition and its relationship with eating behavior. The use of more sensitive imaging measures, such as quantitative magnetic resonance (QMR) for measuring fat mass, provided a more accurate assessment of body composition and its association with behavioral traits. These findings have important implications for understanding the underlying mechanisms of obesity and developing more targeted approaches for its prevention and treatment. By identifying behavioral factors associated with overeating and their relationship with fat mass, clinicians and researchers can better tailor interventions to address both the behavioral and physiological aspects of obesity. The study underscores the multifaceted nature of obesity, encompassing both biological and behavioral components, and highlights the need for comprehensive approaches that address the complex interplay between neurobehavioral factors and body composition in the management of obesity.

Mental Disorders Associated with Excess Energy Intake:

Excess energy intake, a primary driver of obesity, can exacerbate existing mental health conditions and contribute to the development of new ones. Individuals who consume high-energy diets are at increased risk of mood disorders such as depression and bipolar disorder. Additionally, obesity resulting from excess energy intake has been linked to cognitive impairments, including deficits in executive function and memory.

The study conducted by A. Peters and U. Schweiger introduces a new perspective on energy regulation within the organism, emphasizing the brain's central role in maintaining adenosine triphosphate (ATP) concentration. The brain prioritizes its own energy needs over peripheral energy supply, utilizing mechanisms such as allocation and nutrient intake, controlled by the neocortex and the limbic-hypothalamus-pituitary-adrenal (LHPA) system. ATP-sensitive potassium channels and mineralocorticoid/glucocorticoid receptors are crucial for maintaining energy balance. Disruptions in this system, induced by factors like extreme stress or metabolic disorders, can impact energy allocation and body mass, contributing to conditions such as anorexia nervosa and obesity. The model introduces the concept of a "principle of balance" in biological systems, highlighting the significance of receptor pairs in establishing setpoints.

Neurobiological Mechanisms:

The neurobiological mechanisms underlying the relationship between excess energy intake and mental health are complex and multifaceted. Dysregulation of neurotransmitter systems, particularly serotonin and dopamine, may contribute to both obesity and psychiatric disorders. Additionally, chronic inflammation associated with obesity can impact brain function, further exacerbating psychological symptoms. One crucial aspect of this regulation is the role of specific brain regions, including the neocortex and the limbic-hypothalamus-pituitary-adrenal (LHPA) axis. The neocortex, responsible for higher cognitive functions and decision-making processes, plays a pivotal role in orchestrating the allocation of energy resources between the brain and peripheral tissues. Meanwhile, the limbic system, particularly the hypothalamus, serves as a central hub for integrating signals related to energy balance, appetite regulation, and stress responses. Within the neurons of the neocortex, high and low-affinity ATP-sensitive potassium channels act as sensors, monitoring the cellular ATP levels. Changes in ATP concentration trigger a cascade of signaling events, culminating in the generation of a "glutamate command" signal. This signal serves to maintain optimal ATP levels by modulating glucose uptake across the blood-brain barrier, both locally through astrocytes and systemically via the LHPA system. Additionally, mineralocorticoid and glucocorticoid receptors within the LHPA axis play a critical role in establishing the setpoint for energy balance regulation. These receptors, sensitive to hormonal fluctuations and stressors, help maintain equilibrium within the system. Chronic metabolic and psychological stress, as well as other external factors such as starvation, exercise, infectious diseases, and substance abuse, can disrupt the delicate balance of the LHPA axis, leading to dysregulation of energy homeostasis. Such disruptions may result in pathological alterations in energy allocation and utilization, contributing to conditions such as obesity and anorexia nervosa.

CONCLUSION

In conclusion, the review underscores the intricate relationship between obesity and mental health, particularly emphasizing the psychological features associated with excess energy intake. Obesity, as a multifaceted condition influenced by biological, psychological, and social factors, extends beyond its physical manifestations to profoundly impact mental well-being. The findings from various studies elucidate bidirectional relationships between obesity and mental disorders, highlighting how obesity can exacerbate or precipitate conditions such as depression, anxiety, and eating disorders. Moreover, societal stigma and discrimination further compound psychological distress among individuals living with obesity, emphasizing the importance of addressing both the physical and psychological aspects of the condition. Through comprehensive analyses, including both behavioral measures and neurobiological mechanisms, researchers have uncovered the complex interplay between energy regulation, brain function, and mental health. Neurobiological mechanisms involving neurotransmitter dysregulation, chronic inflammation, and disruptions in brain regions like the neocortex and limbic system provide insights into the pathophysiology of obesity-related mental disorders. Moreover, studies examining the impact of obesity on quality of life and self-esteem underscore the profound psychological burden experienced by affected individuals. Importantly, interventions aimed at improving psychiatric support and addressing psychological symptoms

can significantly enhance the well-being of individuals with obesity. Moving forward, a holistic approach to obesity prevention and treatment is imperative, one that integrates both physical and mental health considerations. By raising awareness about the mental health implications of obesity and combating weight bias, society can foster a more compassionate and inclusive environment for individuals living with this condition. This literature review provides valuable insights into the psychological features of obesity resulting from excess energy intake, paving the way for future research endeavors and guiding the development of comprehensive strategies to address this pressing public health issue.

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