

REVIEW ARTICLE

Psychiatric considerations of eating disorders: anorexia and bulimia

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Abstract

Anorexia nervosa, bulimia nervosa and the nonspecific disorders of eating behavior are behavioral alterations associated with body image and the act of eating. These disorders have been considered as consequences of the idolatry to be thin, although history reveals they have existed for a long time. Eating disorders have been described from different perspectives and have recently been studied from a scientific perspective. Their complex nature and origin involves biological, psychological and social factors.

According to the classification proposed by The American Psychiatric Association and found in the Diagnostic and Statistic Manual of Mental Disorders (DSM-IV-TR), eating disorders are divided into specific and nonspecific disorders; anorexia and bulimia are included in the group of specific disorders.

This paper reviews some of the psychiatric aspects about the concept, epidemiology, etiopathogenesis, differential diagnoses, evolution and generalities of eating disorders treatment.

Key words: anorexia, bulimia, psychiatric aspects.

Anorexia nervosa, bulimia nervosa and nonspecific eating disorders (EDs) including the binge-purge

syndrome are behavioral alterations related to eating and self-image perception. From the end of 20th century, these disorders have been related to the culture of "being slim"; however, historical reviews reveal that EDs have existed for a long time, particularly anorexia nervosa.¹ Perhaps the cultural environment these disorders have developed in has clouded the interpretations of such pathological behaviors throughout history. In modern times, the social demand for a slim body in women and an athletic body in men constitutes a risk factor for developing these dysfunctions. Advertising targeted to youth is notoriously focused on exalting those bodily characteristics considered as socially attractive. Being slim has become an end in itself; it is a safety guarantee that provides the individual social freedom without fear of peer criticism.²

Bell¹ and other authors have carried out extensive reviews on the history of anorexia. During the Middle Ages, people known as "holy anorexics" practiced extended fasting periods in order to reach a higher spirituality level or as a self-inflicted punishment. These "holy anorexics" could reach severe states of malnutrition. One of the best documented cases is about St. Catherine of Siena who lived during the 14th century and who practiced fasting and self-induced vomiting. After her death and canonization, her lifestyle was followed by other persons. It is not difficult to imagine that it was prestigious, during the Middle Ages with Europe dominated by the Catholic Church, having in the community a person who practiced extended fasting periods with a mystic aspiration. Many young women followed the example of St. Catherine of Siena.

In the 17th century, Morton observed self-starvation states and named them "nervous consumption" because

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he could not explain them as a secondary effect from diseases known at the time, particularly tuberculosis.

In 1873 Lasègue described the Anorexie Hystérique in France.³ This clinical entity included characteristics of a severe self-starvation state in young women. It was classified in three stages, and the last one included amenorrhea with no apparent medical cause. In 1874 Gull published the article “Anorexia Nervosa” supporting the “nervous” nature of anorexia vs. the “uterine” nature of anorexia (proposed by Lasègue³). He also observed that this dysfunction is also present in men.⁴

During the 20th century, this disease gained the attention of psychoanalysts and psychiatrists. Bruch⁵ made several contributions to the study of these dysfunctions and introduced the concept of body image perception dysfunction, which is a basic criterion to diagnose anorexia nervosa. She described the inability of these patients to recognize internal states such as emotions and hunger and studied in depth the inefficient feelings suffered by these patients.⁶ In Italy, Selvini-Palazzoli postulated this suffering is based on inadequacy feelings in some women, highlighting the fact that the family plays an important role that helps balance social values and the patient’s problems.⁷ Minuchin described four characteristics in families of patients with anorexia nervosa: togetherness, overprotection, strictness and conflict-avoidance.⁸

As for bulimic states, historical descriptions are less abundant. It is known that Romans practiced self-induced vomiting after a banquet. Also, during the Middle Ages there are reported cases of personalities who observed this practice. On the other hand, medical interest in bulimia placed it sometimes as a symptom and sometimes as a disease, mainly during the 19th century when Gull warned about its relationship with anorexia nervosa.⁴

Bulimia was regarded as a symptom of anorexia nervosa or obesity over a long period of time. Stunkard⁹ described the characteristics of the bulimic syndrome, but he did not include compensatory behaviors such as vomiting or the use of laxatives.¹⁰

It was not until the 20th century that Russell described very clearly what we know today as bulimia nervosa. It is a condition where a binge is associated with a

purging process as a result of the fear to gain weight (and sometimes because of the perception of a distorted self-image). Russell regarded this condition as an ominous variant of anorexia nervosa, highlighting this syndrome’s plasticity.¹¹

Eating disorders have been described from different perspectives and only recently have they been reported using a scientific approach. At the present time the nature and origin are regarded as complex, presenting an interaction of biological, psychological and social factors which, added to their medical complications, results in an interesting field of study and treatment.

Concept

According to the classification proposed by the American Psychiatric Association in the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR),¹² EDs are classified according to specific and non-specific. Specific EDs include anorexia and bulimia nervosas, whereas nonspecific EDs include partial syndromes from both dysfunctions, e.g., chewing/spitting and bingeing.

Anorexia nervosa is characterized by pursuit of a body weight much lower than that expected for the gender, height and age of patients who also present rejection for weight gain. At onset of the disorder, during weight loss and in some cases also during severe starvation, self-image perception alterations can be observed. Secondary amenorrhea, where women miss three or more menstrual periods in a row, presents once the body mass index has reached 17.5 kg/m², whereas women who have not had their first menstrual period present primary amenorrhea. Males usually present a decreased libido. Rejection for maintaining a normal body weight is notorious, as well as the fear of gaining weight or becoming obese. This dysfunction is classified into two subtypes according to symptoms: restrictive and binge/purging (that combine purging behaviors with uncontrolled eating). It is important to highlight that this dysfunction cannot coexist with bulimia nervosa. However; there are patients who may switch from anorexia nervosa to bulimia nervosa and vice versa during their lifetime.

Bulimia nervosa includes binge episodes with a loss-of-control feeling that may last from a few minutes up to 2 h. According to DSM-IV-TR, these three characteristics are essential to identify binges, which are followed

immediately by inappropriate compensatory behaviors (purging) such as self-induced vomiting, inappropriate use of laxatives, diuretics or enemas. They may include nonpurging strategies such as an extended fasting or compulsive exercising. Body dissatisfaction is presented by most of the patients and some develop an alteration of self-image perception identical to that found in anorexia nervosa. There are two types of bulimia nervosa: purging and nonpurging, according to the compensatory behaviors presented.

Diagnostic Criteria for Anorexia Nervosa (DSM-IV-TR)

The main criterion for the diagnosis of anorexia nervosa is rejection to maintain a body weight equal or above the minimum suggested for gender, age and size, or losing weight beyond a healthy level. Any of these may result in poor body development during puberty or a body weight <85% of that expected.

Other diagnosis criteria are a) intense fear to gain weight or become obese, even when the patient is below the normal body weight; b) self-image perception alteration, exaggerating physique importance during self-evaluation or denial of the danger associated with a low body weight; c) amenorrhea in postpubertal women, i.e., missing three menstrual periods or more in a row (amenorrhea is diagnosed when a woman's menstrual periods are present only during hormonal treatments, e.g., using estrogens).

Type Specification

Restrictive type: During an anorexia nervosa episode, the patient does not present a binge/purge syndrome (no self-induced vomiting, or excessive use of laxatives, diuretics or enemas).

Binge/purge type: During an anorexia nervosa episode, the patient usually presents the binge/purge syndrome (self-induced vomiting and/or excessive use of laxatives, diuretics or enemas).

Diagnostic Criteria for Bulimia Nervosa

Diagnostic criteria are as follows:

1) Recurrent bingeing where a binge is characterized by:
a. Overeating in a short period of time (<2 h). The amount of food is larger than most people would ingest during a similar period of time and circumstances.

b. Loss-of-control sensation about eating (for instance, the inability to stop eating or control the type or quantity

of food ingested).

2. Recurrent, inappropriate compensatory behaviors to avoid gaining weight such as self-induced vomiting, excessive use of laxatives, diuretics, enemas or other drugs, fasting and excessive exercise.

3. Bingeing and inappropriate compensatory behaviors occur twice a week over a 3-month period on average.

4. Self-evaluation is largely influenced by body weight and physique.

5. The alteration does not appear only during anorexia nervosa.

Type Specification

Purge type: During a bulimia nervosa episode, the patient self-induces vomiting regularly or presents excessive use of laxatives, diuretics or enemas.

Non-purge type: During the episode of bulimia nervosa, the individual uses other inappropriate compensatory behaviors such as fasting or intense exercise but does not regularly self-induce vomiting or use laxatives, diuretics or enemas to excess.

Epidemiology

Epidemiological studies have been done mainly in the U.S. and Europe. The prevalence of anorexia nervosa is 0.2%-0.5%, and the prevalence of bulimia nervosa is 2%-3%, primarily in females during their second and third decades of life.¹³ The male/female ratio is ~1:10 for both dysfunctions, having a greater predominance in women according to several studies referenced in an extensive review. The mortality rate is 5.9% for anorexia nervosa according to a meta-analysis of 42 published studies¹⁴ and 0.3% in 88 published studies for bulimia nervosa.¹⁵

There are no representative epidemiological studies in Mexico about the at-risk population; however, there are several reports about eating disorders such as a study including 9,755 adolescents between 12 and 19 years of age where 0.9% of males and 2.8% of females presented three or more clinical signs that may be regarded as high-risk groups for developing eating disorders.¹⁶

A high risk of developing EDs in female university students has been reported using specialized surveys.

These results also reveal the prevalence of risky eating behaviors in young urban populations.¹⁷

In a study carried out including 962 pre-adolescents aged between 9 and 13 years old, 44% presented body dissatisfaction and 54% presented self-perception alteration. Of these, 29% overestimated it, whereas the 11-year-old group had the largest percentage of weight-control diets and the highest acceptance of the slim-attractive cultural stereotype.

Another report¹⁸ described the trends found in a mixed group of 200 pre-adolescents who overestimated their body weight and who considered that those with the highest body mass index were less attractive and vice versa. On the other hand, high-risk eating behaviors in Mexican ballet dancers have been reported.¹⁹

Another study that compared eating symptoms (concerns and rituals) between Mexican and American patients found that the Mexican group presented more severe symptoms, especially regarding rituals. Those patients had not received specialized treatment for their eating disorder.²⁰

Etiopathogenesis

Risk Factors

Several factors are currently associated with a high risk for developing EDs such as an early first menstrual period in women, overweight or obesity during childhood, mocking or teasing from brothers or friends, adverse comments regarding eating habits or body shape from parents, and restrictive diets. Studies in this regard showed diverse and controversial results. A recently published prospective study including 1,103 adolescents with a 3-year follow-up found that the concern for being slim and social pressure are important risk factors for develop EDs in adolescents.²¹

Biological Factors

Several aspects have been studied regarding these factors such as neurotransmission and neuroendocrine systems, brain areas related with obesity/appetite regulation and others.

Genetics has contributed with interesting information on this matter. Family studies have shown that relatives of anorexics present higher ED rates when compared to relatives of control subjects.²²⁻²⁴

Studies including monozygotic twins who present anorexia nervosa have reported 52%-56% concordance rates, whereas concordance rates for dizygotic twins have been estimated at between 5% and 11%.²⁵⁻²⁷ These findings suggest a strong influence of genetic factors in the development of EDs.

Genetic linkage studies have reported that there is certain susceptibility for anorexia nervosa and bulimia nervosa. The Price Foundation has carried out a multicenter study in the U.S. and Europe.²⁸ In 2002, this group reported suggestive evidence of a susceptibility locus for anorexia nervosa on chromosome 1p.²⁹ Afterwards, a susceptibility locus was found for bulimia nervosa on chromosome 10p.³⁰

Satiety and metabolism regulation includes leptin (from adipose tissue), insulin, cholecystokinin, glucagon-like peptide-1, ghrelin and peptide YY3-36 (from the gastrointestinal system). These substances act in the arcuate nucleus and in the nucleus solitarius tractus, respectively. Neuropeptide Y, Agouti-related peptide and orexin (originating in the brain) stimulate appetite, whereas melanocortins and melanocortin a-melanocyte-stimulating hormone are antagonists of satiety. Ghrelin stimulates appetite, whereas cholecystokinin, glucagon-like peptide-1 and YY3-36 produce satiety. Adipose tissue informs the brain about energy deposits through leptin, adiponectin and resistin. Recent studies have explored body weight regulation by the brain, and a strong relationship between eating and emotions has been proposed. This relationship has been supported by several studies on melanocortins and neuropeptide Y systems, which are endogenous substances that regulate energy homeostasis and emotions.³¹

Psychological Factors

Studies have associated certain personality features with a specific eating disorder. Anorexia nervosa has been associated with perfectionism and strictness, whereas bulimia nervosa has been associated with perfectionism and impulse. Specialized literature has recognized that current personality disorder diagnosis is categorical and heterogeneous; therefore, it is better to study personality from a dimensional approach. The latter is appropriate when different psychological phenomena observed in EDs are considered. According to Wonderlich and Mitchell,³¹ there are three possible relationships between personality and eating disorders:

1. Personality features predispose or increase the risk for EDs.
2. Eating disorders increase certain personality features through associated eating or emotional symptoms.
3. There may be a third factor that also increases the risk to present a personality disorder or an eating disorder, or both.

The relationship between personality and ED may be regarded as a complex interaction, and the association of syndromes in these areas suggests a psychopathological continuum. Empirical studies with anorexia nervosa patients who present compulsive-purgative behaviors suggest their personalities resemble more those of patients with bulimia nervosa than of patients with restrictive anorexia nervosa.³²

Familial Factors

No cause/effect relationship has been demonstrated between family psychopathology and eating disorders. However, in clinical practice it is evident there are family-related phenomena that may trigger or maintain eating disorders, complicating their treatment. Patient's relatives are subject to evaluation and treatment when required. Specialists have created a systemic model that considers anorexia nervosa as the symptom of a disturbed family, proposing several strategies for treatment.

Sociocultural Factors

Toro² has conducted an extensive review on this subject. It is worth highlighting the role of sociocultural influence, which triggers and maintains anomalous eating behaviors. The slimness culture, as a synonym of self-control and success, is an omnipresent phenomenon triggering restrictive diets that are a risk factor for developing eating pathologies.

The reported prevalence of these entities in Asia or North Africa is much lower than in Western countries; however, it has been observed that U.S. immigrants from other cultures have an increased prevalence of eating disorders, similar to that found in natives of the U.S. This is a part of the "acculturation" phenomenon, which refers to the adaptation that immigrants experience when living in a host culture. Eating behaviors have been significantly associated with the integration level of Hispanics to the American culture.³³

The acculturation phenomenon and altered eating behaviors have also been reported in Mexicans who have lived in the U.S. for generations. Mexican women living in the U.S. reported a positive relationship between eating behaviors and acculturation levels, with the highest level found among second-generation women.³⁴ Becker reported eating behavior alterations in a population recently exposed to television and, although it was not regarded as an acculturation phenomenon, reveals the influence of media in abnormal behaviors in response to the cultural environment.

Differential Diagnosis

Anorexia Nervosa

Categorization criteria described in the DSM-IV allow an easy diagnosis of this eating disorder; however, it is worth highlighting that other medical entities should be ruled out when similar symptoms are found (accentuated weight loss) such as type 1 diabetes, primary or secondary hypothyroidism, neoplasias, superior mesenteric artery syndrome and malnutrition. Mental disorders should also be discarded such as body dysmorphic disorder and body perception alterations secondary to epilepsy. There are isolated cases of simple phobia (food), social phobia (which includes the inability to eat in public) and "globus hystericus," which includes a foreign body feeling in the pharynx that prevents the patient from swallowing food naturally.

Bulimia Nervosa

Differential diagnosis of this disease should consider any gastrointestinal or systemic conditions that include repeated vomiting and the presence of polyuria or diarrhea. Patients are frequently seen by a physician involuntarily and this makes difficult obtaining data for precise diagnosis. The key is that purgative behaviors in bulimia nervosa are caused by the patient, and relatives should be questioned regarding behaviors associated with vomiting (i.e., going to the restroom after eating, playing music or making loud noises while in the restroom, etc.), or if diuretics or laxatives have been found in patients' belongings without prescription. Physical marks can be observed such as Russell's sign (scarring on the knuckles or back of the hand from constant contact with incisor teeth), parotid hypertrophy from chronic vomiting, wearing of tooth enamel and periorbital petechiae that can be observed immediately after self-induced vomiting.

It is important to mention the Kleine-Levin syndrome,

a neurological entity that includes hypersomnia and binge episodes. This is prevalent in males and, in most cases, disappears during adulthood.

Diagnostic Integration

Once data suggest an eating disorder, it is necessary to refer patients to a specialized clinic for evaluation because the ED requires a multidisciplinary team and a phased treatment according to the disorder and to patient's condition. Initial evaluation requires a comprehensive medical-psychiatric evaluation with emphasis on previous eating behaviors, body weight history, prior amenorrhea related to body weight and neurological status in order to rule out conditions associated with eating behavior. Anthropometry is essential and should include body weight, height, body mass index calculation ($\text{kg}/\text{height}^2$ [m]) and body fat measurement. The most useful paraclinical tests are complete blood count, serum electrolytes, fasting glycemia, thyroid hormone profile and electrocardiogram. In patients with anorexia nervosa, it is appropriate to measure serum phosphate and request bone densitometry of hip and lumbar spine because patients frequently present osteopenia or osteoporosis. Brain morphology should be evaluated using computed tomography (CT) or magnetic resonance imaging (MRI) because chronically malnourished patients may present brain pseudoatrophy.

Evolution

Anorexia Nervosa

Studies that have analyzed anorexia nervosa through time differ in methodology, follow-up period and results definition. However, most studies agree that 50% of patients obtain a favorable result, 30% obtain a moderately favorable result and 20% obtain an unfavorable result.³⁵ Nevertheless, it has been acknowledged that even recovered patients present physical, psychological and social deterioration after reaching a normal nutrition and present a regular menstrual period. Also, body perception alteration, concern about food and fear of gaining weight persist after physical recovery.

Studies focused on mortality associated with anorexia nervosa also differ in their methodology and most use raw rates instead of standardized rates. This helps when analyzing rates compared to expected mortality rates in the general population paired by age groups through the years. First reports found mortality rates

~10%, and it appears that this figure has been reduced to 4.4% during the last two decades.³⁵ These statistics were taken mainly from clinical populations detected in several treatment centers, which may present bias data and should be cautiously interpreted. A recent retrospective population study on survival reported a 0.75 standardized mortality rate (95% CI, 0.42-1.09), which did not differ from that expected.³⁶ Death causes included in the study were suicide, serious malnutrition and alcoholism complications. In contrast, another study reported a standardized mortality rate of 3.3 (95% CI, 2.2-4.9) for anorexia nervosa.³⁷ As for bulimia nervosa, data are inconclusive per standardized mortality rates, although it is certainly lower than rates reported for anorexia nervosa.³⁸

The most consistent prognosis predictors are as follows.³⁹ Good prognostic factors are 1) early-age onset, 2) prompt hospital admission, and 3) low number of hospitalizations.

Poor prognostic factors are 1) very low body weight, 2) prolonged disease, 3) clinical premorbid abnormalities or development abnormalities, 4) purgative behavior, and 5) family dysfunction

Bulimia Nervosa

The same methodological problems of anorexia nervosa studies are found in this case. In short-term studies (mostly during 12 months), about 50% of patients maintained good results after cognitive-behavioral therapy. One study evaluated recovery in 50 patients (49 females, 1 male) 10 years after treatment and found 46% maintained a good result, 26% presented residual bulimic behaviors, 8% had subclinical bulimia nervosa and 8% had full bulimia nervosa.⁴⁰ According to other reports, clinical improvement can be obtained in the mid- or long term, which is encouraging. On the other hand, relapse rates reported after variable periods of full recovery or recovery with minimum symptoms are variable. Therefore, it is necessary to consider that this disorder is characterized by active periods and alternating partial or full remission periods, which makes full-recovery definition difficult. Some authors suggest a long waiting period where the patient remains asymptomatic before considering a full recovery.

Good prognosis factors are 1) early-age onset, 2) treatment motivation, and 3) support network (friendships). Poor prognostic factors are 1) eating

disorder severity and baseline vomiting frequency, 2) accentuated weight fluctuations, 3) impulsiveness, 4) low self-esteem, 5) comorbid dysfunctions, and 6) suicidal behaviors.

Treatment Generalities

At the present time, a multidisciplinary therapeutic approach is used to treat EDs. This includes intervention from different specialists working together from initial evaluation throughout treatment evolution. It is necessary to consider that patients visit the doctor against their will most of the time and without being aware of their disease. Therefore, treatment should include a psycho-educational program that teaches the patient and relatives the details of the disease, physical and psychological consequences of these behaviors and at-home management recommendations. The purpose is to provide clear and detailed information that favors disease awareness and family involvement.

Anorexia Nervosa

The main objective of initial treatment is weight recovery until achievement of a healthy weight where menstrual periods and ovulation occur naturally in women and sex hormones reach normal levels in men. Physical complications due to malnutrition should be treated as well as comorbid psychiatric diseases. Because patients may not cooperate with their treatment from the beginning, it is necessary to educate patients about characteristics and complications of the disease in order to stimulate disease awareness and encourage change. The family should receive advice and treat this as a family dysfunction, which is frequent in these cases.

Nutritional rehabilitation should be established and coached by a nutritionist who will consider weight gain objectives throughout treatment. Body weight gain should be gradual to avoid secondary feedback syndrome, i.e., an accentuated decrease in serum phosphorus that may be lethal. Some physicians recommend weight gain ~1.5 kg/week in hospitalized patients and <0.5 kg in outpatients.⁴¹ During feedback phase, medical surveillance is essential and should include measurement of vital signs and a search for edema or congestive heart failure as well as gastrointestinal symptoms, particularly gastric distension, colicky-type pain, gastroesophageal reflux and constipation. It is important to check serum electrolytes periodically, including phosphorus. Physical activity should be limited to resting at home or at the

hospital. Foods feared by patient should be included gradually throughout treatment, in coordination with associated psychotherapeutic treatment.

Psychotherapy is essential for management of anorexia nervosa. However, it is necessary to consider that a nutritional rehabilitation process is required to obtain the best results. Fear of eating is activated by distorted thoughts about food and weight. Restrictive feeding reduces weight gain fear and has a positive effect on the patient's self-esteem. Cognitive factors that maintain anorexia nervosa are low self-esteem, difficulties in interpersonal management, and exaggerated concerns about body image and weight. This leads the patient to practice strict diets with subsequent weight loss. The natural hunger and concern about food increase, resulting in higher food restriction and, therefore, weight loss worsens. The association of these cognitive and behavioral phenomena support the basics of cognitive-behavioral therapy used to treat this disorder.

Food restriction is a phobia to foods that perpetuates itself. Thoughts about breaking food restriction triggered by hunger produce fear.

Anorexia nervosa aids in solving problems; therefore, it represents a positive function in the patient's life. The disorder alleviates fears and deficiencies in dealing with stress. Food restrictions provide the patient with confidence, control and competitive feelings.

Cognitive techniques are aimed to correct distorted thoughts about food intake and avoidance. The purpose of behavioral methods is to achieve weight gain. Their combination reduces anxiety associated with behavioral change. Throughout treatment, connections among interpersonal difficulties and food restriction are clarified. Faulty conflict-resolution mechanisms are identified and different techniques are developed to increase problem-solving abilities.

Bulimia Nervosa

Contrary to anorexia nervosa, this disorder is not characterized by malnutrition. The main objective of treatment is to reduce binges and compensatory behaviors (vomiting, use of laxatives, diuretics or enemas, as well as prolonged fasting or compulsive physical exercise). Cognitive-behavioral therapy aimed against bulimia nervosa is appropriate psychotherapeutic management. Psychopharmacological treatment may be helpful,

recognizing antidepressant effectiveness, particularly serotonin reuptake inhibitors for bulimic symptoms, although patients frequently present a more advanced depression or dysthymia.⁴²

Although research on EDs has increased extraordinarily during recent years, we know without a doubt where we should focus to better understand the psychiatric aspects of such disorders that have interested physicians, psychiatrists and society.

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