

A systematic Review the treatment and diagnose of neurological problem in fat patient adults involved infection with radiological point

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Abstract

The present study has investigated the systematic treatment and diagnosis of neurological problems in obese patients relying on bariatric surgery with radiology points. The main problem in neurological diseases that cause obesity is bulimia nervosa. The present study investigated the issue by reviewing more than 79 articles with keywords including "systematic review of treatment and diagnosis of neurological problems", "obesity surgery with radiology point" and "obese patients". The results of the present study showed that people with bulimia usually have a normal and healthy weight, but they judge themselves severely based on their view of their body shape or weight. They usually struggle with self-esteem issues that are closely related to their body image. Bulimia nervosa is more common in women than men. This habit usually develops during adolescence or early adulthood, but it can affect people of any age. Between 1 and 2 percent of people experience bulimia each year. Bulimia nervosa can occur in people of any gender, sex, age, race, ethnicity, or body type. People with bulimia nervosa are usually of normal weight. These people are involved in a cycle of binge eating and purging. People with anorexia nervosa are usually underweight. To lose weight, they engage in extreme abstinence, strange diets and intense exercise. People with anorexia nervosa think they are fat even though they are very thin, and may even become so thin that they look sick.

KEYWORDS: systematic review, treatment and diagnosis of neurological problems, obese patients, surgery, diet.

Introduction

Bulimia nervosa, also called hysterical binge eating, is a type of eating disorder [1-3]. Eating disorders are actually considered under the influence of mental health conditions that can be potentially life-threatening. If you have an eating disorder [4], you may feel obsessed with food and your weight. This obsession can harm your physical and mental health [5].

Bulimia can be defined as an unhealthy eating pattern characterized by:

- ✓ Eating a lot of food in a short period of time means getting rid of food as a kind of cleansing will cause some disgusting behavior in the person. Purging may include forcing yourself to vomit or using laxatives. Laxatives are medications that speed up the movement of food through your body [6].
- ✓ Improper use of diuretics or diet pills [7].
- ✓ Eating very small meals or skipping meals altogether [8].
- ✓ Too much exercise [9].
- ✓ Hiding food for binge eating and finally purging [10].

Eight harmful effects of bulimia on the body Bulimia disrupts the balance of water, nutrients and calories in the body and threatens people's health:

- ✓ Cardiovascular problems are one of the most serious effects of bulimia, endangering heart health. People with this disease lose a lot of water, minerals and nutrients by regurgitating food [11].
- ✓ Loss of nutrients and body water causes irregular heartbeat and heart failure. Heart failure means that the heart muscles become weak and cannot pump blood well into the veins. In this case, the blood pressure will decrease. Note that heart problems caused by bulimia can be fatal [12].
- ✓ Endocrine problems of bulimia also affect the pancreas. Pancreas is an endocrine and exocrine gland that secretes insulin, various hormones and digestive enzymes. Bulimia causes inflammation of the

pancreas [13], which is called pancreatitis. Pancreatitis has symptoms such as abdominal and back pain, nausea and vomiting, fever and dehydration. These conditions may endanger a person's health or even lead to death [14].

- ✓ Oral and dental hygiene Some people who suffer from bulimia, clean their stomach by regurgitating food. This group of people brings stomach acid into the mouth by lifting up. Stomach acid destroys tooth enamel and leads to tooth decay, staining and gum disease.
- ✓ Digestive problems Repeated regurgitation of food in bulimia disorder destroys the lining of the esophagus and swells the throat tissue [15]. Stomach ulcers are very common in people with this disorder [16]. Abdominal contraction, stomach discomfort and bloating are other harmful effects of bulimia disorder [17]. In some people, bulimia and frequent regurgitation of food causes stomach rupture. These people do not have a regular digestive cycle and sometimes suffer from constipation and hemorrhoids [18].
- ✓ Dehydration, as mentioned, in the cycle of bulimia is called the last stage of purging, which is usually accompanied by eating [19]. However, this action causes the body to lose water. The human body needs water and electrolytes to carry out all processes. Lack of water in the body causes damage to the kidneys, damage to the brain and liver failure. If the lack of water is severe and not treated, it is fatal [20].
- ✓ Damage to the eyes and skin. All the negative effects of this disease do not happen inside the body. Bulimia also affects a person's face. Picking up food causes tearing of eye vessels, swelling and redness. Swollen jaws and cheeks are also visible negative effects of bulimia. Dry and dark skin due to lack of water in the body is one of these negative effects [21].
- ✓ Mental-psychological problems of bulimia are closely related to mental and psychological problems. Most of the affected people experience stress and depression. In severe cases, depression leads to suicide [22]. Others turn to drugs or alcoholic beverages to deal with depression. When a person is too worried about the appearance of his body [23], he distances himself from his friends, acquaintances and even his family and does not participate in their company [24].

Some other mental problems that a person with bulimia nervosa may be involved with include:

Mood changes, depressed thoughts and behaviors, obsessive compulsive behaviors, pervasive anxiety, isolation, self-harm, menstrual and pregnancy problems in bulimic women cause irregular menstruation in women. Sometimes it is even possible to stop this cycle. This disorder also causes problems in pregnancy [25]. Pregnant women who suffer from this disorder may suffer from high blood pressure, gestational diabetes, miscarriage, premature birth, and infant disability. These people are more likely to need a cesarean section [26]. Bulimia also increases the risk of postpartum depression. Bulimia Treatment of bulimia is talking to a psychologist and using appropriate drugs is one of the most important ways to treat bulimia disease [27]. It is clear that the earlier the treatment starts, the more effective it is (Figure 1).

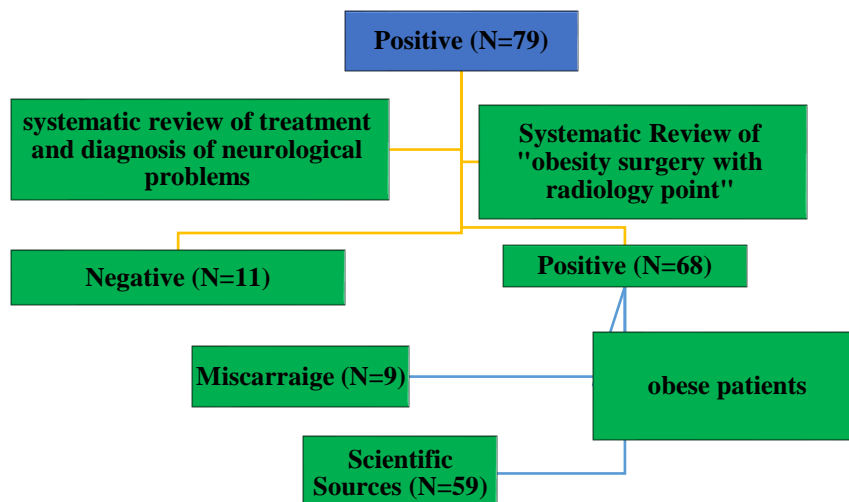


Figure 1. Flow chart of included subjects

What causes bulimia nervosa?

The exact cause of bulimia nervosa is not known, but researchers think it may involve a combination of genetics and learned behaviors [28]. If you have or have a relative with an eating disorder, you are at risk of developing it. Popular culture and media pressure people to have a certain body type [29]. These outside influences can affect your body image and self-esteem. Also, feeling stressed, uncomfortable or out of control can all lead to bulimia. There is no specific laboratory test for the specific diagnosis of bulimia [30-32]. Your health care provider and most doctors may order tests to see how bulimia has affected your health. Some of these tests include:

- ✓ Blood test [33].
- ✓ Urinalysis [34].
- ✓ Kidney function test [35].
- ✓ Electrocardiogram [36].

How is bulimia nervosa treated?

Your health care provider and most doctors and nutritionists may treat bulimia nervosa using a variety of techniques. They may refer you to a team of specialists, including nutritionists and mental health professionals [37]. Treatments may include:

1- Psychotherapy: cognitive-behavioral therapy is a type of individual counseling. It focuses on changing your thinking and behavior. Treatment includes techniques to develop healthy attitudes toward food and weight [38]. It also includes approaches to changing how you react to difficult situations.

2- Nutrition counseling: Nutrition counseling includes learning healthier ways to eat.

3- Medication: Serotonin inhibitors are a type of antidepressant medication [39]. They can reduce the frequency of binge eating and vomiting, but the long-term effectiveness of these drugs is not known.

What is the difference between binge eating disorder and anorexia nervosa?

These two eating disorders have many similarities. Binge eating occurs in both disorders and the reason for its occurrence is mental and psychological problems or stress on the person. Therefore, overeating and nutrition can be a way to overcome these mental problems, but the difference between these two disorders is in their severity and incidence [40-42]. In bulimia, it is possible that this disorder is transient and even the way of eating is normal in terms of fast or normal eating, but in bulimia, eating usually has an uncontrollable process and this disorder is associated with mental problems and torment of conscience after overeating. will be in order to eliminate the problems caused by overeating, this person uses various methods to eliminate the food entering the body, such as causing vomiting, extreme diet and physical activity. The problem of bulimia nervosa is that, firstly, it is not necessarily a transient problem and disorder, and secondly, apart from the input of many calories into the body and causing excess weight and obesity, rapid and uncontrolled eating, as well as using the wrong ways to eliminate incoming food, can be the basis for a person's disease. provide for various diseases, including digestive diseases [43-45].

Comparing bulimia nervosa with anorexia

Bulimia is very different from anorexia and anorexia and a significant reduction in nutrition. In bulimia nervosa, it is due to mental issues [46], excessive and uncontrollable eating combined with wrong behaviors to eliminate incoming calories [47-49]. In anorexia or anorexia nervosa, a person is not satisfied with his appearance, and in order to lose weight and become fit, he goes towards consuming less food and enduring hunger. Sometimes, despite being extremely thin, the person still suffers from this problem, and this can lead to the occurrence of various diseases in a person suffering from this disorder [50].

Symptoms of bulimia nervosa

Signs and symptoms of bulimia nervosa may include the following:

- ✓ Preoccupation with body shape and weight and dissatisfaction with it.
- ✓ Extreme fear of gaining weight.
- ✓ Repeatedly eating large amounts of food over a period of time.
- ✓ A feeling of loss of control during binge eating, such as not being able to stop eating.
- ✓ Forcing yourself to vomit or doing excessive physical activity to prevent weight gain after overeating [51-53].
- ✓ Using laxatives, diuretics or enemas after meals.
- ✓ Fasting, restricting calories or avoiding certain foods between binges.
- ✓ Excessive use of nutritional supplements or herbal products for weight loss.

- ✓ The severity of bulimia is determined by how often you purge per week, usually at least once a week for at least three months [54].

Symptoms of bulimia nervosa in children and adolescents

These symptoms are similar to the symptoms mentioned above and are not much different [55].

Bulimia nervosa in pregnancy

This disorder can occur due to hormonal changes and nutritional needs of the pregnant mother.

When should you see a doctor?

If you have symptoms of bulimia, you should seek the advice of specialists in this field as soon as possible. If bulimia nervosa is not treated, it can seriously affect a person's health [56-58]. A person with this disorder should talk to their doctor or a mental health professional about their symptoms and feelings. If a person does not want to be treated, it is better to discuss this matter with the people around him, including friends or family members, a teacher or someone else he trusts.

This person can help sufferers take the first steps to successfully treat bulimia nervosa. If you think someone around you may have symptoms of bulimia nervosa, have an open and honest conversation with them about your concerns. You cannot force someone to seek treatment for this disorder, but you can encourage and support them to do so [59].

Since most people with bulimia nervosa are usually of normal weight or slightly overweight, it may not be obvious to others that they have the disorder. The behavioral characteristics of this disorder, with which family and friends may notice a person suffering from bulimia nervosa, include the following:

- ✓ Persistent worry or complaint about being overweight or obese.
- ✓ Having an exaggerated and overly negative body image.
- ✓ Repeatedly eating unusually large amounts of food in a short period of time, especially foods that the person usually avoids and has no desire to eat.
- ✓ Strict diet or fasting after overeating [60].
- ✓ Reluctance to eat in public or in front of others.
- ✓ Going to the bathroom immediately after eating during meals or for a long time.
- ✓ Exercise or excessive physical activity [3].
- ✓ Presence of sores, scars or calluses on the knuckles or hand.
- ✓ Having damaged teeth and gums.
- ✓ Weight change
- ✓ Swelling in hands and feet [5].
- ✓ Swelling of the face and cheeks due to enlarged glands.

Cause of bulimia nervosa

The exact cause of bulimia nervosa is unknown. Many factors can contribute to the occurrence of eating disorders, including factors such as genetics, lifestyle, emotional health, social expectations, and more [61].

Risk factors in bulimia nervosa

Girls and women suffer from bulimia nervosa more than boys and men. Bulimia usually begins in late adolescence or early adulthood [62].

Factors that increase the risk of developing bulimia can include:

1- Biology: People with first-degree relatives (siblings, parents or children) with nutritional disorders may be more susceptible to these disorders. This could indicate a possible genetic connection. Also, being overweight during childhood or adolescence may increase this risk [63].

2- Mental and emotional problems: mental and emotional problems such as depression, anxiety disorders or drug use disorders are closely related to eating disorders. People with bulimia may feel negative about themselves. In some cases, traumatic events and environmental stress may be contributing factors [64].

3- Dieting: People who are on a diet are more at risk of developing nutritional disorders. Many people with bulimia severely restrict their caloric intake between binges, which may lead to relapse and subsequent purging. Other triggers for overeating can include stress, poor self-image, food, and boredom [65].

Dangers of bulimia nervosa

Bulimia nervosa may cause serious and even life-threatening complications. Possible complications of this disorder include the following:

- ✓ Negative self-esteem and problems in relationships and social functioning.
- ✓ Anxiety, depression, personality disorders, or bipolar disorder.
- ✓ A tendency to alcohol and alcoholic beverages or drugs [66].
- ✓ Self-harm, suicidal thoughts or attempted suicide.

Bulimia nervosa and its physical effects

Bulimia can lead to the following physical risks:

- ✓ Dehydration that can lead to major medical problems such as kidney failure.
- ✓ Heart problems such as irregular heartbeat or heart failure.
- ✓ Severe tooth decay and gum disease [67].
- ✓ Absence or irregular menstruation in women.
- ✓ Occurrence of digestive problems in the affected person.

Effects of bulimia on weight and physical

This disorder can have a destructive effect on people's weight and physique:

- ✓ This disorder can cause obesity and overweight [68].
- ✓ This disorder can cause disproportion in people suffering from this nutritional disorder.

Diagnosis of bulimia nervosa

If your doctor suspects bulimia, they will usually do the following:

- ✓ Talk to you about your eating habits, weight loss methods, and physical symptoms.
- ✓ Do a physical examination.
- ✓ Request blood and urine tests.
- ✓ It will ask for tests that can detect problems with your heart [69].
- ✓ It is possible to perform a psychological evaluation, including a discussion of one's attitude towards body and weight, using the psychological criteria listed in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5).
- ✓ Your doctor may also order additional tests to help make an accurate diagnosis, rule out medical reasons for weight changes, and check for any associated complications [4].

Treatment of bulimia nervosa

When people have bulimia nervosa, they may need several types of treatment. Treatment of bulimia generally involves a team approach that includes the sufferer, their family, a physician, a mental health professional [70], and a nutritionist with experience in treating eating disorders. In the following, we examine different methods of treating bulimia nervosa:

1- Psychotherapy and its role in controlling bulimia nervosa: Psychotherapy, also known as talk therapy or psychological counseling [3], involves discussing bulimia nervosa and related issues with a mental health professional. Evidence shows that psychotherapy helps to improve the symptoms of bulimia disorder and can include the following methods:

- ✓ Cognitive behavioral therapy helps you normalize your eating patterns and identify unhealthy and negative beliefs and behaviors and replace them with healthy and positive ones [9].
- ✓ Family-based therapy to help parents intervene to prevent their teen's unhealthy eating behaviors, help the teen regain control over his eating, and help the family cope with the problems that bulimia can have on the teen's development and have a family [12].
- ✓ Interpersonal psychotherapy that addresses problems in your close relationships and helps improve your communication and problem-solving skills [19].

2- Pharmacological treatment of bulimia nervosa: Antidepressants, if used together with psychotherapy, may help to reduce the symptoms of bulimia. The only antidepressant drug specifically approved by the Food and Drug Administration for the treatment of bulimia nervosa is fluoxetine (Prozac), a type of selective serotonin reuptake inhibitor (SSRI). This medicine may help you even if you are not depressed [71].

3-Nutritional solutions to deal with bulimia nervosa: nutritionists can design a food plan to help people with this disorder to achieve healthy eating habits to prevent hunger and excessive cravings in food and to create a good trend in eating. Eating regularly and not restricting food intake is important in overcoming bulimia.

4- Other solutions to deal with bulimia nervosa: bulimia nervosa can usually be treated outside the hospital, but if the symptoms are severe and accompanied by serious health complications, you may need treatment in the

hospital. In some eating disorder programs, day treatment may be offered to the sufferer instead of hospitalization [72].

The fastest way to treat bulimia nervosa

According to the severity and symptoms of bulimia, each of the following ways can accelerate the treatment of eating disorder. Sometimes a single treatment method is not enough and it is necessary to use a combination of several treatment methods to control bulimia nervosa. This method will also increase the rate of success and speed of treatment [73].

Treatment methods to solve this disorder include:

1- Psychotherapy: Psychotherapy (cognitive-behavioral) is a type of individual counseling that focuses on changing the patient's thinking and behavior. In this treatment, techniques are presented to patients to create a healthy attitude towards food and weight and to change the way they react to difficult situations [74].

2- Nutrition counseling: Patients are referred to a nutritionist to learn healthier ways to eat.

3- Drug therapy: Serotonin reuptake inhibitors are a type of antidepressant that can reduce the frequency of binge eating and vomiting and the amount of anxiety and depression in patients with bulimia nervosa.

4- Support groups: participation in support groups is effective along with other treatment methods. In these groups, patients and their families share their experiences and stories.

How to prevent bulimia nervosa

If you have bulimia nervosa in your family, you should be aware of the warning signs. Immediate and early diagnosis and treatment can make it easier to overcome this disorder. Treatment of other diseases such as depression and anxiety disorders also reduce the risk of bulimia nervosa. Teachers and parents also play an important role in portraying the ideal body type in the minds of children and teenagers. They can dispel unrealistic notions of ideal weight and body shape in children and adolescents. Previous research indicates the existence of a relationship between excess body weight and depression [75]. For example, people who are obese are almost five times more likely than others to have experienced a major depressive episode in the past year compared to people of average weight. It seems, this relationship between obesity and depression is more in women than in men, and this may be due to society's emphasis on thinness as a characteristic of women's beauty.

It is not difficult to understand why. Modern culture has a unique way of worshipping lean, soft young bodies. With rare exceptions [76], only slim and well-proportioned bodies are considered beautiful. A person does not have to be overweight to have a psychological eating disorder. Eating is pleasurable, and because this is true, everyone uses eating as a ready source of emotional relief when they feel stressed. Not surprisingly, such stress eating leads to weight gain, which in turn makes many people, especially women, feel worse about themselves, which motivates more stress eating and weight gain. becomes redundant. Oftentimes, comfort eating based on stress becomes a vicious cycle and a downward spiral. The fear and worry of gaining weight are one of the main reasons for suffering from bulimia nervosa. If a person constantly talks about his appearance, it is possible that he has a nutritional disorder [77]. People with bulimia often eat alone. Some patients with this disorder have signs of their fingers hitting their teeth on their hands due to trying to vomit. If you look carefully, you can see the redness caused by the bursting of blood vessels on their faces. After they overeat, they go to the bathroom or the gym to burn off the calories.

Depression; The most important complication of overeating

Another problem that may affect this group of people, i.e., nervous overeaters, is depression, because after a while these people do not feel satisfied with their bodies and lose their self-confidence over time.

Also, we can add anxiety problem to other effects of bulimia. So, in a general summary, it can be said that bulimia is associated with mental problems, including depression and anxiety disorders. Electrolyte disorder in the body is another complication that occurs to people who try to vomit by stimulating their throat, because if the potassium in the gastric juice is released, it causes a decrease in blood potassium, and as a result of this action, the person is constantly lethargic. and has physical weakness. Also, if they use their fingers to stimulate the throat, the throat may become sore. However, the extreme behaviors that are done to clean the patient, each of them has complications, some of which are irreparable [78].

Does cleaning the stomach with these methods include side effects?

Each of these mentioned methods are not free of complications. For example, taking laxatives or diuretics, if they are not taken correctly, after some time the body will face vitamin deficiency. Also, the function of the digestive system is disturbed and the person suffers from constipation. Cleansing the digestive system can cause many physical problems, including tooth damage due to stomach acid and heart and kidney problems due to salt depletion [79].

Anorexia nervosa is more dangerous than bulimia nervosa

Anorexia nervosa is another type of eating disorder. A person suffering from this disease does not want to eat. Also, he constantly introduces himself as a fat person. If in reality there is no excess fat. These people are very afraid of getting fat. Anorexia nervosa is much more dangerous than bulimia nervosa, because the course of the disease in people is very dangerous, as far as possible, it leads to the hospitalization of the person and finally his death [80].

Hormonal problem or bulimia nervosa

A person may have a hormonal problem that he is unaware of. This is why he overeats, which may be attributed to an eating disorder due to lack of knowledge about the hormonal problem.

Does a certain disease aggravate the eating disorder?

A specific disease does not aggravate this disease, i.e., bulimia nervosa, but some diseases may be confused with a nervous disorder [81]. For example, a person may have a hormonal problem that he is unaware of. This is why he overeats, which may be attributed to an eating disorder due to lack of knowledge about the hormonal problem [9]. Due to the activation of the cortisone system, the person becomes more gluttonous than before and constantly shows nervous behaviors, the symptoms may be similar to bulimia nervosa [2], but in reality, this problem is caused by a hormonal problem.

Table 1. Forest plot showed the A systematic Review the treatment and diagnose of neurological problem in fat patient relying bariatric surgery with radiological point

| Raw | Study | Year | | Proportion | Wight 98% | Weight % |
|--|--------------------|------|--|------------|---------------|----------|
| 1 | Abdollahi et al. | 2014 | | 0.68 | [0.52 – 1.06] | 6.02 |
| 2 | Aldulaim et al. | 2022 | | 0.74 | [0.31 – 1.08] | 5.92 |
| 3 | Aldulaimi et al | 2022 | | 0.89 | [0.19 – 1.01] | 5.65 |
| Heterogeneity $t^2=0.00$, $I^2= 0.02$, $H^2=1.01$ | | | | 0.98 | [0.20 – 1.06] | |
| Test of $\Theta= \Theta$, $Q (4) =4.00$, $P= 0.71$ | | | | | | |
| 1 | Ansari et al. | 2022 | | 0.92 | [0.39 – 1.06] | 5.03 |
| 2 | Baghestani et al. | 2018 | | 0.87 | [0.54 – 1.02] | 6.02 |
| 3 | Bauer et al. | 2022 | | 0.88 | [0.63 – 1.01] | 5.57 |
| Heterogeneity $t^2=0.02$, $I^2= 0.03$, $H^2=1.02$ | | | | 0.95 | [0.22 – 1.07] | |
| Test of $\Theta= \Theta$, $Q (4) =2.09$, $P= 0.74$ | | | | | | |
| 1 | Beiranvandi et al. | 2022 | | 0.84 | [0.27 – 1.08] | 6.08 |
| 2 | Danesh et al. | 2022 | | 0.76 | [0.36 – 1.06] | 5.82 |
| 3 | Eskandar et al. | 2020 | | 0.69 | [0.28 – 1.05] | 5.85 |
| Heterogeneity $t^2=0.01$, $I^2= 0.04$, $H^2=1.03$ | | | | 0.0.95 | [0.29 – 1.06] | |
| Test of $\Theta= \Theta$, $Q (4) =4.09$, $P= 0.40$ | | | | | | |

Conclusion

Bulimia is one of the eating disorders that occurs in different people. The symptoms of this disorder include uncontrollable eating, causing a pang of conscience and trying hard to get rid of incoming calories. Usually, to overcome this disorder, it is necessary to use a combination of treatment methods such as nutritional therapy, psychotherapy, drug therapy. Many patients with uncomplicated bulimia nervosa do not need hospitalization. They have to change their nutritional patterns and the therapist, by changing the negative beliefs and thoughts of

the affected person, identifies his unhealthy behaviors and wrong beliefs and helps the person to replace a set of healthy beliefs. Although this disease can be treated, there is always a risk of its return and at any moment, a person may lose control due to mental tension and consider excessive eating as a way to reduce tension. If you feel symptoms of the disease returning, be sure to discuss it with your counselor and doctor, and learning and strengthening problem-solving and stress control skills can reduce the likelihood of disease recurrence. It is not easy to treat this disorder, but from a comparative point of view, it can be said that bulimia nervosa is more treatable than anorexia nervosa, but since anorexia is a mental and physical disorder, the treatment of the disease is multifaceted and team, that is, a team consisting of a clinical doctor, a psychologist, counselor and treatment regimen. The family also plays a very important role in this. In order to treat bulimia nervosa and anorexia nervosa, psychotherapy must be done along with drug therapy. The treatment of bulimia nervosa is also in this way. Another treatment recommended by many patients is yoga. Yoga is a sport that works on your body and soul in parallel. In fact, yoga exercises help you achieve mental peace and strengthen your muscles. Along with yoga, you can try meditation to master your mind. As we said above, bulimia nervosa is a disease with psychological roots. Finally, mastering your mind can help you get rid of this disease.

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