



# Eating Disorders and Personality Disorders in Women

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## Introduction

Eating disorders (EDs) are characterized by inadequacies in consumption, by eating patterns and behavior, as well as by a variety of mistaken beliefs about food, leading to progressive worsening of nutritional and psychopathological aspects.

These disorders are determined by a multifactorial etiology, while cultural aspects (such as concerns with weight and body shape, standards of beauty), psychological aspects (individual and family), use of restrictive diets (which may initiate a cascade of biological changes), and biological vulnerability (genetic and family history of eating disorder) play an important role in the triggering, the maintenance, and the perpetuation of the respective symptoms [1].

The EDs are most commonly observed in developed and industrialized countries, with the greatest incidence in young women between 18 and 30 years of age (3.2%). Although less common in men, the severity is the same, while homosexual men have a higher predisposition than heterosexual men. Risk factors include gender, ethnicity, childhood eating problems, weight

and body concerns, negative self-rating, history of sexual abuse, and/or psychiatric disorders [1].

Eating disorders cause intense emotional distress, morbidity, and psychosocial impairment [2]. The mortality of patients diagnosed with eating disorders is high both for clinical complications and for suicide, as this shows the need for improvement in the diagnosis, treatment, and multidisciplinary approach of the healthcare teams in order to avoid negative outcomes [3].

Statistics from the National Eating Disorder Association suggest a monthly cost of US\$30,000.00 for inpatient treatment, while patients in intensive outpatient treatment cost US\$500 to US\$ 2000 per day [4].

Comorbidity among EDs is more a rule than an exception. Original articles and a variety of reviews have been pointing to associations between personality and EDs while proposing many different theories on the understanding of this association and its significance in terms of etiology, expression of symptoms, adherence to treatments, and evolution of the clinical condition [5].

## Updates to the DSM 5

Improvements in the diagnostic criteria in the Diagnostic and Statistical Manual of the American Psychiatric Association, 5th edition (DSM 5) contributed to more accurate diagnostics,

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significantly reducing the number of patients who fit into the residual category of atypical eating disorders [6].

The Eating Disorders chapter of the DSM 5 includes the following categories along with the respective modifications for AN, BN, and BED [7].

### **Anorexia Nervosa (AN)**

Characterized by self-inflicted weight loss, voluntary loss of weight, and distortion of body image, accompanied by fear or refusal to gain weight; the need for amenorrhea was abolished in DSM 5 since it was observed that many individuals had all the characteristics for AN, but with some menstrual activity. In addition, this criterion could not be used in prepubescent girls, women using hormonal contraceptives, or postmenopausal women nor men. A temporal reference was also included for the classification of the subtypes, defined as restrictive subtype (AN-R) (in the last 3 months, there was no episode of compulsion or purgative practice) and purgative subtype (AN-P) (in the last 3 months, there have been episodes of compulsion and/or purging). DSM 5 uses the individual's BMI as the severity specifier.

### **Bulimia Nervosa (BN)**

Characterized by episodes of binge eating, i.e., intake of large quantities of food in a short period with a sense of loss of control, and use of compensatory methods inappropriate for weight control, such as self-induced vomiting, compensatory diets, use of medications (laxatives, diuretics, appetite suppressants), and exaggerated physical exercises. Excessive concern with weight and body shape is observed. DSM 5 includes as a minimum diagnostic criterion, one compulsion episode, once a week, in the last 3 months. As a severity specifier, the frequency of inappropriate compensatory behaviors practiced by the patient is used.

### **Binge Eating Disorder (BED)**

Characterized by recurrent episodes of binge eating in the absence of compensatory behaviors to promote loss or avoid weight gain. Increasing evidence indicating that BED is a specific condition led to it being inserted into DSM 5 as a diagnostic category in the chapter on eating disorders, instead of only mentioning it in the appendix. It also includes, as severity specifiers, the frequency of binge eating episodes.

At the end of this chapter, we present the new DSM 5 diagnostic criteria for the three main EDs.

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### **Gender-Related Considerations**

Over the past two decades, study results have highlighted the relevance and specificity of female mental health. The evidence covers several areas of interest and confirms gender differences in relation to biological factors; risk factors and protective factors; trauma, violence, and social stressors; etiopathogenesis, onset, course, and prognosis of mental disorders; and identification, treatment, and intervention. In addition, it is proven that work disability due to mental health conditions in women is significantly higher than in men, while depression in women accounts for 42% of the causes of neuropsychiatric disability compared to 29.3% in men, and rates are even higher – reaching up to 65% – if women of reproductive age (16–55 years) are considered. Despite the influence of gender on the onset and development of mental disorders, mental health diagnostic manuals do not yet have a gender-specific approach. To date, there is no specific assessment tool that provides detailed information on the psychopathology of mental disorders related to pregnancy, postpartum, menstrual cycle, perimenopause, and postmenopause. Epidemiological studies show that at the onset of a woman's reproductive age (menarche), mood disorders are up to twice as common in women as in men, in addition to anxiety, eating disorders, and somatoform disorders. There are also differences in the type and size of the comorbidities [8].

Recent studies suggest that the testosterone circulating in boys and the absence of it in girls, while still in intrauterine life, would have primary effects on the CNS and, consequently, on the behavioral differentiation. In adolescence, again, circulating sex hormones are part of the reorganization of the CNS and emergence of female and male secondary characteristics, and this phase would be related to the etiology of eating disorder: testosterone as a protective factor in men and estrogen and progesterone as a risk factor [9].

Gender differences are also reflected in eating behavior. Women demonstrate a greater preference for food with high sugar and carbohydrate content when compared with men; as the changes in serum levels of ovarian hormones seem to have a relationship with this intake, being that, in the post-ovulation phase, where there is a peak of estrogen and progesterone, there is a higher frequency of episodes of compulsion and “emotional eating” (i.e., reactive to negative emotions), and, in the pre-ovulation phase, this frequency decreases. Again high testosterone levels may contribute significantly as a protective factor, as high levels of this hormone in the postpubertal phase in boys were associated with fewer episodes of binge eating [9].

Caroleo et al. classified 201 obese individuals into 2 different clusters. The objective is to outline the differences between psychopathology, personality traits, cognitive patterns, and genes. Recognizing different patterns of obesity contributes to a greater understanding of the disease and to the development of individualized treatments. Again the influence of gender can be observed. Two different patterns were observed in the individuals studied [10]:

- Cluster 1: had a higher percentage of male gender and higher rates of social eating and prandial hyperphagia, higher percentage of lean mass, and a higher frequency of the long allele of the 5-HTTLPR gene.
- Cluster 2: had a higher percentage of female gender and higher rates of emotional eating, compulsive eating, craving for carbohydrates, nocturnal eating, snacking pattern, and a

worse metabolic and inflammatory profile. In this cluster there were impaired scores in all psychopathological schools (BES, BDI, STAI, BIS), higher rate of psychiatric comorbidities, higher BMI, higher proportion of BED, higher percentage of fat mass, more affective symptoms and dysfunctional personality traits (greater avoidance of harm and less self-direction), worse decision-making, and greater cognitive impairment (flexibility). In relation to the genetic profile, there is a higher frequency of the short (S) allele of the 5-HTTLPR gene.

The short (S) allele of the 5-HTTLPR gene has already been related to various psychiatric conditions and eating disorders. This allele was related to a higher propensity for major depressive episodes due to stressors; less transcriptional activity and less efficiency in the reuptake of serotonin (which may explain greater presence of psychiatric comorbidities); higher impulsivity, higher rates of BN, anxiety, and depression; higher levels of anxiety and impulsivity in women diagnosed with ED; and greater emotional instability and severity of psychopathological symptoms [10].

Finally, women diagnosed with AN present higher probability of low weight gain in pregnancy and higher rates of spontaneous abortions, cesarean delivery, lower birth weight of newborns, and premature birth. In addition, women diagnosed with BN present higher rates of spontaneous abortions, hyperemesis gravidarum, and postpartum depression [11].

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## Comorbidities

The psychiatric comorbidity among EDs is very common and is of great interest since it is part of the treatment aim. Some of these comorbidities present very early onset in childhood and adolescence, sometimes even earlier and, in others, arising concurrently with EDs. The early emergence and frequent chronification of many of these conditions make it possible to “separate the chaff from the wheat” (i.e., to determine what the

comorbidity is, what the main disease is, and what is the personality of the individual) a difficult task.

The diagnosis of the comorbidity assists with the treatment and the implementation of the suitable therapy for the respective clinical picture [12].

## **Anorexia Nervosa**

The purgative subtype of anorexia nervosa (AN-P) has a higher prevalence of psychiatric comorbidities, suicide attempts, and self-mutilation than the restrictive subtype (AN-R) [13]. The severity of the psychopathological condition of the eating disorder influences the psychiatric comorbidity and is associated with higher rates of suicidal ideation [14].

AN has long been related to depression, which is the most prevalent comorbidity in anorexic patients, with an approximate rate of 40% in those with the restrictive subtype and 82% in those with the purgative subtype. Some of the alterations found, such as fatigue, irritability, dysphoric mood, loss of libido, insomnia, and difficulty concentrating, may be due to an altered nutritional status. With weight gain, the symptomatology would tend to disappear in the absence of a real comorbidity [15].

Secondly, anxiety disorders appear, at a rate of 24% for patients with AN-R and 71% for those with AN-P. In third place, we have obsessive-compulsive disorder (OCD), for which the lifetime prevalence in women with AN ranges from 10% to 62% [15]. Finally, alcohol and drug dependence affects up to 25% of patients with EDs [16].

Rates of psychiatric comorbidity and suicidal ideation are lower in adolescents than in adult women; this suggests that early and effective intervention may prevent the development of more severe psychiatric comorbidities. It is known that prolonged fasting in these patients leads to brain dysfunctions (metabolic and hormonal changes, leading to neurotransmitter dysfunction) and may predispose to psychiatric comorbidities. In addition, AN leads to educational and vocational impairments, while compromising social relation-

ships, which is also predisposing to psychiatric comorbidities such as anxiety and depression. The mortality rate varies from 5% to 20%, and the main cause is suicide. Approximately 50% of adult patients report suicidal ideation and up to 26% attempt suicide [14].

## **Bulimia Nervosa**

The most observed comorbidity in BN is depression, with a lifetime prevalence varying from 50% to 65% [17]. Second most common comorbidity are disorders of abusive use of psychoactive substances whose prevalence varies from 30% to 60% being that the prevalence of alcohol dependence is 26%, and the eating disorder precedes alcohol abuse in 68% of cases [16].

Higher than expected rates of bipolar disorder have also been found in patients with BN, reaching about 14.3% [18, 19]. Prevalence rates for generalized anxiety disorder range from 8% to 12%; for panic disorder, the rate is approximately 11%; for social phobia, it is 17%; and it is about 40% for OCD. Certain studies have shown that posttraumatic stress disorder (PTSD) is significantly more common in BN patients.

## **Binge Eating Disorder**

Binge eating disorder is associated with rates of significant psychiatric comorbidities comparable to bulimia nervosa and anorexia nervosa. The most common comorbid disorders are depressive disorder, bipolar affective disorder, anxiety disorders (30–60%), and, to a lesser extent, disorders due to alcohol and drug use (approximate 23%) [15, 16].

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## **Personality and Eating Disorders**

Studies have compared the traits and the diagnosis of personality disorders (PDs) in patients with EDs. One of the most frequent findings is the high prevalence of PDs in patients with EDs compared to normal controls, in addition to

marked differences between the different subtypes of EDs. It is noteworthy that the vast majority of the studies were conducted in the previous decade, using the DSM-IV and DSM-IV-TR diagnostic criteria, with there being certain differences in relation to the current diagnostic criteria. In addition, it is important to note that the different methodologies in the articles reviewed contributed to variable rates of epidemiology for personality disorders in eating disorders. The studies use different inclusion and exclusion criteria, and the samples are heterogeneous in relation to the demographic aspects and stages of the eating disorder. Finally, another important aspect is that the studies use different scales for the personality assessment and some are self-reporting, which can contribute to a result bias due to the distortion and denial of the disease by the individual assessed. The diagnosis of the comorbidity assists with the treatment and the implementation of the suitable therapy for the respective clinical picture [12].

Although it is common to describe personality traits that precede and contribute to the onset of EDs, it should be understood that this association can interact in several ways: by predisposing, being a risk factor, having a common genetic basis, deriving from self-imposed eating restriction, or being the result of neuropsychological alterations that perpetuate with the chronification [5, 12].

## Personality and Anorexia Nervosa

Lavender et al. assessed the personality of 116 women with typical AN or partial disorders. They propose a clinical assessment model with three personality subtypes: low emotional regulation ( $n = 55$ ), high emotional regulation ( $n = 17$ ), and having low psychopathology ( $n = 44$ ), characterized by a normal personality tendency. The personality subtype with low emotional regulation is characterized by self-mutilation, great demand for new stimuli, oppositional behavior, and a greater presence of symptoms of EDs. On the other hand, the subtype with high emotional regulation presents

compulsions and low demand for new stimuli, with a trend toward comorbidity with OCD throughout life and a high degree of perfectionism. The third subtype has a low level of psychopathologies, presenting the lowest levels of symptoms of EDs and low comorbidity with other psychiatric disorders. The diagnosis of the comorbidity assists with the treatment and the implementation of the suitable therapy for the respective clinical picture [20].

Another study, performed with adolescent patients with AN, divided them into three subgroups according to the personality characteristics observed. The first subgroup was called a perfectionist with a high degree of functioning, in which the patients have the resources to deal with reality in a healthy way and without significant identity disorders, but tend to be perfectionists and very self-critical. The second subgroup is emotionally unstable, characterized by dysphoria, unhappiness, fear of rejection, and frequent feelings of inferiority. The third subgroup is the contained/controller, in which the patients who present difficulties in expressing their emotions, think in specific terms, often do not understand metaphors and are inhibited [21].

Categorical studies suggest that between 25% and 69% of anorexic and bulimic patients have at least one PD. The most described disorders in patients with AN-R are the avoidant PD, obsessive-compulsive PD, and dependent PD. Among patients with AN-P, the most described PD is the *borderline* type [22].

## Personality and Bulimia Nervosa

Nagata et al. showed that patients with BN presented more impulsive traits (manifested by alcohol and drug use and abuse, self-mutilation, and suicide attempts) than those with AN. The authors argue that this impulsivity may be the expression of the individual's basic personality, the expression of the psychopathological abnormalities of the disease, or a biological consequence of a chaotic eating behavior [23].

The PDs most found in BN patients are *borderline* PD (between 14% and 83%), histrionic

PD (up to 20%), dependent PD (up to 21%), and avoidant PD (up to 19%), although these numbers reflect extremely heterogeneous diagnostic criteria [22].

## Personality and BED

The association between BED and obesity is common. It is known that adults with personality disorder are at greater risk of obesity and less successful with conservative weight loss treatment programs. The increase in the severity of obesity is accompanied by an increase in the prevalence of PDs, reaching 23.4% in grade 3 obesity [24].

A study by Becker and Grilo assessed comorbidities in 347 individuals with ED in 4 subtypes: those with mood disorders (MD), those with substance use disorder (SUD), those with both (MSD), and those without any of these comorbidities (wMSDc). The results showed an approximate prevalence of 37% for MD, 10% for SUD, 17% for MSD, and 36% for wMSDc. These groups differed in terms of PD characteristics, as those with MD and MSD have the highest frequency of PD comorbidity. The most common comorbid PDs were avoidant (23%), obsessive-compulsive (19%), paranoid (7%), and borderline (6%) [23].

There are few studies that assess BED and PD comorbidity. Older studies, comparing obese individuals with and without BED, reveal that those with comorbid BED have high prevalence of comorbid PD, particularly with the avoidant, histrionic, and borderline subtypes. However, comparing BED with general samples of psychiatric patients, the high prevalence of comorbidities with both avoidant and obsessive-compulsive disorder is evident [25].

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## Personality Traits, Personality Disorders, and Eating Disorders

The following are the main characteristics related to personality traits and personality disorders in eating disorders. There is insufficient

data for women-specific characterization, whereby the results, for the most part, do not distinguish gender.

## Personality Traits, Assessment Tools, and Eating Disorders

Several instruments for personality assessment identify traits often found in patients with EDs.

*Perfectionism* is one of the most observed traits, being characterized by the establishment of high and unrealistic standards about oneself, despite the adverse consequences. Most instruments have a one-dimensional approach to assessing perfectionism; however, two instruments present a multidimensional approach to this trait: the Multidimensional Perfectionism Scale, which assesses self-oriented, other-oriented, and socially prescribed perfectionism; and the Frost Multidimensional Perfectionism Scale, which assesses five components, concern for mistakes, parental criticism, personal norms, and doubts about actions and organization [26].

People with AN, BN, BED, and unspecified eating disorder (UFED) tend to present higher scores in the one-dimensional assessment of perfectionism when compared to those without ED [27]. When assessed by the Frost Multidimensional Perfectionism Scale, patients with AN and BN present excessive concern regarding errors and doubts regarding the quality of their actions. Most studies, when comparing individuals with AN, BN, and UFED, suggest similar scores for perfectionism [28]. Individuals with AN present high levels of personal standards, whereas BN presents higher rates for parental criticism. The use of inappropriate compensatory mechanisms is associated with high rates of concern for errors, parental criticism, and doubts regarding actions [29]. These features related to perfectionism do not tend to improve with treatment [12, 30].

*Impulsiveness*, an important characteristic of patients with ED, is understood as a construct composed of five different facets: negative urgency (tendency to engage in impulsive

behavior when faced with strong negative emotions), positive urgency (tendency to engage in impulsive behavior when faced with strong positive emotions), lack of planning (inability to consider the consequences of certain behaviors), search for sensations (desire for exciting emotions and sensations), and lack of persistence (inability to persist in a certain activity when bored or tired) [12].

Individuals seeking treatment for weight loss and obese individuals with and without BED present similar negative urgency results, suggesting that this may be elevated in obese individuals regardless of the presence of binge eating. When comparing the different diagnoses of EDs, those with AN and UFED have similar negative urgency scores, those with BN tend to have higher scores than those with AN, and those with AN-P tend to present higher scores than in AN-R [31, 32].

Positive urgency appears to be elevated in individuals with AN-P, BN, and UFED, although it has been poorly studied in individuals with EDs [33].

When assessing the lack of planning through the Barratt Impulsiveness Scale (BIS) – motor subtest for the assessment of the lack of planning – individuals with ED, in general, present higher scores than those of control groups. Among the ED subtypes, individuals with BN present higher scores than patients with AN; there is a difference in the results of individuals with AN-P, which present significantly higher results when compared to AN-R [25, 32].

In the search for sensations, the results tend to vary according to the type of diagnosis. When comparing the EDs, individuals with BN present higher scores than those with AN, similar to those with BED. However, few studies have found a relationship between the search for sensations and the behaviors observed in individuals with EDs, such as binge eating and compensatory behaviors [34, 35].

The relationship between lack of persistence and EDs also tends to vary according to the diagnosis, as individuals with AN present lower scores and individuals with BN present similar results when compared to their controls. In addition,

individuals with BN have higher scores than those with AN which lack persistence [5, 12].

When assessing the characteristics of impulsivity and compulsion, which are commonly understood as being characteristic of BN, it is noticed that the intensity of symptoms is related to relevant clinical characteristics. Bulimic patients who present lower results in the characteristics of impulsivity and compulsion exhibit a personality with less pathological characteristics, symptoms of EDs, and depression; patients with high levels of impulsivity and compulsion present a personality with more pathological characteristics, self-mutilation, and greater severity of eating and depressive symptoms [36].

The “motivation to approach” refers to the tendency to approach gratifying situations, and the “motivation to avoid” indicates a tendency to move away or avoid situations associated with punishment. In the assessment of the motivation to approach, two scales are used: the Sensitivity to Reward Scale of the Sensitivity to Punishment and Sensitivity to Reward Questionnaire (SPSRQ) and the Behavioral Activation System (BAS), reward and punishment response scales. Individuals with EDs have divergent results on both scales, where those with AN, BN, and BED show higher scores than controls in the SPSRQ than in the BAS, which can be explained by the fact that the SPSRQ assesses situations and social rewards and the BAS assesses generic situations [37].

In the motivation for avoidance, that is, the tendency to depart or avoid situations associated with punishment, the results are high in individuals with AN, BN, BED, and UFED when compared to controls. The presence of this characteristic has been associated with episodes of compulsion, laxative abuse, use of diet pills, restrictive diet, and emotional eating [5, 37].

## **Eating Disorders and Broadband Personality Scales**

Broadband personality scales aim to characterize normal personality dimensions. The instruments most used are the following.

**NEO Personality Inventory (NEO-PI-R)** Its theoretical basis is based on the five personality factors model, which presupposes that the personality is composed of five major domains: neuroticism, extroversion, openness to experience, kindness, and condescension. Individuals with AN and BN, when assessed with NEO-PI-R, present higher levels of neuroticism and lower extroversion levels than controls without PDs. These findings correspond to a difficulty with emotional regulation and common interpersonal problems among individuals with EDs. Individuals with BED also appear in the few existing studies, with higher levels of neuroticism compared to normal controls [12].

A study comparing AN subtypes identified that people with AN-R had levels of condescension similar to those of the controls, whereas those with AN-P and those with BN had lower levels of condescension. Individuals with ARs, on the whole, had lower results for conscientiousness than controls. However, those with AN-R presented similar results to controls and higher levels of conscientiousness than those with BN and AN-P [12].

**Multidimensional Personality Questionnaire (MPQ)** This is a self-report scale that assesses personality traits in a normal range, in 3 major factors and 11 primary scales. Used in individuals with EDs, the following results were described: in BN there is a significantly higher presence of negative emotions and lower positive emotional results when compared with normal controls; in individuals with BED, the results are significantly lower in positive emotions, but the results in BN are more expressive, demonstrating the high degree of neuroticism. According to Peterson et al., when the Beck Depression Inventory was introduced as a covariant, the difference between the groups disappears. Thus, the presence of mood alterations (mood swings) may complicate the assessment of higher-order personality dimensions, such as positive and negative emotions, and it may be difficult to differentiate whether the negative affect is a dependent state or indicative of a longer-lasting

trait. Individuals with AN-P and BN tend to report higher negative emotions than those with AN-R and BED [12, 25].

**Freiburg Personality Inventory-Revised (FPI-R)** A study using this instrument reports that young women with EDs present low levels of life satisfaction and concern with health and high levels of social orientation, inhibition, irritability, tension, somatic complaints, and emotionality when compared to controls. According to this study, women with AN-R, AN-P, and BN without purging present worse outcomes than controls in the extroversion domain. Those with AN show lower scores in the areas of weakness and extroversion than those with BN, while presenting higher results in inhibition and concern for health. In addition, those with AN-R present worse results in the area of aggressiveness than those with BN and worse in the emotional state than those with AN-P or BN [12].

**Temperament and Character Inventory (TCI): Cloninger Model** Another instrument was validated and used in Brazil for the assessment of personality traits. The TCI is a self-completion questionnaire consisting of 240 items of the “True” or “False” type. The model by Cloninger and collaborators is based on the division of the personality into two components: temperament (traits genetically inherited) and character (individual differences regarding concepts about oneself and perception of one’s objectives and values). This model is composed of seven factors and interprets the development of the personality as an interactive epigenetic process, in which the factors of temperament (search for novelty, avoidance of damage, dependence on reward, and persistence) initially motivate the development of character factors (self-directive, cooperative, and self-transcendent), which modify the meaning and saliency of the perceived stimuli to which the person responds. Thus, temperament contributes to the development of character and vice versa [5].

Research carried out over the last decade has found consistent results in which individu-



als with EDs score lower when compared to controls. Persistence has greater association with AN-R, while search for novelties has a greater association with BN. Binge eating, purging, and emotional eating tend to be negatively associated with scores for self-direction, avoidance of harm, and search for novelty (e.g., AN-P, BN) [5, 35].

Individuals recovering from AN present improvements in the search for novelty and avoidance of harm scores suggesting an improvement in social interaction and anxiety with treatment. Most of the studies also revealed that the scores related to cooperative, self-transcendence, and dependence on gratification are not associated with EDs [5].

### **Comprehensive Measures of Pathological Personality**

Studies on PD in patients with ED have also used self-assessment tools for psychopathological aspects of the personality, such as the Dimensional Assessment of Personality Pathology-Basic Questionnaire (DAPP-BQ), Karolinska Scale of Personality (KPS), and Minnesota Multiphasic Personality Inventory 2 (MMPI-2) [12].

The DAPP-BQ is a scale with 18 subscales that seeks to delineate 4 dimensions of personality (emotionally unstable, dissociated behavior, inhibition, and compulsiveness). KPS is composed of 15 subscales which were designed to assess psychopathological vulnerability from a neuropsychological perspective [12].

Evidence was found in the DAPP-BQ of affective instability and anxiety for the EDs. Affective instability refers to the tendency to experience frequent fluctuations in intensity or types of emotions, and it is suggested that this characteristic would increase vulnerability to maintaining negative emotional states and maladaptive behaviors [12].

The affective lability is also related to episodes of binge eating in BN, and women with BN who present greater affective lability present greater severity of symptoms and more frequent compulsions. Likewise, patients with AN-P tend

to have greater affective lability than those with AN-R [12].

Anxiety is also associated with EDs. The DAPP-BQ and KPS scales indicate a propensity toward the anxiety measurements. When the KPS is used, patients with BPs present higher scores than controls for anxiety, somatic, and physical symptoms. Similar results are observed in clinical and subclinical individuals with AN, who exhibit anxiety symptoms in the DAPP-BQ. Using KPS, patients with AN present lower levels in somatic and physical anxiety symptoms than those with BN [12].

In general, research carried out over the last decade suggests that affective instability is associated with EDs, being prevalent in those individuals who present episodes of binge eating (AN-P and BN), and that anxiety levels are higher in patients with EDs when compared to controls. However, depressive and anxious symptoms may mediate or moderate the relationship between BN and affective instability. In addition, patients with BN tend to have higher scores on scales that assess personality traits in relation to cluster B patients – personality disorders, such as affective instability, identity problems, and aggressions – when compared to their sisters and patients with AN [5].

MMPI-2 has been widely used to assess personality in EDs. It contains 10 clinical scales, 15 content scales, and 15 complementary scales. MMPI-2 presents clinical profiles for the pathologies. For example, AN-R, AN-P, BN, and UFED often have a type 2–7 profile, characterized by a mixture of depression and anxiety symptoms. In this study, all the TAs presented higher scores in the six scales, indicating a similar profile for psychopathology and anxiety, characterized by somatic concerns, as the person tends to focus on the physical symptoms as a tactic to avoid stress, anger, paranoia, anxiety, and social alienation. Individuals with AN-P, BN, and UFED presented higher rates on the scale, suggesting somatic concern (somatization) in those with ED when engaged in a compulsive or purging episode. When compared to control groups, individuals with AN-P had higher depressive symptoms than those with AN-R. Individuals with BN presented

higher scores on the 9th scale than those with AN-R, AN-P, and UFED, suggesting a greater tendency for impulsive behaviors. In general, individuals with AN-R presented lower symptomatology compared to the other groups, indicating greater symptomatology among the groups with BP that presented purging or compulsion. In another study, women with binge eating disorder, who underwent intensive treatment, presented similar and elevated results in MMPI-2 scales 1, 2, 4, 6, 7, and 8, indicating a profile characterized by somatization, anxiety, paranoia, and social isolation [5].

There are few studies on middle-aged women with EDs. However, in a recent study using MMPI-2 in patients with EDs (64% restrictive and 36% compulsive), it was observed that, in total, they presented lower levels of anxiety and greater denial of the disorder among middle-aged women. They also suggest higher levels of depression, feeling of insistence, lack of insight, somatic denial, emotional overcontrol, and dependency problems [5].

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## Treatment

### Anorexia Nervosa

AN treatment requires professionals from different areas. The minimum team consists of nutritionist, psychologist, and psychiatrist [1].

Psychotherapeutic treatment should address a variety of factors such as cognitive, volitional, and affective recovery, morbid fear of gaining weight, dissatisfaction with body image, promoting functional recovery, and self-esteem in addition to developing the patient's responsibility for the treatment. Both cognitive-behavioral and psychodynamic psychotherapy have been used, and there is no evidence of superiority of one model over the other. Changes in the family dynamics are important maintainers of the AN, with the family therapy being the treatment of choice when considering children and adolescents [38, 39].

The treatment of pure AN (about 16% of cases) is re-nutrition [1, 40].

Fluoxetine may improve the prognosis of AN patients after achieving adequate weight, preventing relapse and promoting attenuation of dysphoric mood and obsessive thoughts. Olanzapine has shown efficacy in decreasing anxiety and improving psychopathological aspects and seems to contribute to weight gain in acute phase. When using antidepressants to treat comorbidities, selective serotonin reuptake inhibitors (SSRIs) are preferred because of their good efficacy, while being associated with low risk of cardio/neurotoxicity [40–43].

### Bulimia Nervosa

The treatment of BN, as well as AN, must be performed by a multidisciplinary team with psychiatric, nutritional, and psychological care. The objectives include, firstly, regularization of the eating pattern, suspension of purging, and restriction, in addition to nutritional guidance [1].

Psychotherapy with a cognitive-behavioral approach has shown the best results. The best response in the treatment of BN comes from the combination of cognitive-behavioral therapy (CBT) with the use of psychotropic drugs [17, 43].

Pharmacotherapy has been widely researched. The use of antidepressants, particularly SSRIs (in particular fluoxetine – recommended at higher doses than those used in the treatment of depression – from 60 to 80 mg/d) and selective serotonin and noradrenaline reuptake inhibitors (SNRIs), has shown moderate efficacy in the treatment of BN, for reducing compulsions, self-induced vomiting, and possible depressive symptoms. The use of topiramate has been showing positive efficacy results as well [40, 42, 43].

### Binge Eating Disorder

The treatment of choice for ED without comorbidities is psychotherapy, with cognitive-behavioral therapy being the gold standard [43].

When choosing treatment for BED, psychiatric and clinical comorbidities should be consid-

ered. Comorbidity with obesity, diabetes mellitus, and/or systemic arterial hypertension should be considered when choosing and planning the therapy, as it increases the morbidity and mortality [40, 43].

Pharmacological treatment aims to control food impulsivity while essentially including the following drugs: the selective serotonin reuptake inhibitor antidepressants, the best known of which is fluoxetine and appears to be the first choice of treatment, in addition to sertraline and fluvoxamine; bupropion, dopaminergic antidepressant; sibutramine, a serotonergic and noradrenergic action satiety-promoting agent which appears to be the option of choice in the presence of comorbid obesity; topiramate and lamotrigine, anticonvulsive agents and mood stabilizers, which seem to favor the control of episodes of binge eating; and lisdexamfetamine, FDA-approved as the first on-label drug for the treatment of BED; however, it is not yet approved by ANVISA in Brazil for BED treatment (use should be considered with caution in patients with a personal or family history of depressive disorder, bipolar disorder, or psychosis). The benefits of the medications do not appear to be long-lasting after discontinuation [19, 40, 42–44].

## Eating Disorders and Personality Disorders

When the ED is accompanied by a PD, the prognosis is generally unfavorable, although there is no consensus on the matter. These individuals, in addition to needing longer periods of hospitalization, present a more frequent tendency to chronification, more suicide attempts, and self-mutilation and mobilize other patients and the team in a massive way, arousing varying feelings in the respective members. Disruptive personality traits may result in increased emotional distress, increased risk of suicide, increased family dysfunction, and frequent hospitalizations. They may also be related to major depressive symptoms, impaired overall functioning, use of laxatives, increased body dissatisfaction, avoidance of increased harm, and decreased self-direction [26].

In cases of comorbid borderline PD, there is no consensus; pharmacological therapies can directly improve impulsivity and reduce marked mood swings and anxiety. Medications include atypical antipsychotics, serotonin reuptake inhibitors (SRIs), selective serotonin and noradrenaline reuptake inhibitors (SSNRIs), and mood stabilizers. Lithium salts, widely used in bipolar disorder, pose a risk to patients with BP. Weight loss, dehydration, and excessive exercise can lead to severe intoxication from this medication. Valproate, because of the significant risk of inducing weight gain, should be avoided when possible. Anticonvulsants such as lamotrigine and topiramate may be alternatives to mood stabilizers, considering gradual adjustment of administrations and care of the significant side effects (reduction of contraceptive effect and cognitive impairment due to topiramate and severe pharmacodermia secondary to lamotrigine use). The risk of addiction and substance abuse indicates avoiding the use of benzodiazepines and hypnotic benzodiazepine receptors [30, 40, 42, 43].

In comorbidity with borderline PD, psychotherapy is a fundamental part of the treatment, focusing on improving self-regulation in general (including symptomatology of the ED), reducing self-destructive behavior, improving interpersonal relationships, and alleviating affective instability [45].

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## Final Considerations

Certain personality traits are more frequent in eating disorders when compared to control groups. High levels of perfectionism, neuroticism, negative urgency, avoidance, search for social reward and self-direction, as well as low extroversion are found.

Among eating disorders, the most prevalent personality disorders are that of avoidant and obsessive-compulsive.

As perfectionism and obsessive-compulsive traits share certain characteristics such as rigidity, need for control, and methodical behavior, it is not surprising that obsessive-compulsive disorder

is common among eating disorders. In addition, avoidant PD is characterized by fear of criticism, rejection, and embarrassment and feelings of imperfection, which trace the intense search for social reward and avoidance also present in eating disorders.

Borderline PD and paranoid PD are most observed in AN-P and BN. These results are consistent with the psychopathological findings of these EDs that report higher levels of emotional dysregulation, anxiety, aggression, self-referral, and distrust of others.

Differences in the personality among EDs are also evidenced as, for example, greater impulsivity in BN, when compared to AN and BED.

Evidence suggests that personality traits may be more related to specific symptoms of EDs than the specific diagnosis, e.g., binge eating and purging behaviors are more likely to avoid harm, negative urgency, self-directive, affective lability, somatic concern, depression, and emotional instability and seek novelties in addition to negative emotions.

With the advancement of research in recent decades, it is more evident that the dimensions that involve the personality influence several important areas of functioning of the EDs, such as the assessment, symptoms, and treatment.

The contribution of these studies favors the choice of a more personalized and suitable treatment.

The study of personality contributes to the better understanding of EDs and its related symptoms. Certain personality traits, such as affective lability, have been associated with a greater tendency to engage in impulsive behaviors, such as self-mutilation and risky sexual behavior in BN, and mutually act with high levels of compulsion, predisposing to intense physical activity. In addition, perfectionism has been associated with more severe symptomatology in EDs, and evidence suggests that this trait persists even after treatment. Studies involving EDs and PDs are a promising way to understand the profiles of patients with EDs and to provide more effective diagnostic criteria and prevention of relapse.

## Diagnostic Criteria According to DSM 5

### Anorexia nervosa: diagnostic criteria

- A. Restriction of energy intake relative to requirements, leading to a significantly low body weight in the context of age, sex, developmental trajectory, and physical health. *Significantly low weight* is defined as a weight that is less than minimally normal or, for children and adolescents, less than that minimally expected.
- B. Intense fear of gaining weight or of becoming fat or persistent behavior that interferes with weight gain, even though at a significantly low weight.
- C. Disturbance in the way in which one's body weight or shape is experienced, undue influence of body weight or shape on self-evaluation, or persistent lack of recognition of the seriousness of the current low body weight.

*Specify whether:*

*Restricting type:* During the last 3 months, the individual has not engaged in recurrent episodes of binge eating or purging behavior (i.e., self-induced vomiting or the misuse of laxatives, diuretics, or enemas). This subtype describes presentations in which weight loss is accomplished primarily through dieting, fasting, and/or excessive exercise.

*Binge eating/purging type:* During the last 3 months, the individual has engaged in recurrent episodes of binge eating or purging behavior (i.e., self-induced vomiting or the misuse of laxatives, diuretics, or enemas).

*Specify if:*

*In partial remission:* After full criteria for anorexia nervosa were previously met. Criterion A (low body weight) has not been met for a sustained period, but either Criterion B (intense fear of gaining weight or becoming fat or behavior that interferes with weight gain) or Criterion C (disturbances in self-perception of weight and shape) is still met.

*In full remission:* After full criteria for anorexia nervosa were previously met, none of the criteria have been met for a sustained period of time.

*Specify current severity:*

The minimum level of severity is based, for adults, on current body mass index (BMI) (see below) or, for children and adolescents, on BMI percentile. The ranges below are derived from World Health Organization categories for thinness in adults; for children and adolescents, corresponding BMI percentiles should be used. The level of severity may be increased to reflect clinical symptoms, the degree of functional disability, and the need for supervision.

Mild: BMI > 17 kg/m<sup>2</sup>  
 Moderate: BMI 11.6–16.99 kg/m<sup>2</sup>  
 Severe: BMI 11.5–15.99 kg/m<sup>2</sup>  
 Extreme: BMI < 15 kg/m<sup>2</sup>

**Bulimia nervosa: diagnostic criteria**

- A. Recurrent episodes of binge eating. An episode of binge eating is characterized by both of the following:
1. Eating, in a discrete period of time (e.g., within any 2-hour period), an amount of food that is definitely larger than what most individuals would eat in a similar period of time under similar circumstances
  2. A sense of lack of control over eating during the episode (e.g., a feeling that one cannot stop eating or control what or how much one is eating)
- B. Recurrent inappropriate compensatory behaviors in order to prevent weight gain, such as self-induced vomiting; misuse of laxatives, diuretics, or other medications; fasting; or excessive exercise.
- C. The binge eating and inappropriate compensatory behaviors both occur, on average, at least once a week for 3 months.
- D. Self-evaluation is unduly influenced by body shape and weight.
- E. The disturbance does not occur exclusively during episodes of anorexia nervosa.

*Specify if:*

In partial remission: After full criteria for bulimia nervosa were previously met, some, but not all, of the criteria have been met for a sustained period of time.

In full remission: After full criteria for bulimia nervosa were previously met, none of the criteria have been met for a sustained period of time.

*Specify current severity:*

The minimum level of severity is based on the frequency of inappropriate compensatory behaviors (see below). The level of severity may be increased to reflect other symptoms and the degree of functional disability.

Mild: An average of 1–3 episodes of inappropriate compensatory behaviors per week

Moderate: An average of 4–7 episodes of inappropriate compensatory behaviors per week

Severe: An average of 8–13 episodes of inappropriate compensatory behaviors per week

Extreme: An average of 14 or more episodes of inappropriate compensatory behaviors per week

**Binge eating disorder: diagnostic criteria**

- A. Recurrent episodes of binge eating. An episode of binge eating is characterized by both of the following:
1. Eating, in a discrete period of time (e.g., within any 2-hour period), an amount of food that is definitely larger than what most people would eat in a similar period of time under similar circumstances
  2. A sense of lack of control over eating during the episode (e.g., a feeling that one cannot stop eating or control what or how much one is eating)

**Binge eating disorder: diagnostic criteria**

- B. The binge eating episodes are associated with three (or more) of the following:
1. Eating much more rapidly than normal
  2. Eating until feeling uncomfortably full
  3. Eating large amounts of food when not feeling physically hungry
  4. Eating alone because of feeling embarrassed by how much one is eating
  5. Feeling disgusted with oneself, depressed, or very guilty afterward
- C. Marked distress regarding binge eating is present.
- D. The binge eating occurs, on average, at least once a week for 3 months.
- E. The binge eating is not associated with the recurrent use of inappropriate compensatory behavior as in bulimia nervosa and does not occur exclusively during the course of bulimia nervosa or anorexia nervosa.

*Specify if:*

In partial remission: After full criteria for binge eating disorder were previously met, binge eating occurs at an average frequency of less than one episode per week for a sustained period of time.

In full remission: After full criteria for binge eating disorder were previously met, none of the criteria have been met for a sustained period of time.

*Specify current severity:*

The minimum level of severity is based on the frequency of episodes of binge eating (see below). The level of severity may be increased to reflect other symptoms and the degree of functional disability.

Mild: 1–3 binge eating episodes per week

Moderate: 4–7 binge eating episodes per week

Severe: 8–13 binge eating episodes per week

Extreme: 14 or more binge eating episodes per week

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