Examining the Relationship between Body Image Dissatisfaction and the Onset of Eating Disorder in Men and Women

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Abstract. This comprehensive study delves into the complex dynamics of eating disorders, with a particular focus on anorexia nervosa and its social impact. A large portion of the study was devoted to body image dissatisfaction, revealing worldwide trends among adolescents over the past decade. Most importantly, the research emphasizes the profound impact of gender differences on the prevalence and expressions of these disorders. The paper emphasizes that while both genders are affected, the social pressures and expectations they face can differ noticeably, leading to different patterns of body dissatisfaction and eating disorder behavior. The study also emphasizes the role of cultural transformations in shaping perceptions of body image, suggesting that rapid societal changes may aggravate body dissatisfaction in both men and women. The study delves into the psychological foundation, touching on implicit social cognition, self-esteem, and deep-rooted social stereotypes, all of which play a key role in shaping an individual's attitudes and self-perceptions. The paper concludes by emphasizing the critical need for culturally sensitive therapy interventions to address the unique challenges faced by both genders in the field of eating disorders.

Key Words: eating disorders, anorexia nervosa, body image dissatisfaction, gender differences, prevenance, social pressure, self-esteem, therapy intervention

1. Introduction (Background of Eating Disorder)

The perception of the body and subsequent satisfaction or dissatisfaction with it by both men and women has long been a topic of interest in psychological and medical research. Britt Berg's research reveals that in the 12th and 14th centuries, a relationship between body perception and mental health was established through self-fasting. In the 19th century, eating disorders were attributed to physical illness and hormonal imbalances. It was only in the 20th century that eating disorders came to be recognized as being influenced by body perception and mental health. This progression underscores the increasing recognition of the impact of body perception on mental well-being (Berg, 2022).

This study aims to address existing limitations by exploring how body image dissatisfaction and anorexia nervosa affect men and women differently. By identifying these gender-related differences in detail, the study aims to set the stage for the development of more targeted interventions and support systems for the unique challenges faced by both genders. This study will effectively analyze information from roughly 88 pieces of literature to support arguments about the evolution and history of research on the development of BID and ED, the relationship between BID and ED, the impact of gender differences, and influencing factors and interventions, respectively.

2. Literature Review

2.1. Changes in the Developmental Process and Factors Influencing Body Image Dissatisfaction in Recent Times

In modern society, it is crucial to recognize the impact of the media and societal standards on body image dissatisfaction, as it exacerbates the problem and leads to an increase in mental health issues, including eating disorders. The influence of the media on body image perceptions has changed over the years. Where once television and magazines primarily promoted slim body ideals, leading women

to adopt and compare themselves to these standards (Grabe, 2008; Groesz, 2002), with the advent of social media and mobile technology has broadened the ways in which slim body ideals are promoted. This shift has intensified body image concerns and can lead to mental health issues such as eating disorders (Holland, 2016). Cash (1990) described body image dissatisfaction as a negative self-view arising from the disparity between an individual's actual body perception and an idealized image. The American Psychiatric Association (2013) identified body image dissatisfaction as a core factor in the development and duration of dieting, depression, and eating disorders. Given the fact that BID has a profound impact on the emergence and continuation of eating disorders, it is critical to develop specific interventions. Therefore, it is critical to explore in depth the relationship between BID and eating disorders and to develop effective solutions to this prevalent problem. Addressing the prevalence of body image dissatisfaction and its impact on mental health, in particular eating disorders, demands an approach of comprehensive strategies.

2.2. Assessing Body Image Dissatisfaction: Methodologies and Their Implications for Understanding Eating Disorders

In recent decades, behavioral scientists have developed measures of body dissatisfaction, primarily self-report measures like questionnaires. For example, O'Brien, Hunter & Banks (2006) conducted a study of implicit and explicit measures of anti-fat bias with physical education and psychology students in 2006. Several studies in recent years have examined the relationship between anti-fat bias and factors such as body identity, body esteem, and social dominance orientation (SDO).In 2011, Juarascio and colleagues introduced a newly created implicit measure of the internalization of the thinness ideal using the Implicit Relationship Assessment Program (IRAP). However, this assessment technique by itself only captured an aspect of human cognition (Juarascio, 2011). The vast majority of these studies' instruments for assessing BID are self-report measures that are susceptible to social expectations and impression management, which also include strategies that tend to protect self-image (Greenwald, 1995), particularly when individuals are dissatisfied with being asked to provide information about sensitive topics such as eating behaviors or body circumference and are not able to be completely truthful. Despite the limitations of these self-report methods, they remain the dominant method of assessing BID and are glimpsed here in numerous studies where dissatisfaction with body image is an important catalyst for the onset and persistence of eating disorders.

The article entitled "What is an eating disorder?" (2023) describes eating disorders as conditions characterized by persistent disorders of eating or eating-related behaviors. These disorders result in changes to food intake or absorption and have a serious impact on health or social well-being. In addition to anorexia nervosa and bulimia nervosa, the spectrum of eating disorders now encompasses binge eating disorder (BED) and avoidant/restrictive food intake disorder (ARFID).3 Anorexia nervosa is a severe eating disorder in which patients commonly have very low body weight and an extreme psychological fear of gaining weight. Often, they have a distorted view of their bodies and try to control their weight by eating very little, using laxatives or vomiting. Avoidant/Restrictive Food Intake Disorder (ARFID) is one of the eating disorders characterized by restricting the type or amount of food, not because of weight concerns, but because of disinterest, a fear of choking or gastrointestinal problems. Bulimia nervosa involves binge eating - consuming large amounts of food quickly and out of control and then clearing it by vomiting, over-exercising, or taking diarrhea, which creates feelings of guilt and shame. It is critical to distinguish this from binge eating disorder, which lacks clearing behaviors (Mayo, 2023). Eating disorders affect a diverse group of people, encompassing all ages, races, and genders. Although eating disorders are often associated with adolescence or early adulthood, they may also appear in childhood or later in life (US.HHS, 2023).

Anorexia nervosa is a very notable topic in the discussion of body image dissatisfaction. The disorder presents as a subjective and intentional self-starvation in which the patient actively resisted gaining weight even though his or her body mass index was already significantly low. Among the various eating disorder conditions, anorexia nervosa is particularly high in incidence. Based on Hoek's study in 2006, the annual prevalence of anorexia nervosa is approximately 8 per 100,000 people. One

notable aspect of the study is that from the 1900s to the 1970s, there was a significant increase in the rate of prevalence among females between the ages of 15 and 24. More specifically, from 1935 through 1999, the average incidence rate among young women has remained stable at 0.3% and has shown a marked rise. According to an analysis of this trace, an upward trend in the prevalence of anorexia nervosa is evident, suggesting that the number of people affected is likely to increase in the coming years.

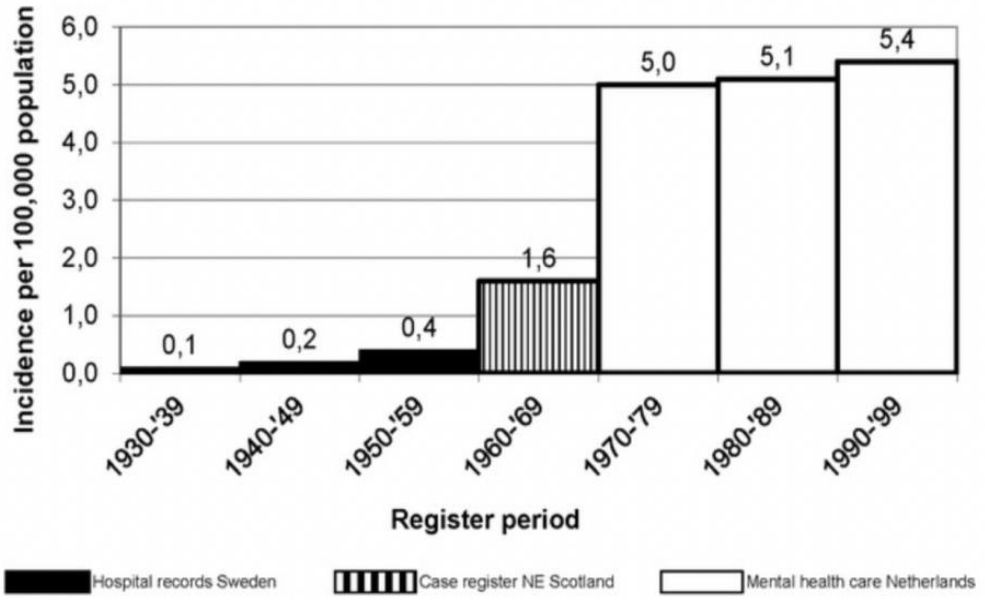


Figure 1. Annual incidence of anorexia nervosa recorded by Hoek (2006)

If not treated effectively, eating disorders can evolve into long-term problems and even lead to death in some cases (Mayo, 2023). Most eating disorders are associated with an excessive focus on weight reminders and food. The body's ability to get the nutrients it needs can easily be compromised in cases of severe dietary restriction. Eating disorders not only harm the cardiovascular, digestive, and other systems resulting in physical ailments, but can also produce depression, anxiety, suicidal thoughts and behaviors related to them (Winter, 2017).

2.3. Limitation from Recent Studies

Although previous studies have revealed a link between eating disorders and BID, there were limitations to them. Most notably, they often fail to emphasize gender differences between ED and BID. Samuels et al. (2019) studies focus on the effects of eating disorders in middle-aged and older women. Key clinical factors specific to older women with eating disorders are examined, including medical sequelae and menopausal symptoms, among others. Stabouli (2021) studied the interrelationship between adolescent obesity and eating disorders. Their research highlights a variety of key factors that link childhood obesity to eating disorders, including environmental, personal, and psychosocial risk factors. In addition, he provided comprehensive guidelines for the treatment of eating disorders. These two studies focused on ED characteristics in different age groups but neglected the gender-specific differences in the association between ED and BID in men and women.

Frank (2019) researched a relatively state-of-the-art review of the current neurobiology of eating disorders in people under the age of 25 and describes medical modeling perspectives to help develop better treatments for related ED. Achermann (2022) focused more on emphasizing the relationship between body image and body satisfaction in female adolescents with anorexia nervosa. The study analyzed a sample of 114 inpatients and outpatients from a child and adolescent psychiatric hospital between 2012-2019 through extensive assessment and survey data. However, these studies still do not emphasize the relationship between ED and BID, especially the differences between genders.

None of the studies reviewed explicitly examined gender differences, a potential omission that may be due to factors such as insufficient sample size and presentation, resulting in gender differences

not being sufficiently evident to be investigated in detail. This oversight may indicate that gender differences in body image dissatisfaction (BID) are a significant barrier and challenge to explore the relationship between body image dissatisfaction and eating disorders (ED). The fact that past research has ignored gender differences is a considerable limitation and poses a relatively unique challenge in the treatment of ED. Therefore, further research is urgently needed to explore the impact of gender disparities on the relationship between anorexia nervosa and BID.

Given these limitations, the primary purpose of this research is to delve deeper into the differential impacts of body image dissatisfaction and anorexia nervosa between men and women. By understanding these gender-specific nuances, we can develop more targeted interventions and support systems for those struggling with these challenges.

3. The Connection Between Body Image Dissatisfaction and Eating Disorders

3.1. The ED Modeling Theory Has Many Factors that Trigger (Including But Not Limited To BID) But Ultimately Point to BID.

Eating disorders (ED) are complex illnesses caused by a myriad of intertwined factors. Barakat (2023) synthesized the results of 284 studies and his research summarized nine key factors in eating disorders:(1) genetics; (2) socioeconomic status; (3) gastrointestinal microbiota and autoimmune response; (4) body image perceptions influenced by social norms and the media; (5) gender; (6) early life experiences in childhood and adolescence; (7) ethnicity; (8) specific personality traits and co-occurring mental health problems; and (9) participation in elite sports. From a biological perspective, genetics plays a foundational role. Watson et al.(2019) analyzed the DNA of 17,000 AN patients and 55,000 non-AN individuals, identifying eight significant risk loci for AN. The study found both positive and negative correlations with various mental, metabolic, and anthropometric traits. A bidirectional relationship between AN genes and low BMI risk was observed, with stronger evidence suggesting that genes leading to low BMI increase AN risk. Otherwise, psychological factors such as low self-esteem and perfectionism exacerbate food and weight concerns. From a sociocultural perspective, social expectations and media coverage exacerbate body image dissatisfaction (BID). Body image dissatisfaction is a key component in this matrix, and represents a negative self-perception of one's body image, often at variance with social standards. This strong dissatisfaction can motivate individuals to adopt extreme eating behaviors, thereby increasing the risk of developing ED.

Going back to the early days of theoretical modeling of eating disorders, Maine (2005) devised a relatively clear and complete multidimensional model of the pathogenesis of eating disorders which was adapted from Garner (1993) (Figure 2.). Garner (1993) suggests that eating disorders develop as a result of a complex combination of factors of susceptibility, predisposition, and persistence interacting with each other. Biological aspect such as genetics and neuroendocrine disorders play an important role, while psychological determine factors such as depression, anxiety, body image problems and previous trauma also play an important role. These psychological vulnerabilities are further exacerbated by sociocultural pressures, particularly the emphasis on thinness. Family dynamics characterized by specific parental roles and interactions also contribute.

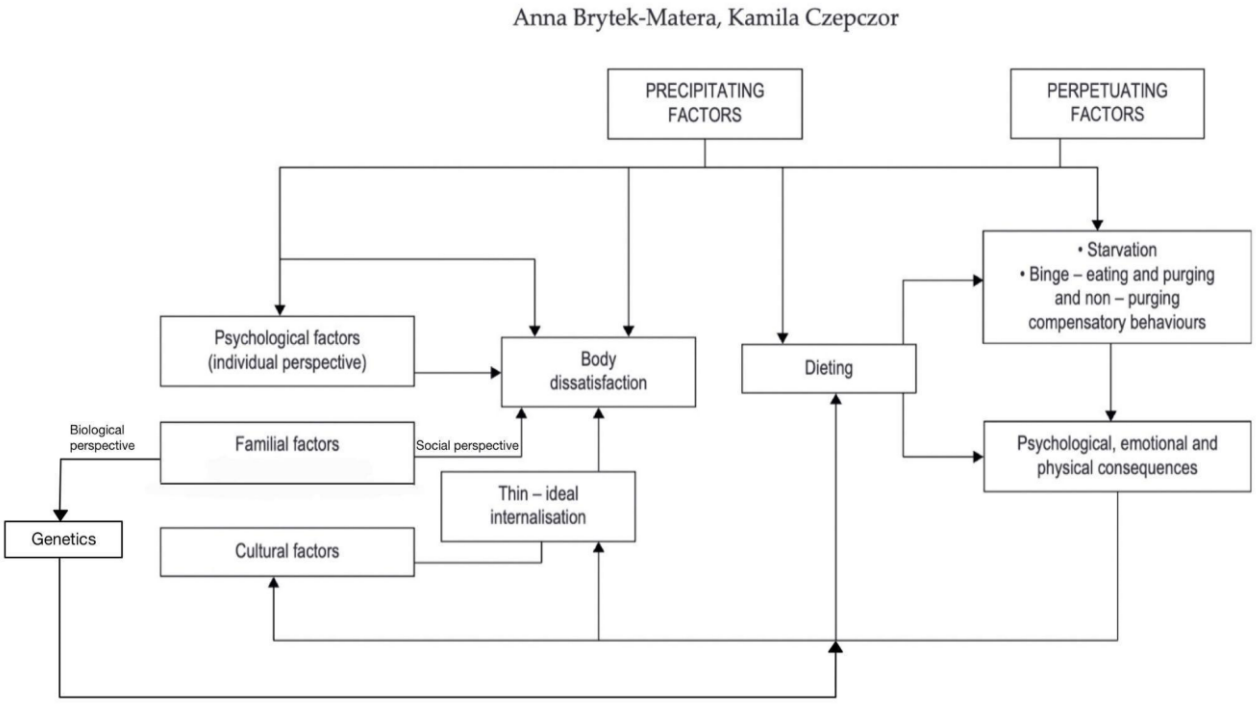


Figure 2. Comprehensive Model Depicting the Origins of Eating Disorders. Designed Based on Garner (1995) and Maine (2005)

Eating disorders are complex diseases developed by the interaction of biological, psychological, and sociocultural determined factors. Research emphasizes that genetics, psychological tendencies, and social pressures have a significant impact on the development of these disorders. At the core of these factors is dissatisfaction with body image, which can lead to extreme eating behaviors when intertwined with other triggers. Drawing inspiration from Garner (1995), Maine (2005) proposed a multidimensional integrative framework that captures the interesting interactions between the various factors. Understanding the interactions between these factors is critical to developing affective and long-lasting treatments.

3.2. The Link Between Body Image Dissatisfaction (BID) and Mental Well-being

Recently, the complex interaction between body image dissatisfaction (BID) and mental health has come to the forefront of attention. This finely detailed concern comes from an individual's self-perception and wider societal norms and has a significant impact on an individual's psychological well-being. The next section will explore the complexity of BID in depth, examining its relationship to a variety of mental health issues and the social pressures that worsen its impact.

Quittkat (2019) conceptualized body image as behavioral, perceptual, and cognitive-emotional. 'Body image dissatisfaction' refers to negative self-evaluations of one's appearance (Grogan, 2016), a highlighted stressor (Thompson, 1999) and a predicator of eating disorders (Rohde, 2015). Such dissatisfaction is not only common in people with mental illnesses such as binge eating or social anxiety disorder (Vocks, 2010), but also in the larger population. A longitudinal study of Brazilian adolescents performed by Gonzaga (2023) demonstrated a sharp rise in the rate of BID, which increased from 65.2% in 2007 to 71.1% in 2017/2018, highlighting the growing BID in the younger population.

Body image dissatisfaction (BID) is more than a superficial problem; it has far-reaching psychopathological implications. First, body image dissatisfaction has been associated with depressive disorders. Individuals with significant blindness typically exhibit symptoms of persistent sadness, hopelessness, and diminished interest in previously enjoyed activities. The negative self-perceptions that result from BID may be an important trigger for depressive episodes. Yazdani (2018) emphasized that BID triggers adverse mental health effects, including symptoms such as depression and anxiety. This can be exacerbated by social stigma, particularly in relation to obesity, which can

lead to feelings of guilt and somatic symptoms. The familial transmission of depression and obesity is further complicated by environmental factors and genetic predisposition. Furthermore, Değirmenci (2015) found that obese women were more likely to have increased levels of depression and anxiety compared to women of normal weight. The relationship between body image, social expectations, and mental health emphasizes the need for comprehensive strategies in treatment and intervention.

Body image dissatisfaction (BID) is a multi-level concept closely related to generalized anxiety and is formed by the interaction of an individual's own self-perception and societal expectations. From an internalized perspective, BID is rooted in one's beliefs and emotions about one's own appearance. This individualized cognition is critical to body image and greatly influences anxiety to worsen (Yazdani, 2018). As societal standards of appearance become deeply rooted in an individual's psychological tendencies, a heightened sense of self-consciousness and dissatisfaction can follow (Fitzsimmons-Craft et al., 2012). This upset keeps increasing when one's appearance gradually becomes the main measure of self-esteem. The resulting viewpoint leads to a constant flow of a variety of negative emotional responses, especially anxiety (Stice, 2001). In addition, concerns about potentially negative evaluations are rooted in these internalized standards, further exacerbating anxiety and causing individuals to maintain a more negative self-consciousness about their appearance over time.

Externally, the social environment exerts significant pressure on individuals to shape how they see and feel about their bodies. Social norms exacerbate the ongoing concern and worry about one's appearance, especially in environments where individuals perceive their appearance to be judged (Fitzsimmons-Craft et al., 2012). The socio-cultural model of eating disorder psychopathology (Stice, 2001; Thompson, 1999) further elucidates this point by emphasizing that from the family, peers, and the media as perceived pressures that lead individuals to internalize societal body ideals. Social body anxiety is a manifestation of this external pressure and occurs when individuals fear that society will judge them based on their body structure, shape, or weight. Moreover, Zartaloudi's (2023) study emphasized the importance of society's views on body mass index (BMI) and body self-esteem. Remarkably, individuals with an increased BMI tend to face reduced physical self-worth, which further exacerbates their anxiety levels. Notably, 20.4% of the sample had faced weight-related challenges, suggesting the ubiquity of social pressures related to appearance.

In conclusion, body image dissatisfaction (BID) is a complex issue deeply intertwined with mental health, influenced by both internal perceptions and external societal pressures. Persistent negative self-evaluation, combined with societal norms and potential criticism, are factors that can lead to serious mental health consequences such as depression and anxiety. As the prevalence of BID continues to rise, especially in the younger population, it is even more critical to adopt comprehensive interventions and strategies for their mental health as soon as possible.

3.3. The Basic Mechanism Linking BID and ED: Psychological Factors as the Central Link

The causal factors of BID and ED are complexly integrated, with psychological factors being key. BID is expressed as a negative self-perception of one's body type, which is further reinforced by social ideals and expectations. As individuals absorb these social norms, they become increasingly vulnerable to the negative effects of a variety of psychological disorders, including a greater sense of self-consciousness and an enduring fear of societal standards and scrutiny.

Psychological factors play a key role in this internalization process. Ongoing social comparisons, in which individuals measure their appearance against social benchmarks (Fitzsimmons-Craft et al., 2012; Thompson, 1999), can amplify feelings of inadequacy. When these feelings become entrenched, they manifest as "ED" and the individual adopts extreme behaviors to fit the perceived norms. For example, unhealthy weight management is a very typical behavior resulting from BID and is closely related to maladaptive diets because they are incorrectly perceived to be an effective method of controlling weight gain-often an adverse effect of maladaptive diets (Stice, 2001). Psychological distress associated with BID characterized by anxiety and depressive symptoms can further exacerbate the onset and progression of ED (Stice, 2001). The eating disorder model introduced by

Aspen (2013) and Pallister & Waller (2008) suggests that anxiety is a key channel connecting BID to ED. Fear of negative evaluations, potential ridicule, and physical surveillance are all viewed as threats to social evaluations, exacerbating psychological volatility and making individuals more susceptible to eating disorder behaviors.

In essence, social pressures, internalized body ideals, and resulting psychological barriers are intricately intertwined, creating a feedback loop in which each factor reinforces the other. This psychologically mediated cyclical relationship between BID and ED underscores the urgent need for interventions that holistically address both external pressures and internal psychological triggers.

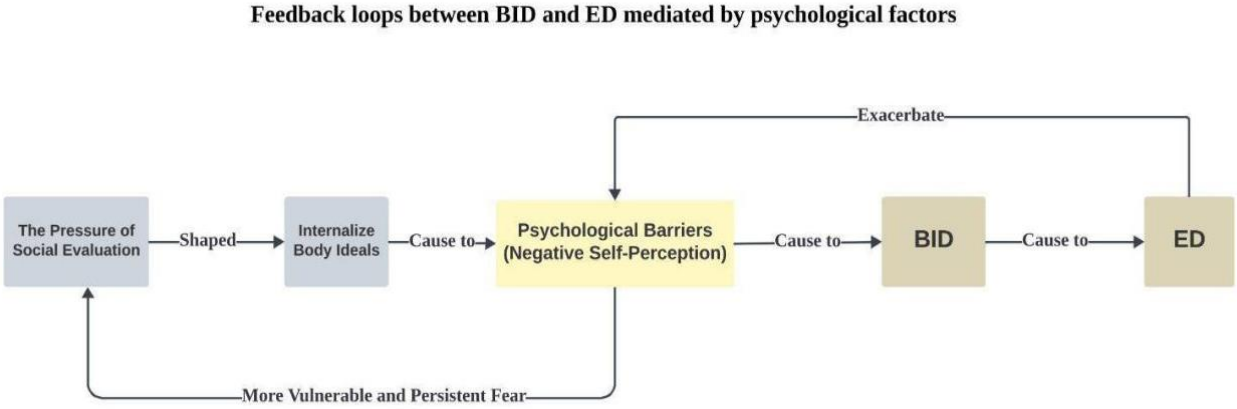


Figure 3. The Feedback Loop Between BID and ED

Figure 3. depicts the intricate interactions and bidirectional relationship between BID and ED, which are rooted in deeply ingrained psychological dynamics. BID arises from societal pressures, where prevailing societal standards of appearance create a set of internalized body ideals that lead to negative self-perceptions under pressure. This is not merely a reactive response; individuals actively internalize these standards, making them vulnerable to psychological barriers, particularly increased self-consciousness, and a persistent fear of social evaluation. This internalization is reinforced by constant social comparisons, which can catalyze the onset of ED, as the individual will resort to extreme behaviors to align with these ideals. However, this relationship is not unidirectional. While BID can precipitate ED, the presence of an eating disorder can also mutually exacerbate BID, especially if the individual adopts an inappropriate diet that is perceived as weight control. At the center of this interaction is an adverse mental state that is key in connecting BID and ED tendencies. Concerns about negative evaluations and social scrutiny further increase this anxiety. In essence, it depicts the interacting, cyclical relationship between BID and ED, emphasizing the need for holistic interventions that address both issues simultaneously.

4. Influence of Gender Differences

4.1. The Influence of Socio-Cultural Factors on Body Image Perceptions

Sociocultural factors influence body image in several ways: media, social norms, peer influence, and cultural influence. Gender differences are more pronounced in the influence of sociocultural factors.

The media plays an important role in shaping society's view of the ideal body type and portrays a very different ideal body type for each gender. The media promotes the idea that women are usually thin as the ideal, while men are muscular and well-built as the ideal. This portrayal fosters a distorted body culture, especially among adolescents, and can lead to body image issues and serious psychological problems (Pritchard & Cramblitt, 2014).

Societal standards often and the media's impact on influences related to physical appearance are largely gender specific. Women are often pressured to maintain a slim figure, while men are encouraged to be muscular. These standards can profoundly affect an individual's moods, behaviors, and emotions, especially during vulnerable adolescence.

Not only that, but peer socialization also plays a role in determining gender differences in BID, and comparisons can strongly influence body image. Females may lie in comparing thin body types with their peers, while males may compare muscular lines or body types. Peer interactions and comparisons (often gender-specific) play a crucial role in shaping perceptions of body image. Such comparisons can exacerbate body image dissatisfaction, as individuals tend to assess their own abilities and opinions based on the evaluations of others, a process that is heavily influenced by gender (Festinger, 1954).

Although the impact of BID does not appear to vary significantly across cultures by and large, the changes in body image views that have evolved over time in different regions continue to be of great interest. Research has shown a strong negative relationship between BID and various aspects of quality of life. Santhira's broad study in 2021 synthesized relevant BID events occurring in different regions, highlighting differences in impacts associated with specific life patterns. For example, as noted by Medeiros de Morais et al. (2017), in Brazil, people who are dissatisfied with their weight have a lower quality of life in terms of health and emotions than those who are satisfied with their weight. Similarly, studies in the United States (Becker et al., 2019) and Australia (Griffiths et al., 2016; Mond et al., 2013) have found significant associations between negative body image and reduced quality of life. Studies in focus on specific regions such as Turkey (Nayir et al., 2016) and Portugal (Duarte et al., 2015) have further confirmed that negative body image can have a very far-reaching impact on the four different dimensions of quality of life, physical, psychological, environmental, and social relationships.

Traditionally, BID has been a major Western social problem. However, with globalization rising, BID is also becoming a global challenge. Some research data show that the popularity of BID in Asian societies may be comparable to that of Western Europe and North America (Gordon, 2001; Jung & Forbes, 2006; Lee & Lee, 2000). A 2006 study by Wardle et al. of college students from 22 different Asian countries showed that people in the Asian region most tend to feel self-perceived overweight and adopt dieting behaviors. A very typical example is that in Japan, a significant proportion of adolescents have a negative view of their body image and a clear tendency to lose weight, no matter what their actual weight is (Chisuwa and O'Dea, 2010). Similar findings have been reported in Malaysian studies, where a large percentage of university students' express concerns about body image abnormality and have a strong desire to lose weight (Kamaria et al., 2016).

In conclusion, while BID has historically been viewed primarily as a Western concern, it has undeniably resonated globally, with people of different cultures grappling with serious body dissatisfaction. BID has become a notably globalized and noteworthy issue.

4.2. Study on BID in Different Gender Groups

Research has consistently emphasized the existence of body-related attentional biases in all genders. These biases originate from the degree to which individuals perceive their own body image, which varies by gender. Such differences affect how they perceive and respond to body image. Even though these biases are everywhere, only a few research efforts have explored the complexity of the gender differences in this area in depth (Cho & Lee, 2013; Porras-Garcia et al. 2019; Warschburger et al. 2015).

The importance of exploring these biases becomes even more apparent when we consider that much of the evidence points to the existence of different patterns of BID between the sexes. Such differences emphasize the clinical importance of exploring how body-related attention is distributed across genders. By understanding these pattern differences, we can identify potential factors that contribute to differences in body dissatisfaction between the genders.

By closely reviewing existing research, we can learn more about the differences between these models. For example, it has been shown that when presented with computer-generated human bodies, women tend to favor idealized thin bodies, while men favor muscular bodies (Cho & Lee, 2013). This distinction becomes even more obvious when individuals are exposed to a virtual human body that matches their gender. In this case, women focus primarily on body parts traditionally associated with

weight, such as the waist and thighs. In contrast, men's attention is focused on muscle-related areas, such as the chest and arms (Porras-Garcia et al., 2019).

In a study performed by Arkenau (2022) an eye-tracking test was used where participants were shown frontal body images of themselves and their partners. The results of the study showed that women's visual attention was primarily focused on their own and their partner's abdomen. Specifically, when looking at their own bodies, the focus of attention was the abdomen (78.9%), followed by the thighs (73.7%), and breasts (44.7%). Similarly, when evaluating their peers' bodies, the abdomen received the most attention (65.8%), followed by the thighs (65.8%), shoulders and neck (65.8%) (Figure 4). In contrast, men's attention was mainly focused on the abdomen. The order of attention to one's body was abdomen (86.5%), genital area (51.4%), and chest (45.9%). When looking at the bodies of their peers, men's attention was likewise primarily focused on the abdomen (70.3%), followed by the chest (48.6%), and genital area (51.4%) (Figure 5).

This data highlights a clear difference between males and females in how they assign visual attention to specific body regions in a meaningful way. Both males and females seem to put an emphasis on the abdomen, but females pay more attention to the shoulders and chest. In contrast, males distinctively focused their attention on the genital region. This evidence emphasizes the obvious differences between the genders in their attention to body regions.

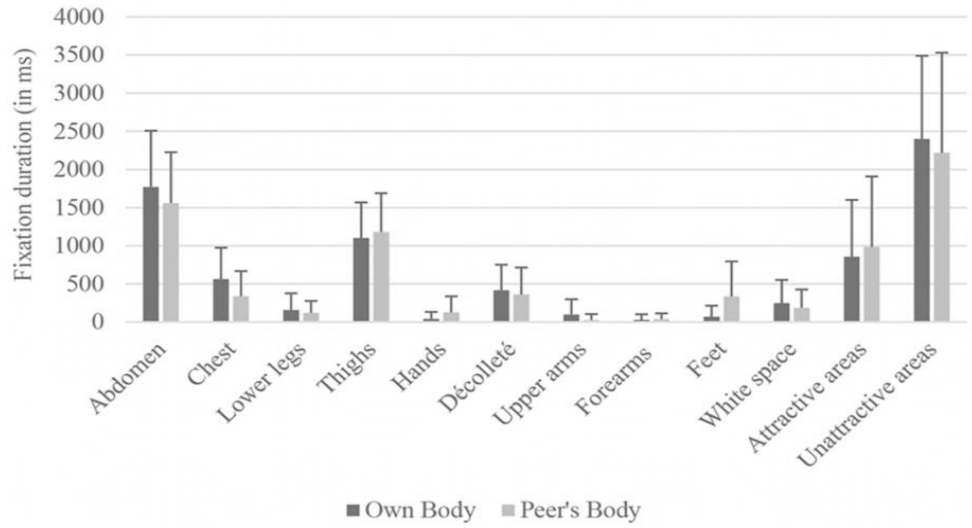


Figure 4. The Most and Least Attractive Parts of Their Own and Their Peers' Bodies as Perceived by Women (N=38). Adapted from Arkenau (2022).

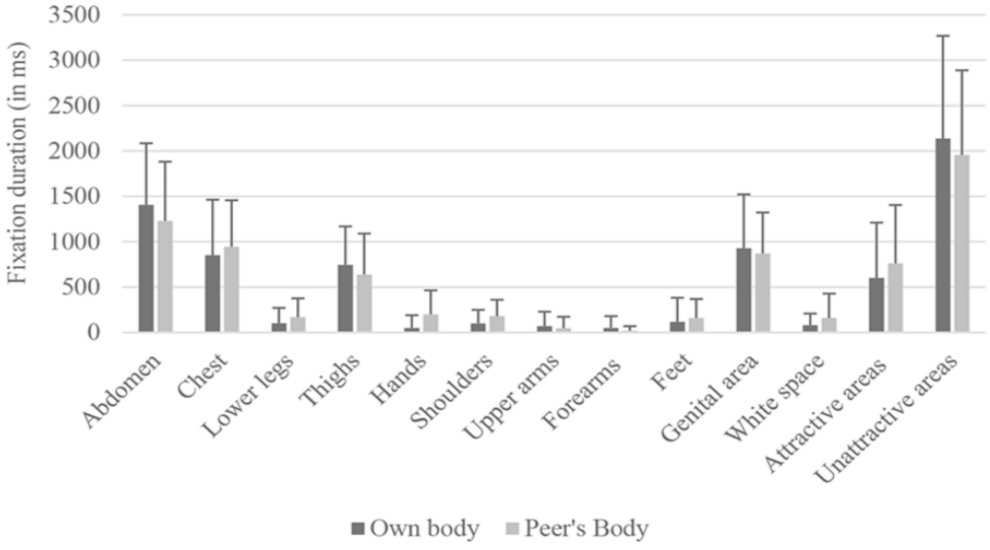


Figure 5. The Most and Least Attractive Parts of Their Own and Their Peers' Bodies as Perceived by Men (N=37). From Arkenau (2022).

These gender-specific attention patterns are more than just observations; they have far-reaching implications. By understanding how people of different genders allocate their attention when viewing the human body, we can gain valuable insights into their cognitive-emotional responses. These patterns may be a window into functional viewing behavior, in which individuals focus their attention on areas they find attractive. Conversely, they may also reflect avoidance strategies or coping mechanisms, especially when confronted with body parts they find less attractive or unsafe (Warschburger et al., 2015).

4.3. Differences in the manifestation of ED by gender

While eating disorders are prevalent in all genders, their expression varies due to the interaction of biological, social and psychological influences. Research on eating disorders has been primarily focused on women, so there is a clear knowledge deficit about symptoms in the male population. For example, Murray et al. (2017) highlights the neglect of men in eating disorder research, noting that less than 1% of recent peer-reviewed scientific publications directly address anorexia nervosa (AN) in men. They suggested that differences in assessment and diagnostic methods vary between men and different gender groups, and that this difference is a contributing factor. While women are often diagnosed with disorders such as anorexia nervosa, it is important to recognize that men are just as likely to suffer from these disorders. However, social stigma or misunderstanding of symptoms can lead to underdiagnosis in men. Coelho et al. (2021) have done this by examining gender differences in eating disorder symptom presentation and outcomes in children and adolescents and working to find ways to eliminate these differences. Their findings suggest that transgender adolescents exhibit more significant eating disorders than cisgender adolescents. Interestingly, no significant differences were found between cisgender males and females at baseline for eating disorder symptoms. However, at the end of treatment, 69% of cisgender males showed significant improvement in eating disorder symptoms, in contrast to only 28% of cisgender females who showed significant improvement in eating disorder symptoms. This suggests that the effects of both track and efficiency of recovery are relatively more marked in males than in females.

In fact, numerous studies have shown significant demographic and clinical differences between male and female children and adolescents diagnosed with eating disorders. Males tend to manifest symptoms of eating disorders at an earlier age. Remarkably, research has shown that adult males with eating disorders only represent around 5% of referrals (Button, 2008), compared to 7.8% of adolescent males aged 13-19 years (Peebles, 2006). In addition, male patients tend to be more likely to be affiliated with minority ethnic groups and are often diagnosed with an "atypical" or "other" eating disorder. However, it's important to approach these findings with caution. Their generalizability is limited, and certain studies have found no significant age-related differences between genders. The existing literature presents a dichotomy in evidence concerning the co-occurrence of mental health issues among male and female adolescents with eating disorders. For instance, some research suggests a heightened prevalence of depression in male adolescents with eating disorders (Ridout, 2021), while other studies indicate a more pronounced prevalence of mood disorders in females (Norris, 2012). It is reasonable to think about the reasons behind the underlying causes of these differences. Factors such as social norms, cultural expectations, and biological determinants may influence the prevalence and presenting symptoms of eating disorders across genders. Nonetheless, the differences evident in the data emphasize the need for more in-depth and comprehensive research. It's essential to understand the nuances of these disorders across genders to provide tailored interventions and support.

In terms of symptom presentation, males are typically more concerned with musculature and less concerned with body size, weight, striving for slimness, and body dissatisfaction than females. Chu's (2021) recent study of eating disorder behaviors and weight goals in young adults in the U.S. demonstrated that young males with an initial body mass index (BMI) of less than 18.5 exhibited eating disorders, particularly fasting or under-eating. This was associated with an increase in BMI over time. In contrast, for 25-year-old women with an initial BMI of 18.5 or higher, dieting to lose or

maintain weight over time was associated with a significant increase in BMI. This difference in symptom presentation may be due to societal standards and ideals; some men may view a muscular body type as the ideal body type, whereas women generally view it as the ideal body type of thinness (Darcy, 2012).

In conclusion, although eating disorders are prevalent across genders, their manifestations, and societal perceptions of them vary greatly. Ensuring that the distinctions made by these key gender differences are recognized is critical for clinicians and researchers and will provide them with approaches to care and interventions that are specifically tailored to the different challenges and experiences faced by different genders.

5. Influencing Factors and Intervention Measures

The complex interplay between the two morbidities has attracted much attention in previous academic discussions about BID in ED. A confluence of determinants, notably societal influences, and psychological barriers, profoundly underpins this relationship. Evidence-based interventions have been devised to address these complexities. It's imperative to underscore that gender disparities play a pivotal role, influencing both body image perceptions and dietary behaviors.

5.1. Review the Factors Influencing BID and ED

The intricate interplay between BID (body image dissatisfaction) and ED (eating disorders) is underscored by multifaceted determinants, both societal and psychological. Historically, models by Maine (2005) and Garner (1995) highlighted the multidimensional origins of ED, with BID emerging as a pivotal factor. Media, with its portrayal of idealized body types, alongside societal norms, significantly shapes body image perceptions, further exacerbating BID and the risk of ED (Thompson, 1999). Concurrently, psychological factors, such as depression and anxiety, intensify this relationship (Yazdani, 2018). Gender differences play a crucial role in these dynamics. For example, women often face social pressure to be thin, which leads to increased susceptibility to BID and ED (e.g., anorexia nervosa). Conversely, men may face pressure to be muscular, which can lead to disorders such as muscle dysmorphia. These gender-specific social pressures and perceptions lead to various manifestations of BID, which in turn trigger ED. In addition, specific triggers and coping strategies associated with ED can vary by gender. For example, social pressures such as internalization of the thin ideal may be more prevalent in women, whereas men may struggle more with the ideal of muscularity. These different gender influences can lead to different manifestations and coping patterns related to ED. The bidirectional relationship between BID and ED is further complicated by these gender nuances and their influence on predisposing factors, each of which may predispose or exacerbate the other.

The complex interactions between BID and ED are shaped by a variety of social and psychological factors. Persistent body image dissatisfaction can cause mental health problems, including depression, anxiety, and social fears (Yazdani, 2018). These psychological disturbances, in turn, can distort eating habits, heightening the risk of EDs. Physiologically, persistent EDs, especially anorexia nervosa, can result in malnutrition, which subsequently impacts the immune system (Scrimshaw & SanGiovanni, 1997). One interesting point to consider is that gender differences play a key role in the manifestations, triggers, and coping mechanisms associated with BID and ED, which emphasizes the importance of gender-specific interventions.

5.2. Assessment Tools in BID and ED Diagnosis

When diagnosing BID and ED, choosing the appropriate measurement tool is critical. In recent years, behavioral scientists have developed a variety of body dissatisfaction measurement tools, the best known of which is the Self-Report Questionnaire. As an illustration, O'Brien et al. (2007) employed both implicit and explicit methods to gauge anti-obesity bias in their research on physical education and psychology students. The RRT (Relational Response Task) is an implicit assessment

tool that pinpoints body image perceptions that individuals may be unwilling or unable to over-express. This insight can help us better understand the root causes of BID and thus provide direction for psychotherapy (De Houwer, 2015). The Contour Depiction Rating Scale (CDRS) (Thompson, 1995) and the Eating Disorder Inventory (EDI) (Garner, 1983) provide tools for assessing an individual's body image perceptions and psychological characteristics associated with eating disorders.

Incorporating gender differences into the assessment is also crucial. Typically, women feel a greater lack of control over their eating compared to men; however, binge eating is more prevalent among men (Striegel-Moore, 2009). A higher percentage of women than men met the criteria for binge eating at diagnosis. However, while these differences are statistically significant, the differences are in fact quite small. In addition, about one in five women and nearly one in ten men admitted to regularly assessing their body image in the past three months (Austin, 2008). One interesting finding was that women were also more inclined to intentionally not monitor their weight or body shape compared to men (Shafran, 2007). These nuances highlight the importance of considering gender differences when using diagnostic tools for BID and ED.

In conclusion, choosing the right diagnostic tools is critical for timely intervention for BID and ED. Not only do these tools help us to assess a patient’s condition more accurately, but they also provide us with valuable recommendations to help us better support and treat our patients.

5.3. Three Levels of Intervention in ED

Based on the previous comprehensive discussion, eating disorders are multifaceted mental health challenges that require a comprehensive intervention approach to successfully prevent and manage the disorder. This paper will explore the use of tertiary interventions in eating disorders and how different strategies can be combined to provide comprehensive support.

5.3.1 Primary Prevention: Early Intervention For ED

Eating disorders typically manifest between the ages of 15 and 25. Hence, primary preventive measures should be initiated prior to this age range, particularly during the educational years (Shisslak et al., 1987). Teachers, parents, peers, and school physicians are all key players in prevention. Teachers, due to their extended interactions with students, can promptly identify and discuss issues related to eating disorders, such as the culture's excessive pursuit of slimness and dieting behaviors. To avoid labeling specific students, it is recommended that these topics be discussed with the entire student body during the regular curriculum, especially in health education classes (Noordenbos,1994). School physicians can also play a key role by screening students for physical and mental health, especially for students who have low self-esteem and negative evaluations of their bodies. To be more effective in prevention, certain teachers and school physicians need special training to recognize risk factors for eating disorders and provide appropriate interventions.

5.3.2 Secondary Prevention: Prompt Intervention Strategies for Individuals Susceptible to ED

The main aim of secondary prevention is to intervene early in the eating disorder, particularly in the early stages of anorexia nervosa. A significant barrier to this approach is that many affected individuals perceive their eating habits as a "remedy" for previous problems, such as reduced self-worth and negative evaluations of their bodies. As a result, they may ignore the existence of an eating disorder. Often, they become aware of the problem only when parents or primary care physicians notice the emergence of serious dieting and weight loss practices. The delay in recognizing the symptoms of eating disorders makes early intervention more complex and difficult. In fact, parents, educators, and primary care physicians often only recognize the severity of the problem when they observe someone engaging in serious dieting and weight loss. This recognition delay blocks timely intervention and even worsens symptoms by not treating them in a timely manner.

For secondary prevention to produce more significant results, it is critical to be able to identify and differentiate between "typical" and "abnormal" dieting behaviors early in life in a timely manner. Studies (Noordenbos, 1987; Noordenbos et al., 1987) have shown that individuals suffering from

anorexia and bulimia are more likely to be willing to lose weight and exhibit significant differences in frequency of eating, choice of food group consumed, and emotional reactions after eating, compared to individuals on long-term programs of dieting. Not only that, but people with anorexia nervosa often diet and lose weight to improve self-esteem, increase confidence, reduce dependence on others, and increase their sense of control and empowerment in an attempt to increase their satisfaction with their bodies. However, this so-called "solution" is misleading. This approach is known as a "pseudo-solution" and once they try to stop dieting, the previous problems reappear (Noordenbos, 1987; Noordenbos et al., 1987).

Therefore, to achieve effective secondary prevention, it is crucial to identify and focus on individuals who are already experiencing potential problems to a greater or lesser extent at an early stage, in order to provide them with appropriate support and intervention.

5.3.3 Tertiary Prevention: An Integrated Multidisciplinary Strategy

Tertiary prevention is the key stage of eating disorder intervention and is aimed at patients who are already experiencing severe symptoms. The goal of this intervention is to halt the progression of the eating disorder and mitigate its multifaceted complications (Vandereycken & Meermann, 1984). A successful program for the treatment of eating disorders must adopt an integrated strategy that combines medical, nutritional, cognitive therapy interventions and more. This integrated approach ensures that not only the obvious eating behaviors are addressed, but also the deeper psychological factors, such as body dissatisfaction and the pursuit of extreme perfectionism.

In recent years, the critical role of the gut microbiota in overall health has been emphasized, and imbalances can lead to a range of diseases, including eating disorders (David, 2014; Navarro-Tapia, 2021). Probiotics, often referred to as good bacteria, have emerged as promising tools to reestablish this balance and influence mood and appetite (Fetissov, 2017). From a pharmacologic perspective, treating AN still presents significant challenges. The emergence of innovative drugs, including neurotransmitter modulators and antipsychotics, has helped push the way for new therapeutic possibilities (Frank, 2016). However, the use of these medications needs to be critically reviewed, especially considering the possible simultaneous health problems that patients may face (Frank, 2016). The efficacy of these therapies depends on various determinants such as the patient's age, disease track, and prevalent coexisting psychological conditions. Curiously, the efficacy of these advanced therapies does not exhibit significant gender differences. External influences, such as the media's emphasis on slimness, can also sway treatment success. Early identification is crucial, regardless of the stage of intervention, as it can significantly improve the outlook for recovery and reduce the risk of recurrence.

Before taking an in-depth look at treatment and intervention approaches for eating disorders, it is essential to recognize the importance of gender differences in these treatment strategies. Differences brought about by gender may not only affect the prevalence and duration of eating disorders but may also affect treatment response and treatment efficacy. Therefore, in the following discussion of treatment approaches, we will pay close attention to the role of cognitive-behavioral therapy, neuromodulation therapy, and social interventions in the prevention and treatment of eating disorders, while also considering the impact of gender differences.

5.3.3.1 Cognitive-Behavioral Therapy and Neuromodulation to Eating Disorder Treatment

Treatment options for eating disorders are expanding with the continued advancement of modern treatment techniques, particularly the advent of cognitive behavioral therapy (CBT-E) and neuromodulation. These advances offer great promise for more effective and targeted interventions. Moreover, the introduction of the transdiagnostic CBT-E approach has very significant therapeutic usefulness for patients diagnosed with bulimia nervosa (BN) and binge eating disorder (BED). This model provides a unified treatment strategy for a variety of eating disorder diagnoses, highlighting its versatility and potential for broader application. Empirical studies have corroborated the adaptability of CBT-E across a spectrum of diagnoses, consistently yielding positive outcomes (Cooper, 2001).

One of the most mainstream therapeutic approaches is Cognitive Behavioral Therapy (CBT). This therapy centers on helping patients build self-awareness, identify, and challenge the distorted thinking and beliefs that lead to eating disordered behaviors (Kass, 2013), and learn to view themselves and food in a healthier, realistic way. Notably, gender differences play a crucial role in the perception and internalization of body image and societal standards. For instance, women might be more susceptible to societal pressures of the "ideal" body, while men might focus more on muscularity and strength (Dakanalis et al., 2014). Such cognitive variations necessitate tailored CBT interventions that address these gender-specific concerns. This is further substantiated by Murphy et al.'s findings (2010), which underscore the pivotal role of CBT in addressing the cardinal psychopathology of eating disorders, namely the overemphasis on shape and weight.

In addition to CBT, exposure therapy has been employed to assist patients who harbor fears and anxieties about food and eating. In a controlled environment, patients are confronted with the foods or situations they dread, progressively diminishing their fears and anxieties. Integrative cognitive-affective therapy (ICAT), a burgeoning psychological intervention, encourages patients to embrace their internal experiences, such as emotions and thinking, rather than attempting to modify or evade them (Wonderlich, 2014). ICAT not only concentrates on the content of thinking but also on its relationship, emphasizing commitment and behavioral change to aid patients in taking meaningful action based on their values.

Considering the gender disparities elucidated in recent research, it is evident that men with Anorexia Nervosa (AN) demonstrate a distinct trajectory in therapeutic weight gains compared to their female counterparts. Conversely, men diagnosed with Binge Eating Disorder (BED) manifest a pronounced weight reduction during intervention phases, diverging from female trends (Murphy et al., 2010). Such disparities underscore the imperative for gender-tailored therapeutic approaches.

Meanwhile, neuromodulation methods such as repetitive transcranial magnetic stimulation (rTMS) and deep brain stimulation (DBS) are becoming increasingly promising in the medical community. Recent clinical studies, including one by McClelland (McClelland, 2016), have emphasized the therapeutic benefits of transcranial magnetic stimulation, particularly for patients with chronic anorexia nervosa. These innovative techniques hold promise for more effective interventions in challenging cases. A salient study delineated marked improvements in core symptoms of eating disorders post-rTMS intervention during a food challenge task (McClelland, 2016). Additionally, DBS, with a focus on the subcallosal cingulate gyrus, has exhibited efficacy in addressing refractory anorexia nervosa, with certain studies reporting sustained therapeutic outcomes extending beyond a year post-intervention (Lipsman, 2017). The advent of technology has ushered in a new era for psychological interventions in ED treatment. Bauer and Moessner (2013) underscored the potential of technology in augmenting evidence-based interventions, enhancing treatment efficacy. Furthermore, to optimize the effectiveness of psychological interventions, endeavors have been made to refine therapist training, with Zandberg and Wilson (2012) providing proof-of-concept data on the "train-the-trainer" strategy.

While the neuromodulator interventions herald a paradigm shift in treatment modalities, it is paramount to approach their findings with caution, given their nascent stages and the heterogeneity in results. The evolving domain of neuroimaging is poised to further elucidate the neurobiological substrates underpinning psychiatric disorders, paving the way for a more nuanced understanding of neuromodulator targets (McClelland, 2013). In summation, the integration of gender-specific nuances into therapeutic interventions is not merely recommended but essential, ensuring a holistic and efficacious approach to the treatment of eating disorders.

5.3.3.2 Social Interventions in Eating Disorder Prevention and Treatment

Eating disorders (ED) are multifaceted conditions, deeply entrenched in social, cultural, and psychological realms. Recognizing this intricate web is paramount, as it underscores the indispensability of social interventions in offering a comprehensive treatment approach to ED. Yet, the effectiveness of these interventions isn't universal; it's modulated by gender differences, underscoring the need for bespoke strategies.

The divergence in societal pressures and stigmas concerning body image for men and women is a testament to these gender disparities. Societal paradigms often champion muscularity and robustness for men, while for women, the emphasis leans towards thinness. Such distinct societal constructs not only shape the manifestation of eating disorders but also dictate the requisite therapeutic interventions. This is evident in the efficacy of cognitive dissonance-based interventions, which have garnered empirical support for their role in forestalling the onset of eating disorders (Matusek, 2004). Delving deeper into gender-specific interventions, research by Becker, Smith, and Ciao illuminates the potency of peer-led programs (Black Becker, 2008). Men, often ensnared by societal misconceptions that predominantly associate ED with women, can derive immense benefit from peer-led initiatives that confront these stigmas. Conversely, for women, interventions that champion body positivity and contest prevailing beauty norms can be particularly salient.

The significance of tailoring interventions to gender nuances is further exemplified by community participatory research. Piran's exploration in environments dominated by female narratives instigated profound shifts, mitigating the risk factors associated with eating disorders (Piran, 2001). In parallel, male-oriented settings demand strategies that address their unique challenges, such as confronting stigmas tied to perceived vulnerabilities or the compulsion to adhere to traditional masculine benchmarks. The centrality of social interventions in the ED therapeutic landscape is undeniable. However, their success hinges on acknowledging and adeptly navigating the gender-specific challenges and experiences. A nuanced, gender-informed approach is not just recommended but essential to ensure that interventions align with the authentic experiences of all individuals, transcending gender boundaries.

In this section, the intricate relationship between body image satisfaction and the prevalence of eating disorders has garnered significant attention. Multiple determinants, especially societal influences, and psychological impediments, profoundly underpin this relationship. Gender differences play a pivotal role in influencing body image perceptions and eating behaviors. Choosing the appropriate measurement tools is crucial for diagnosing body image dissatisfaction and eating disorders. Eating disorders are complex mental health issues that require multi-layered intervention strategies for effective prevention and treatment. Social interventions play a key role in the prevention and treatment of eating disorders, but their success hinges on recognizing and adeptly addressing gender-specific challenges and experiences.

6. Conclusion

The intricate relationship between body image dissatisfaction and eating disorders is a multifaceted subject that demands comprehensive exploration. This study, grounded in a thorough examination of this relationship, has yielded several pivotal conclusions and insights. These findings not only shed light on the nuanced interplay between body image dissatisfaction and eating disorders but also lay the groundwork for subsequent research endeavors.

A particularly striking area warranting further investigation is the differential manifestation of eating disorders across genders. This variance is not merely rooted in biological distinctions but spans psychological, cultural, and societal dimensions. It's noteworthy that, despite the widespread recognition of eating disorders, research frequently marginalizes or neglects men and gender minorities. Such an omission might inadvertently cloud certain facets of our understanding of eating disorders. While this study accentuates the importance of these gender disparities, it also identifies psychological factors as key players in the nexus between body image dissatisfaction and eating disorders. The relentless societal pressures of comparison and the stress of body image can exacerbate this dissatisfaction, potentially leading to the onset of eating disorders.

Nevertheless, our research is not without its constraints. A significant limitation is the lack of a profound exploration into gender-specific differences in eating disorders, particularly in Part IV. This gap might stem from either a dearth of pertinent data or the need for a broader research paradigm. Additionally, while our primary emphasis was on the interplay between body image dissatisfaction

and eating disorders, we refrained from delving extensively into other potential determinants, such as genetic or biochemical factors. The consistent marginalization of men and gender minorities in eating disorder studies raises pivotal inquiries. Is this exclusion a byproduct of socio-cultural biases or inherent research methodologies? Or does it signal a pressing need to recalibrate our definitions and categorizations of eating disorders to better encapsulate their experiences?

Furthermore, understanding the gender-based nuances in body image perceptions might pave the way for innovative breakthroughs in eating disorder treatments. Tailoring treatments to address gender-specific needs and recognizing the differential impacts of body image perceptions on treatment outcomes could be instrumental.

In summation, this study underscores the profound complexities inherent in the relationship between body image dissatisfaction and eating disorders. While we acknowledge the inherent limitations of any research, we remain optimistic that our findings will serve as a beacon for future researchers and practitioners. By deepening their understanding of this intricate relationship, we hope to facilitate more targeted and effective interventions for those grappling with these challenges.

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