

# Eating Disorders

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## SUMMARY

Eating disorders are considered chronic diseases of civilization. The most studied and well known are anorexia and bulimia nervosa. Anorexia is considered one of the most common psychiatric problems of girls in puberty and adolescence. Due to high mortality and morbidity as well as the increasing expansion of these diseases, it is clear why the amount of research on these diseases is growing worldwide. Eating disorders lead to numerous medical complications, mostly due to late diagnosis. The main characteristic of these diseases is changed behavior in the nutrition, either as an intentional restriction of food, i.e. extreme dieting, or overeating, i.e. binge eating. Extreme dieting, skipping meals, self-induced vomiting, excessive exercise, and misuse of laxatives and diuretics for the purpose of maintaining or reducing body weight are characteristic forms of compensatory behavior of patients with eating disorder. The most appropriate course of treatment is determined by evaluating the patient's health condition, associated with behavior and eating habits, the experience of one's own body, character traits of personality, and consequently the development and functioning of the individual. The final treatment plan is individual. Eating disorders are a growing medical problem even in this part of the world. Prevention should be planned in cooperation with different sectors so as to stop the epidemic of these diseases.

**Keywords:** eating disorders; anorexia nervosa; bulimia nervosa; compensatory behavior

## INTRODUCTION

Over the years, the number of individuals experiencing high levels of body dissatisfaction, body distortion and eating disorders has grown in epidemic proportions [1, 2]. Societal standards, by which women and even men are judged, have become increasingly stringent and more difficult to attain. Many of these standards, specifically body appearance, can lead young people to ignore their own happiness, beauty and abilities, and seek outside of themselves for the "ideal person". Individuals vulnerable to societal pressures have the potential to be caught in a life-long pursuit of body changing activities. Beliefs such as "never too thin", "winning is thinning", and "success is thinness" are common themes among individuals who have a serious problem with body image. These cognitive distortions have led some individuals to engage in unhealthy methods of weight reduction, causing significant physical and emotional distress. Eating disorders involve a serious disturbance in eating behavior – either eating too much or too little, in addition to great concern over body size and shape. The voluntary eating of smaller or larger portions of food than usual is common, but for some people this develops into a compulsion and the eating behaviors become extreme. Individuals with anorexia refuse to maintain a minimally normal body weight, carry an intense fear of

gaining weight and have a distorted perception of the shape or size of their bodies. Individuals with bulimia undertake binge eating and then use compensatory methods to prevent weight gain, such as induced vomiting, excessive exercise or laxative abuse. They also place excessive importance on body shape and weight.

The International Classification of Diseases (ICD) has outlined diagnostic criteria for both anorexia nervosa (AN) and bulimia nervosa (BN).

## ANOREXIA NERVOSA

Anorexia nervosa (AN) constitutes an independent syndrome in the following sense: (a) the clinical features of the syndrome are easily recognized, so that diagnosis is reliable with a high level of agreement between clinicians; (b) follow-up studies have shown that, among patients who do not recover, a considerable number continue to show the same main features of AN, in a chronic form.

Although the fundamental causes of AN remain elusive, there is growing evidence that interacting sociocultural and biological factors contribute to its causation, as do less specific psychological mechanisms and a vulnerability of personality. The disorder is associated with undernutrition of varying severity, with resulting secondary endocrine and metabolic

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changes and disturbances of bodily function. There remains some doubt as to whether the characteristic endocrine disorder is entirely due to the undernutrition and the direct effect of various behaviors that have brought it about (e.g. restricted dietary choice, excessive exercise and alterations in body composition, induced vomiting and purgation and the consequent electrolyte disturbances), or whether uncertain factors are also involved.

Diagnostic criteria for AN according to the ICD-10:

(a) Body weight is maintained at least 15% below that expected (either lost or never achieved), or Quetelet's body-mass index is 17.5 or less. Prepubertal patients may show failure to make the expected weight gain during the period of growth.

(b) The weight loss is self-induced by avoidance of "fattening foods". One or more of the following may also be present: self-induced vomiting, self-induced purging, excessive exercise, use of appetite suppressants and/or diuretics.

(c) There is body-image distortion in the form of a specific psychopathology whereby a dread of fatness persists as an intrusive, overvalued idea and the patient imposes a low weight threshold on himself or herself.

(d) A widespread endocrine disorder involving the hypothalamic-pituitary-gonadal axis is manifest in women as amenorrhea and in men as a loss of sexual interest and potency. There may also be elevated levels of growth hormone, raised levels of cortisol, changes in the peripheral metabolism of the thyroid hormone, and abnormalities of insulin secretion.

(e) If onset is prepubertal, the sequence of pubertal events is delayed or even arrested. With recovery, puberty is often completed normally, but the menarche is late.

### Atypical anorexia nervosa

This term should be used for those individuals in whom one or more of the key features of AN, such as amenorrhea or significant weight loss, is absent, but who otherwise present a fairly typical clinical picture. Such people are usually encountered in psychiatric liaison services in general hospitals or in primary care. Patients who have all the key symptoms but to only a mild degree may also be best described by this term. This term should not be used for eating disorders that resemble AN but that are due to known physical illness.

### BULIMIA NERVOSA

Bulimia nervosa (BN) is a syndrome characterized by repeated bouts of overeating and an excessive preoccupation with the control of body weight, leading the patient to adopt extreme measures so as to mitigate the "fattening" effects of ingested food. The age and sex distribution is similar to that of AN, but the age of presentation tends to be slightly later. The disorder may be viewed as a sequel to persistent AN, although the reverse sequence may also

occur. A previously anorexic patient may first appear to improve as a result of weight gain and possibly a return of menstruation, but a pernicious pattern of overeating and vomiting then becomes established. Repeated vomiting is likely to give rise to disturbances of body electrolytes, physical complications (tetany, epileptic seizures, cardiac arrhythmias, muscular weakness), and further severe loss of weight.

Diagnostic criteria for BN according to the ICD-10:

(a) There is a persistent preoccupation with eating, and an irresistible craving for food; the patient succumbs to episodes of overeating in which large amounts of food are consumed in short periods of time.

(b) The patient attempts to counteract the "fattening" effects of food by one or more of the following: self-induced vomiting, purgative abuse, alternating periods of starvation, use of drugs such as appetite suppressants, thyroid preparations or diuretics. When BN occurs in diabetic patients they may choose to neglect their insulin treatment.

(c) There is a morbid dread of fatness and the patient sets herself or himself a sharply defined weight threshold, well below the premorbid weight that constitutes the optimum or healthy weight in the opinion of the physician. There is often, but not always, a history of an earlier episode of AN, the interval between the two disorders ranging from a few months to several years. This earlier episode may have been fully expressed, or may have assumed a minor cryptic form with a moderate loss of weight and/or a transient phase of amenorrhea.

### Atypical bulimia nervosa

This term should be used for those individuals in whom one or more of the key features listed for BN is absent, but who otherwise present a fairly typical clinical picture. Most commonly this applies to people with normal or even excessive weight but with typical periods of overeating followed by vomiting or purging. Partial syndromes together with depressive symptoms are also not uncommon, but if the depressive symptoms justify a separate diagnosis of a depressive disorder two separate diagnoses should be made.

### OVEREATING ASSOCIATED WITH OTHER PSYCHOLOGICAL DISTURBANCES

Bereavements, accidents, surgical operations, and emotionally distressing events may be followed by a "reactive obesity", especially in individuals predisposed to weight gain. Obesity may cause the individual to feel sensitive about his or her appearance and give rise to a lack of confidence in personal relationships; the subjective appraisal of body size may be exaggerated. Obesity may be the motivation for dieting, which in turn results in minor affective symptoms (anxiety, restlessness, weakness, and irritability) or, more rarely, severe depressive symptoms ("dieting depression"). Overeating that has led to obesity as a reaction to distressing events should be coded as overeating.

## VOMITING ASSOCIATED WITH OTHER PSYCHOLOGICAL DISTURBANCES

Apart from the self-induced vomiting of BN, repeated vomiting may occur in dissociative disorders or in hypochondriacal disorder when vomiting may be one of several bodily symptoms [2].

Also vomiting and decrease or increase in body weight, bloating and/or inability to adequately digest food, can be found in many other pathological conditions, which should be accurately examined before making a final diagnosis of eating disorder. Clinical studies of eating disorders are highly specific, given the numerous other associated diseases and symptoms that often make it difficult to set the correct final diagnosis [3]. On the other hand, these patients often hide the real situation and do not want to talk about the symptomatology related to the disease, which greatly complicates both treatment and research of these diseases [4].

## HISTORICAL ASPECTS OF EATING DISORDERS

Richard Morton is best known today as the author of the first medical account of AN, a condition that he referred to as “nervous consumption” caused by “sadness and anxious cares”. His book “Phthisiologia” (1694) was widely read, translated into other languages, and used for many years. Ironically AN, to which he devoted a scant three pages, has not only confounded physicians for 300 years, but has also reached epidemic proportions [5]. The clinical description by Lasegue in 1873 and Gull in 1874 were detailed in many respects. They stated that it was a morbid mental state, which led to the want of appetite, and they first used the term hysterical anorexia [6].

People from different nations around the world throughout time have practiced strange eating habits. Egyptians believed and engaged in monthly purges in attempts to remain healthy. The Romans created a place called a “vomitorium” where men would empty their stomachs so they could continue to eat, stuffing themselves. During ancient Greek and Roman times, bulimia, which was the term for “ox hunger”, was widely practiced among people [7, 8, 9].

## HOW COMMON ARE EATING DISORDERS?

It is estimated that 3% of women will be affected by eating disorders in their lifetime. Approximately 0.5% to 4% of women will develop AN during their lifetime and about 1 to 4% will develop BN. AN and BN predominantly affect young women. Most vulnerable period for the occurrence of these diseases is puberty and adolescence [1, 10].

## WHO IS AFFECTED BY EATING DISORDERS?

Individuals with AN and BN may recover after a single episode of the disorder. Others may have a fluctuating pattern of weight gain and relapse. Still others will continue to have issues with food and weight throughout their lives.

A lifetime history of substance use disorders, drug or alcohol problems at the time of diagnosis and longer duration of symptoms before diagnosis are associated with poorer long-term outcomes. Individuals with AN and BN may develop serious physical problems such as heart conditions, electrolyte imbalance and kidney failure that can lead to death. Eating disorders may cause long-term psychological, social and health problems even after the acute episode has been resolved. Anorexic individuals are more susceptible to major depression, alcohol dependence and anxiety disorders, either at the time of their illness or later in life. Suicide is also a possible outcome.

An eating disorder causes young people to miss school, work and many recreational activities. The physical weakness associated with the illness also seriously affects their social interaction with friends and their involvement in life in general. Friends also have difficulty knowing how to react and how to help. Families of individuals with eating disorders also live under great stress. They may blame themselves, feel anxious, and face the stigma associated with having a child with a mental illness. Parents especially experience the tension between their natural protective instinct to force healthy behaviors on the child and the child's need to take control over his/her illness and health.

AN and BN do not have the same public manifestation as other mental illnesses. These illnesses are a private family affair. The stigmatization usually isolates both parents and children from their peers and other family members. Individuals with other eating disorders, such as overeating, who are obese, must contend with negative societal attitudes toward obesity. These attitudes isolate them, and the loss of self-esteem exacerbates the illness [1, 2, 3].

## DIFFERENTIAL DIAGNOSIS

Several disorders, psychological and medical, may both cause and/or explain eating disorder-like symptoms, especially weight loss. It is helpful to be aware of these potential problems and to be able to rule them out. Possible psychological causes are: obsessive-compulsive disorder, affective disorders, somatization disorders, and schizophrenia. Possible medical causes are: brain tumors, malignancy, malabsorption syndromes, hyperthyroidism, and infection.

BN must be differentiated from upper gastrointestinal disorders leading to repeated vomiting, a more general abnormality of personality (the eating disorder may coexist with alcohol dependence and petty offenses such as shoplifting) or depressive disorder (bulimic patients often experience depressive symptoms) [2].

## COMPLICATIONS OF ANOREXIA NERVOSA

The most serious complications of AN derive from malnutrition. Patients present with muscle wasting, weakness, vital sign changes such as low heart rate, low blood pressure and low body temperature; their extremities may be cold and blue and their skin yellow or pale. Loss of scalp hair is

not unusual. Some patients develop lanugo, soft, fine hair on their trunks and arms. Others complain of bloating or constipation [1, 2]. Of primary concern are electrolyte abnormalities and cardiac arrhythmias. Dehydration may be observed along with abnormal levels of serum sodium, potassium, chloride, carbon dioxide. Anorectics who vomit or overuse laxatives or diuretics are more prone to electrolyte problems than those who do not engage in these behaviors. Patients who drink very large volumes of water sometimes develop hyponatremia. The combination of hyponatremia and water intoxication lowers the threshold for seizures and coma and can prove fatal. Serum phosphorus levels are typically normal when first tested but may fall when nutritional restoration begins; in fact, hypophosphatemia may contribute to "refeeding syndrome" which is characterized by cardiac arrhythmias, neurological changes and unanticipated death. Patients typically have slow resting pulses and hypotension and some experience dizziness or fainting. An ECG showing a prolonged QTc interval can be a forerunner of ventricular arrhythmia and unforeseen death. Bone marrow suppression, low red blood cell, white blood cell, and platelet counts, often accompanies AN. Leukopenia can increase the time required for infections to heal. With nutritional restoration, red cell, white cell and platelet counts generally return to normal. Slowed growth and short stature can occur when young people develop AN before they have reached their full height potential. Through nutritional replenishment, it is possible for recovering adolescents to make up some of their lost growth; nevertheless, they may never achieve their full growth potential. This can be one of the permanent side effects. Amenorrhea, one of the defining features of AN, results from poor nutrition, over-exercise, low weight, reduced body fat, and psychological stress. The most serious consequence of amenorrhea and low estrogen is osteopenia, which can develop soon after the onset of AN.

### COMPLICATIONS OF PURGING

Purging through self-induced vomiting has been a common means of eliminating calories in BN and AN/purging type. More often, individuals who purge, alternate between periods of food restricting, bingeing and purging. Unlike extreme food restrictors, individuals who binge and purge do not typically isolate themselves from social gatherings. They can present themselves as normal eaters in social settings while their weight typically remains in a normal range. Because there is no obvious extreme weight loss and there is an appearance of healthy eating, the secret bingeing continues. The purge often begins with a binge, which can be triggered through stress [1, 2, 3].

A binge is defined as eating abnormally large amounts of food in a short amount of time, within two hours and usually in private. The binge itself is often not only seen as pleasurable and comforting, but can also be the outlet for emotional expression that was absent in the family unit or used as a method of avoiding emotions like pain and anger. The binge continues until abdominal pain occurs, the in-

dividual falls asleep, is caught, or self-induces vomiting. In times of stress and loneliness, the purge can provide a sense of comfort. For some, purging continues without the binge for the purpose of relaxation and decreasing anxiety. Purging after a binge not only provides physical relief, bloating and discomfort, but also is viewed as ridding the body of calories and guilt associated with the ingestion of the food.

Common laboratory findings related to self-induced vomiting includes hypokalemia, mild ST changes and metabolic acidosis or alkalosis. Oral problems are most commonly associated with this purging behavior. Chronic regurgitation of gastric contents can lead to smooth enamel erosion of the teeth, perimyolysis that can be observable after about two years of bingeing and purging; parotid swelling of the glands, soft palate injury, dry skin from dehydration or loss of water, electrolyte imbalance, edema, stomach and intestinal problems, and irregular menstrual cycle. Similar to self-induced vomiting, laxative use can become an addictive cycle due to its false impression of immediate weight loss. For many, the use of laxatives is viewed as "cleansing" that suggests a sense of starting over, and which, like self-induced vomiting, relieves the body of the bloating and abdominal pain associated with binge eating [11].

Excessive exercise has been noted to play a role in the development and/or maintenance of eating disorders. High levels of exercise reduce calories, suppress appetite and increase physical performance in sports. The initial weight loss associated with exercise provides social reinforcement, leading to increased awareness of one's physical appearance. This heightened awareness then leads to a narcissistic preoccupation with the body. As the body reduces in weight, physical exercise is increased. Likewise, hyperactivity has been noted to be a characteristic of approximately one-third of the anorectic population. Exercise out of control exhibits a pattern similar to that of a chronic dieter. The compulsive exerciser arranges his or her life to ensure that rituals and routines are not disturbed. When the routine is disturbed, depression, guilt and anxiety can result. Several other indicators that exercise behavior might be out of control include: avoiding social contacts, preoccupation of thoughts regarding when, where and how much to exercise, avoidance of work and social responsibilities, exercising when injured, and an inability to exercise for enjoyment or relaxation. There is a decrease in self-esteem and an increase in rigidity and compulsiveness, hormone levels are altered, increased stress fractures, an increase in torn muscles, ligaments, tendons and cartilage, amenorrhea, increased susceptibility to infectious diseases, mood disturbances, fatigue, dehydration, upper respiratory infections, and many other [1, 2, 3].

### COURSE OF THE DISORDER

Progress of AN over time varies greatly. Some anorexics recover fully after one episode of the illness, others return intermittently to a normal weight and then relapse, but some display a chronic course of symptoms that worsen over the span of many years, often ending in death.

Females with AN are twelve times more likely to die than females the same age who have not had AN. Death most frequently results from the physical complications of starvation, electrolyte imbalance, or suicide. Not much is known about the course of untreated BN. Some individuals may have periods of spontaneous improvement and then relapse. Others follow a more chronic course, in which the symptoms worsen over time [1, 3].

## TREATMENT OF EATING DISORDERS

The first thing is to set the exact diagnosis, differential diagnosis and consider all other diseases that occur as part of an eating disorder or are followed by the same or similar symptoms [12]. At present, there have been few controlled trials to guide treatment, but numerous observational studies suggest that initial treatment should focus on prompt weight restoration. In the care of young children and adolescents, engaging the family is a necessary part of treatment. Initial outpatient treatment often involves a primary care physician, a psychiatrist or psychologist familiar with AN, and a registered dietitian. Educating the patient and family is critical with regard to the nature of the illness, serious health risks, effective treatments, and the need for follow-up. Patients should be seen regularly, usually weekly, to monitor weight and other physical and laboratory indicators, such as cardiovascular values and electrolyte levels, depending on the individual patient's course [1, 13, 14, 15].

A caloric intake of approximately 1200 to 1500 kcal is usually recommended initially, with weekly increases of 500 kcal per day among outpatients for a weight restoration of 0.5 to 0.9 kg per week. Indications for hospitalization depend on the physiological and psychiatric status of the patient, the patient's and the family's motivation, the feasibility of outpatient weight restoration and the availability of local resources.

Early intervention can reduce the risk of arrhythmia and prevent the disorder from becoming chronic. Brisk improvement in nutritional status with few complications resulting from refeeding occurs when inpatients are started with 1200 to 1500 kcal per day and the intake is increased by 500 kcal every four days to about 3500 kcal (for female patients) to 4000 kcal (for male patients) per day. Refeeding usually reduces apathy, lethargy, and food-related obsessions, although it does not generally eliminate them. Total parenteral alimentation is rarely appropriate. Close monitoring is needed during starvation and refeeding, including monitoring of vital signs and attention to peripheral edema and cardiopulmonary function.

A refeeding syndrome, reported in about 6% of hospitalized adolescents, may include minor abnormalities (e.g., transient pedal edema) or serious complications that require urgent intervention (e.g., a prolonged QT interval or hypophosphatemia with associated weakness, confusion, and progressive neuromuscular dysfunction). This syndrome is most common among patients weighing less than 70 percent of their ideal body weight and in those receiving parenteral or enteral nutrition, although it

can also occur in those receiving vigorous oral refeeding. Slower refeeding minimizes the risk of serious complications. Phosphorus, magnesium, and electrolyte levels and renal function should be followed closely, and supplements should be administered as needed. Clinical changes and laboratory values requiring immediate attention include altered consciousness, tachycardia, congestive heart failure, atypical abdominal pain, a prolonged QT interval, serum potassium levels below 3.0 mmol per liter, and serum phosphorus levels below 0.8 mmol per liter. Peripheral edema is treated with leg elevation and withholding added salt from the diet, diuretics may exacerbate the edema, and their use should be avoided. Gastrointestinal symptoms are common during refeeding and often persist [1, 2, 3, 12-16].

Psychotherapy, including psychoanalytic therapy, cognitive behavioral therapy emphasizing the correction of distorted thoughts and self-defeating behavior, or cognitive analytic therapy result in improved restoration of weight, return of menses among female patients, and improved psychosocial functioning, as compared with routine treatment, which generally involves education and emotional support [1, 12, 13, 14, 17, 18, 19].

## PREVENTION OF EATING DISORDERS

The prevention of eating disorders is a relatively young field. The growing interest in prevention relates to the increased incidence of individuals suffering from eating disorders and severe complications associated with these disorders. Moreover, eating difficulties and extreme preoccupation with weight and shape, which do not fit the complete diagnostic criteria for AN or BN, occur in even larger numbers.

Primary prevention focuses on eliminating the causes of predisposing factors, while secondary prevention addresses reducing the causes and the perpetuating factors of eating problems. The goal of primary prevention is to reduce the incidence of all eating disorders. A number of strategies can be developed to minimize the impact of social pressures, especially pressures on women, to be thin.

Secondary prevention focuses on reducing the duration of eating disorder. For this reason, early detection and intervention are important aspects of secondary prevention, although it is usually difficult to implement strategies for early detection, because individuals with eating problems often attempt to conceal their behavior.

Parents, peers and siblings are in a good position to detect changing attitudes regarding food, weight, and shape. However, the nature of their relationship with the individual at risk or frequency of contact may prevent them from perceiving the problem until it has developed into a "full-blown" eating disorder. Often, teachers are in an excellent position to detect developing eating problems. Not only do teachers spend a lot of time with adolescents and young adults, they have a more objective picture of student behavior and attitude changes.

Doctors, dentists, and other health care workers are often the first to detect an evolving eating disorder. Doctors

should pay careful attention to the symptoms of weight loss and amenorrhea among their adolescent and young adult patients. Also, any bowel problems or digestive complaints should be analyzed more closely for the possible existence of developing eating problems. Dentists should know that severe erosion of the teeth and salivary gland enlargement are often indicators of bingeing and purging behavior [1, 2].

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## CONCLUSION

Eating disorders are a growing health problem, even in this part of the world. Prevention strategies should be based on evidence. We have to plan wisely and work collaboratively across sectors to curb this potential epidemic of the century.

## Поремећаји исхране

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### КРАТАК САДРЖАЈ

Поремећаји исхране се сматрају хроничним болестима цивилизације. До данас најпознатији и највише проучавани поремећаји исхране су анорексија и булимија нервоза. Анорексија нервоза се сматра једним од најчешћих психијатријских проблема девојака у пубертету и адолесценцији. Висока стопа морталитета и морбидитета, као и све већа експанзија ових поремећаја, објашњавају повећан број истраживања на ову тему. Главна одлика ових поремећаја јесте измењено понашање у исхрани, било као намерна рестрикција хране, тј. гладовање, или узимање превелике количине хране, тј. преједање. Гладовање, „прескакање“ оброка, намерно изазвано повраћање, претерано вежба-

ње и злоупотреба лаксатива и диуретика ради одржавања или смањења телесне тежине чине компензаторне облике понашања, типичне за ове поремећаје. Најбољи ток лечења се одређује на основу процене болесниковог здравственог стања, удруженог с понашањем и навикама у исхрани, доживљајем сопственог тела, карактерним особинама личности, као и самим развојем и начином функционисања појединца. Коначан план лечења је индивидуалан. Поремећаји исхране су све чешћи здравствени проблем и у овом делу света. Превенција се мора планирати у сарадњи различитих сектора, како би се зауставила епидемија ових болести. **Кључне речи:** поремећаји исхране; анорексија нервоза; булимија нервоза; компензаторни облици понашања