

# Epidemiological Status, Influencing Factors and Preventive Measures of Eating Disorders

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**Abstract.** Eating disorders are now more commonly seen in public and the risk of having an eating disorder is still among the top concerns in today's society. Eating disorders are serious conditions related to persistent eating behaviors that negatively impact health and emotions. Psychological and nutritional therapies have been the main interventions for eating disorders. The recovery rate of eating disorders is low, the recovery time is long, and the recurrence rate is high, which significantly decreases patients' ability to function in important areas of life. This paper summarizes the epidemic situation, influencing factors and preventive measures, and puts forward suggestions for future preventive measures.

**Keywords:** *eating disorders, epidemic status, influencing factors, prevention*

## 1. Introduction

Eating disorders, once considered a product of Western culture, were recorded in the Middle Ages as self-hunger strikes, while formal definitions emerged in the late 19th century. Since the 1950s after World War II, the trend of leanness as the beauty of Western culture has become more and more intense, and the incidence of eating disorders has increased year by year. In the past, when the problem of food and clothing has not been completely solved in China, coupled with the traditional Chinese concept of obesity as the beauty of children, eating disorders in China is not a big problem. However, in recent years, with the sustained economic development and the further penetration of Western culture, reports of eating disorders have increased significantly in China, and gradually become a serious challenge for the healthy development of adolescents. There are many reasons and influencing factors for eating disorders, which can be caused by organic diseases or non-organic psychosocial factors.

## 2. The Concept of Eating Disorder

Eating disorder is a very serious disease characterized by dietary behavior problems. It is caused by complex and interacting factors, which may include emotional disorders, personality disorders, family stress, possible genetic factors and biological susceptibility, as well as dietary habits and excessive pursuit of weight loss in culture. The latest Americans Mental Disease Diagnosis and Statistics Manual (DSM-IV) diagnostic criteria classify eating disorders into the following four types: neuro-bulimia, neuro-anorexia, bulimia and atypical eating disorders.

## 3. Epidemic Status and Evaluation Basis.

Western epidemiological surveys show that the annual incidence of eating disorders is between 5 and 10.1 million. The lifelong prevalence of anorexia nervosa in women ranges from 0.5% in the narrow sense to 3.7% in the broad sense, and the mortality rate is estimated to be 4%-10%. The lifelong prevalence of anorexia nervosa varies from 1.1% to 4.2% in women. It is generally believed that eating disorders are not common in boys, and the ratio of female to male prevalence is 6:1 to 10:1 [2]. It is worth noting that the incidence of atypical eating disorders is twice as high as that of the aforementioned data. At present, there is no national epidemiological survey data on eating disorders in China. Incidence and prevalence of eating disorders depend largely on samples and assessment tools. It is worth noting that the incidence of atypical eating disorders is twice as high as that of the aforementioned data. At present, there is no national epidemiological survey data on eating disorders in China.

### **3.1 Age Distribution**

Adolescence is the main period of high incidence of eating disorders. According to Western epidemiological studies, the peak age of anorexia is 14-19 years old, and the peak age of bulimia is 15-19 years old. About 10 adolescent women have different degrees of eating disorders [3]. Among them, there are two most common age groups, 13-14 years old and 17-18 years old respectively. The results of domestic survey show that both college students and middle school students are at high risk of eating disorders, and college students are at greater risk than middle school students [4-7].

### **3.2 Sex Distribution**

Eating disorders are predominant in young women. Data show that boys account for between 5% and 15% of all men and women suffering from anorexia nervosa or bulimia nervosa. Therefore, studies on eating disorders are often conducted only for adolescents, even male adolescents, but also for adolescents as a whole. But recently there have been studies specifically targeting male adolescents [8]. It is thought that the sex ratio may not be as wide as expected. Woodside et al. sampled a community sample and analyzed it with the WHO World Health Organization Composite International Diagnostic Interview. When only some people who met the diagnostic criteria (mainly low weight criteria) were included, it was found that the ratio of women with anorexia to men was 2:1. Other studies suggest that when eating disorders occur, men are more likely to conceal, so the incidence of eating disorders among men may be underestimated. A naval study reported that the incidence of male anorexia was 2.5% [1]. However, these studies still support the fact that the overall prevalence rate of women is higher than that of men.

### **3.3 Races**

Most previous studies have focused on middle-class white women, and now studies have focused on other ethnic groups, finding that ethnic minorities, including Hispanics and African Americans, are also affected. Gluck and Geliebter et al. found in a 2012 study of women of different races that, when BMI differences were controlled, black women were less dissatisfied with their body shape and fewer people suffered from eating disorders than white women; Asian women were similar to white women in dieting and dissatisfied with their body shape, but Asian women still had lower rates of real eating disorders.

### **3.4 Occupation**

The morbidity and prevalence of eating disorders in different occupations are also different. Some special occupational groups are at high risk of eating disorders. Garner et al. observed 55 female ballet students aged 11-14. The incidence of anorexia nervosa was 25.7%, and that of bulimia nervosa was 2.9%. Some of the symptoms of anorexia nervosa and bulimia nervosa were found in 11.4% of the students, which were significantly higher than that of the general population. This indicated that the incidence and prevalence of eating disorders increased in the compulsory "thin" social and cultural environment. Other occupations with significantly increased prevalence include fashion models and athletes. The exact prevalence of eating disorders among athletes is not yet clear, but the prevalence can vary from 15% to 62% depending on the type of exercise they engage in, which is much higher than the prevalence of eating disorders among non-athletes [12].

## **4. Influencing Factors**

Because it is difficult to find suitable research objects and strictly control the pathogenic factors, it is difficult to carry out experimental studies on the causes of eating disorders. Strictly speaking, the research done by researchers can only prove the correlation between some factors and eating disorders, and can not be called the cause of disease.

## **4.1 Hereditary Factors**

People with eating disorders in their relatives are eight times more likely to develop the disease than normal people. Some experts estimate that genetic factors may even affect more than half of the variation in eating disorders. Twin studies found that the heritability of anorexia nervosa ranged from 33% to 84% and that of bulimia nervosa from 28% to 83%. Genetic factors can also indirectly affect the incidence of disease by acting on other factors. For example, people who are genetically metabolized faster and tend to maintain a lean body shape are more likely to suffer from eating disorders if they are culturally identified with a lean body shape. People who are genetically obese are more likely to adopt compensatory behavior to avoid obesity and develop eating disorders caused by compensatory behavior. Hereditary personality traits may also be a cause, as eating disorders are closely related to personality traits.

## **4.2 Psychological and Emotional Factors**

The relationship between psychology and eating disorders is bidirectional, which can influence each other and cause and effect each other. Many evidences have shown that eating disorders are closely related to mental behavior concepts [15]. Invalidity, asceticism, dysregulation of motivation, perfectionism, interpersonal distrust, lack of inner feelings, social insecurity, and mature fear are frequently reported mental behavior concepts in patients with anorexia nervosa or bulimia. 40% to 96% of all eating disorders suffer from depression and anxiety disorder, and the family of the patients usually experience depression or anxiety, or both [1]. People with eating disorders tend to have similar personality characteristics, including self-depreciation, low self-esteem, pessimism, over-emphasis on body image and so on. Borderline personality disorder and compulsive-impulsive personality disorder are the two most common personality disorders in patients with eating disorders. A study of 72 patients with eating disorders and 30 controls showed that 61.8% of patients with eating disorders had personality disorders [18].

Body disorders are usually associated with eating disorders. Body image disorder is a distorted understanding of one's own image, which is caused by social, psychological or possible biological factors. In 1962, Bruch first proposed that anorexia nervosa patients have body image disorders, and there have been many similar reports since then. Ohtahara et al. [19] studied 25 Japanese adolescents'illusion of weight in 1992. It was found that 80% of female middle school students overestimated their actual weight, 100% underestimated their ideal weight, and the incidence of female body image illusion was much higher than that of male, which was positively correlated with the incidence of eating disorders.

## **4.3 Family Factors**

### **4.3.1 Family Environment**

Families play an important role in influencing factors of eating disorders. Negative family effects are a major cause of eating disorders [1]. Some experts believe that parents'failure to establish a safe and stable family environment in their children's early childhood is the cause of eating disorders later on. Families with eating disorders share some common characteristics. The family concept of anorexia patients emphasizes perfection, avoidance of injury, emotional restraint, appropriate behavior and tolerance of dissent, while the family of bulimia patients tends to show variability, excitement, contradiction and negative emotions.

### **4.3.2 Parental Characteristics**

Parents of people with eating disorders share some common characteristics: Studies report that people with eating disorders are more likely to be alcoholic or drug abusers than the general population. The study found that mothers'attitudes and behaviors toward eating had an important impact on their children. The proportion of eating disorders among mothers was significantly higher than that of mothers in general [20]. In addition, studies have shown that fathers'behavioral patterns also play an important role in children's eating disorders [21]. Some studies strongly suggest that

children of critical fathers or brothers are more likely to have eating disorders, both male and female.

#### **4.4 Social and Cultural Factors**

##### **4.4.1 Cultural and Socio-Economic Status**

Culture mainly influences the incidence of eating disorders through the understanding of body shape and diet concept. Epidemiological data show that the prevalence of eating disorders has increased in the past half century, mostly in westernized, modernized and urbanized societies. This kind of social value advocates "thin is beautiful", slim is the ideal body shape that the society boasts, it represents self-confidence, self-restraint, success. Women are often recognized and praised by the society through the pursuit of slim figure. Under the influence of these social concepts, the blind worship and pursuit of slenderness has become a popular fashion, so that diet is considered normal, while eating disorders are usually caused by diet, and diet is even considered as a necessary but not sufficient condition for the onset of eating disorders. In addition, excessive pursuit of slenderness and body beauty may lead to fear of obesity, as well as distorted understanding of their body image [22] may lead to eating disorder economic model theory that women's body shape reflects their economic status, if they have economic ability, women prefer to choose slender body standard [23]. Living in any developed country in the world has a greater risk of eating disorders [1].

##### **4.4.2 Peer and Media**

Peer influence is also the cause of eating disorders. Adolescent women are eager to be recognized by their peers. Peer assessment of weight, body size and eating behavior have great influence on them. In their small group, they usually have the same ideal body shape standard. If the ideal body shape they pursue is not healthy, it will easily lead to eating disorders. Xiao Guanglan et al. [24] found that peer competition and imitation are the real causes of abnormal eating behavior. The tendency of leanness and excessive food in media propaganda culture play a major role in causing obesity and eating disorders.

## **5. Preventive Measures**

A three-level prevention model for eating disorders was proposed in 2014. This intervention model is a three-level prevention model for normal people, subclinical individuals and individuals with eating disorders.

The third prevention of eating disorders is to treat the individuals who have already had eating disorders. Psychotherapy is the main treatment method. At present, the main methods of psychotherapy for eating disorders abroad include cognitive behavior therapy (CBT), psychological education program, self-help strategies and family therapy. CBT is the most commonly used method to treat eating disorders, but it takes a long time and requires a high professional level of therapists. Therefore, CBT is expensive, not easy to promote, and not suitable for large-scale population intervention (such as middle school students, College students), suitable for moderate and severe patients. Self-help technology, psychological education and other methods can make up for their shortcomings, can be targeted at large-scale sub-clinical symptoms group intervention. Psychological education is more suitable for high-risk groups (middle school students, College students) to do group intervention; family therapy has a good effect on children and adolescents. For women over 18 years of age, CBT is more effective because the main pathogenic factor of adult patients is unreasonable cognition. Patients under the age of 18 are mainly afraid of growth or family conflict, so it is more appropriate for them to use family therapy to balance development factors. Secondary prevention of eating disorders can be carried out in outpatient clinics or community institutions abroad. Primary pediatric health care physicians can help children and their families understand the basic knowledge of proper nutrition and physical exercise and prevent overemphasis on weight and diet. In addition, pediatricians can use screening to detect early manifestations of eating disorders to prevent seemingly harmless symptoms that actually underlie

eating disorders from progressing [25]. However, in China, the primary health care system is not perfect, coupled with eating disorders often concealed onset, parents found that most of the more serious physical symptoms, so screening is not easy to achieve.

Large-scale population intervention for eating disorders should begin before the onset of the disease, focusing directly on the risk factors of the disease. It is found that once the eating disorder behavior is formed, it is quite difficult to correct it [26-28]. Therefore, it is twice the effort to take measures to make children form correct concepts and habits before the formation of eating disorder. This primary prevention of eating disorders is being adopted by more and more preventive interventions. The first-level community-based preventive measures include Neumark-Sztainer et al. [29] a community intervention project "Free to be me" in 2009. The intervention is aimed at girls in fifth and sixth grades, based on social cognitive theory. A gathering is held once a week for a total of six times in 90 minutes, including physical development, the influence of media on self-image, self-esteem, and gradual teaching. They are able to distinguish information from the media and confront negative physical intentions. The results of the intervention made beneficial progress in knowledge and attitude, but no behavioral differences were found after 3 months of follow-up.

Schools are also the main places for teenagers' activities, and some preventive courses have been established in schools in foreign studies. For example, an intervention project for senior pupils in primary school, "Healthy body image: teaching children to eat and let them love their bodies!" has 11 classes. Through games, discussions, stories and other activities, the attitude and behavior of students in grade 4 to 6 have been significantly improved compared with the control group [30]. Early assessments of these courses show changes in attitudes and behaviour, but the effectiveness of these courses remains a problem. Most of the school curriculum-based interventions did not achieve the desired results in subsequent follow-up visits, did not achieve sustained behavioral changes, and some studies even found that interventions had a negative effect, because some knowledge acquisition made adolescents on the contrary. It's easier to get into the misconception of losing weight [26]. At present, it is believed that a good school-based intervention project should be a comprehensive project including the surrounding environment of the school, and integrate the strength of families, social groups and communities in order to achieve good results. In 2009, the Office on Women's Health, affiliated with the U.S. Department of Health and Human Services, compiled a "Health Management Manual" as part of its Eating Disorder Health Management Program to help school workers reduce risk factors and improve protective factors [28].

## **6. Conclusion**

Many years of research at home and abroad have shown that eating disorder is a psychological disease that seriously endangers physical and mental health and may lead to death. The factors affecting its occurrence and development are complex, such as heredity, sex, age, race, occupation, behavior, psychology, emotion, family and environmental factors. After years of research abroad, a three-level prevention model has been established for the normal population, subclinical individuals and individuals with eating disorders. Domestic research has just begun. At present, the morbidity in China is still lower than that in the West. This is an opportunity. In order to prevent eating disorders from becoming a serious problem in China as in the West, early intervention is a wise choice. For the intervention of eating disorders, domestic scholars tend to develop interventions that are less expensive and easy to promote. Therefore, primary and secondary prevention will become the main intervention mode in China in the future. As a high-risk group with eating disorders, adolescents are the main target of intervention. Compared with college students, middle school students have more dangerous behaviors that cause eating disorders and are in the critical or subclinical state of morbidity. Therefore, the intervention of middle school students can achieve twice the result with half the effort, and should become the main direction of future efforts.

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