Comorbidity of Eating Disorders and Borderline Personality Disorder: A Literature Review

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Abstract: Research on eating disorders (ED) and borderline personality disorder (BPD) has covered a lot of ground, but a comprehensive review of their comorbidity is still lacking. This study seeks to discuss the comorbidity of the two disorders through the results of previous research, covering a number of factors such as causes, clinical features, and diagnostic approaches, and to explore effective treatment modalities. Studies have shown that BPD exhibits high rates of co-morbidity with several eating disorder subtypes. This has been linked to neurotransmitters and genetic factors, as well as gender and childhood trauma. Patients with ED and BPD comorbidity have a higher possibility of suicide and more non-suicidal self-injurious behaviors. The results suggest that dialectical behaviorism therapy is more commonly used in the clinical treatment of patients with the comorbidity of ED and BPD. Future research could devote more attention to the pathological aspects of ED and BPD, as well as the role of pharmacotherapy.

Keywords: eating disorders, borderline personality disorder, comorbidity, treatment

1. Introduction

Currently worldwide, an average of one in eight people suffers from some kind of mental disorder [1].

Eating disorders (ED) have become a more common type of mental illness. Patients with this disorder often have incorrect perceptions of their body image and are accompanied by abnormal eating behaviours. This is a very serious psychological disorder that often causes significant damage to the patient's physical functioning. According to DSM-5, eating disorders include anorexia nervosa (AN), bulimia nervosa (BN), binge eating disorder (BED), avoidant/restrictive food intake disorder (ARFID), xenophagia, rumination, and other specific eating or dietary disorders [2]. Of these, AN, BN, and BED are the three most frequent types of the disease worldwide [3].

AN is typically characterized by a strict control of the amount of food consumed, thus leading to a low body weight. Patients are often associated with fear of weight gain and incorrect perceptions of their weight and size, which can lead to a risk of death that is up to five times higher than normal [4]. In terms of physical effects, intuitively, 40 percent of patients have reduced bone density leading to easy fractures [5].

BN is characterized by binge eating followed by compensatory behaviors such as emesis and abuse of drugs such as laxatives or diuretics. According to a U.S. study, the lifetime prevalence of BN may range from 0.3% to 1.6% [6]. The major difference between BED and BN in the clinical

diagnosis of BED is the lack of purging and compensatory behaviors in BED despite the fact that both two have binge eating behaviors.

Furthermore, the prevalence of each of these diseases shows significant gender differences, with western women having a significantly higher prevalence [7].

Current research on eating disorders considers the comorbidity between this illness and other mental disorders, in addition to research on its etiology and treatment. These disorders that are commonly comorbid with ED include depression, anxiety disorders, obsessive-compulsive disorder, bipolar disorder, and personality disorders. The comorbidity of personality disorders deserves more discussion because of the variety of personality disorder types and the complexity of diagnostic criteria.

Under DSM-5, there is a more nuanced classification of personality disorders into three clusters. There are also 10 subtypes under the three clusters. Of these, borderline, avoidant and obsessive-compulsive personality disorders showed higher rates of comorbidity with eating disorders. The present study focused on the comorbidity of borderline personality disorder (BPD) with ED because it has been shown that patients in the BPD population who comorbid with subtypes of ED exhibit higher rates of recurrent suicide attempts and recurrent non-suicidal self-injury attempts [8].

BPD is a more complex mental disorder. Patients generally do not have stable interpersonal relationships and may have impaired identity perception or impulsive, self-injurious behaviors [2]. BPD has long been recognized as a female-specific disease, with DSM-5 stating that three-quarters of patients are women. However, recent studies have shown that there is in fact no significant difference in the prevalence of BPD between men and women [9]. There may be misdiagnosis of antisocial personality disorder or depression in the diagnosis of men.

This study will screen and sort out the literature on ED and BPD co-morbidity between 1994 and 2024. It will summarize and analyze the comorbidity rate, etiology, clinical diagnosis and treatments for patients with comorbidity. It will also help the future direction of clinical research. The literature used was obtained from Google Scholar, PubMed, PsycNet, and Web of Science.

2. Comorbidity rate

2.1. Prevalence rate

As of 2019, according to the World Health Organization, there are about 14 million people suffering from eating disorders, of which 3 million are children or adolescents [1]. Most of the previous studies have focused on the more commonly defined and diagnosed subtypes of anorexia nervosa and bulimia nervosa. Based on DSM-5, women significantly outnumber men in both subtypes, approximately 10:1.

The estimated global prevalence of BPD ranges from 0.5% to 5.9% [10]. The lifetime prevalence of the disorder in the general population is generally estimated to be between 0.7% and 2.7% [11]. This fluctuating value may be related to the criteria for clinical diagnosis and geographic culture. The prevalence of BPD is even higher in psychiatric inpatients and can reach 22% [11].

2.2. Comorbidity rate

One study showed that the percentage of outpatients with ED who also had BPD was about 20% [12]. Conversely, over 50% of inpatients with BPD also have ED, especially BN [13].

In the absence of a classification of eating disorders other than AN and BN, several studies have reported comorbidity rates of 0%-21% (median 6%) for BPD with anorexia nervosa, 3%-26% (median 10%) with bulimia nervosa, and 14%-26% (median 22%) with eating disorders not

otherwise specified (EDNOS) [14]. And the two disorders have also demonstrated high rates of co-morbidity in some follow-up studies [14].

Furthermore, people with both ED and BPD tend to have more distressing experiences and are more likely to engage in life-threatening behaviors such as suicide and self-harm, often with symptoms of anxiety [8]. It follows that the issue of comorbidity between the two disorders deserves to be explored in greater depth.

3. Etiology analysis

3.1. Biological factors

Current research suggests that biological factors in the development of ED include alterations in some neurotransmitters, such as dopamine and serotonin. Some findings suggest that AN is associated with the immune and endocrine systems and that both AN and BN exhibit abnormal leptin secretion [15, 16]. Additionally, one study showed that AN has a familial likelihood of being inherited, with first-degree relatives with AN being 11 times more likely to have AN than controls [17].

Whereas the prevalence of BPD may be related to abnormalities in the activity of the hypothalamic-pituitary-adrenal axis (HPA), studies related to the role of genes in this are still relatively scarce. It is now possible to show that BPD is associated with the Nuclear Receptor Subfamily 3 Group C Member 1 (NR3C1) and has a nonspecific genetic predisposition like most personality disorders. Women with BN co-morbid BPD show higher NR3C1 methylation.

There is limited evidence on the biological influences on the co-morbidity of ED and BPD because the specific pathogenesis of some subtypes of ED is poorly understood. The principle of comorbidity between the two remains uncertain based on available studies. However, suffering from depression, anxiety, and other mood disorders may lead to a higher risk of developing ED and BPD, and, to some extent, influence the risk of comorbidities.

3.2. Psychosocial factors

Some past studies may have separated genetic and family environmental factors when discussing the causes of ED and BPD. However, it is now certain that the prevalence of both is the result of environmental and genetic interactions, with the environment influencing the expression of the genes involved.

One study showed that the percentage of BPD patients reporting co-morbid ED in the adult population was 53.8%, which was significantly higher than the 30.8% of adolescent BPD patients [18]. This difference is likely to be developmentally related, while development involves both biological and environmental factors. Clearly adults facing more complex stressors may exhibit a higher level of risk for comorbidities. In addition, there may be diseases in the adolescent population that have early symptoms or have not yet entered the risk period for their onset. Therefore, it shows low levels in measures of comorbidity. However, this risk period is closely related to the socio-cultural environment.

In addition, there is a percentage of both ED patients and BPD patients who report early traumatic experiences, and BPD patients in particular have high rates of childhood abuse [19]. Women with BPD may have body image disturbances. a study suggests that childhood sexual abuse is more likely to present with body image disturbances and co-morbid ED and BPD [20].

Globally, the prevalence of each of the two diseases, as well as the prevalence of co-morbidities, is higher in women than in men [21, 22]. There is also a higher prevalence among Western women in earlier studies. Thus, gender and cultural factors play an influential role in the risk of the disease. Research could further consider whether mitigating factors for the manifestation of these two types

of diseases can be found in different cultural contexts [7]. However, this gender difference has also been attributed in recent years to diagnostic methods and cultural predispositions. Both disorders have long been recognized as female disorders and tend to be classified as other psychological disorders when men are diagnosed.

4. Clinical symptoms and diagnosis

4.1. Clinical manifestations

Binge eating, maintenance of hunger and laxative abuse are among the typical features in the clinical diagnosis of ED. The BPD diagnostic criteria consist of 9 elements. They are fear of abandonment, unstable relationships, unstable self-image, impulsivity, suicidal or self-harming behavior, emotional instability, chronic emptiness, intense anger and paranoia or dissociation under stress [2]. One study measured the association of the three classic symptoms of ED with the symptoms of BPD [23]. This study found that any of the ED symptom endorsements may increase BPD symptom expression, and conversely, BPD symptoms were also associated with the likelihood of three features of ED [23].

A meta-study analyzed the relationship between the nine symptoms in the BPD diagnostic criteria and the various subtypes of ED. Studies have shown that certain symptoms of BPD play a stronger role in co-morbidities with ED than the rest of the symptoms [24]. The results showed that, in contrast to BPD symptoms, ED patients had the lowest expression of anger and the highest expression of emotional instability [24]. Among them, the binge-eating/purging subtype of AN showed the highest effect size and the greatest number of associations with BPD symptoms, while the restrictive subtype of AN did not exhibit effect sizes higher than those of other ED subtypes [24].

Nonsuicidal Self-Injury (NSSI) is a type of behavior in which there is no suicidal intent but there is intentional injury to one's own body. This type of behavior is more common in the adolescent population [25]. Agents often report ED with BPD comorbidities [25].

There are studies available that do not prove that ED is associated with recurrent suicidal or self-harming behaviors, but this exists in BPD samples [26, 27, 8]. Also, the comorbid sample showed some recurrent NSSI behavior [8]. Thus, further testing is still a necessity to determine whether there is some factor in the ED subtype that contributes to recurrent suicidal or non-suicidal self-injurious behavior in the comorbid group [8].

Thus, BPD and ED have many commonalities in clinical manifestations. And with comorbid BPD leads to an increased risk of suicide and self-injury in patients with ED. Therefore, attention needs to be paid to the possibility of comorbidities in patients in the clinical diagnosis.

4.2. Diagnostic methods

The clinical diagnosis of ED is now more established and the differentiation of the various subtypes of ED is more adequate. However, there are still some questions about the clinical diagnosis of BPD. On the one hand, the criteria for judging BPD symptoms vary across cultures; on the other hand, the scales for effectively judging BPD in different contexts are still not comprehensive enough. Hence, in actual clinical practice, there will be instances where people with BPD are categorized as having other mental illnesses. This may be attributed to the complexity of the comorbidities of BPD.

The diagnosis of comorbidity between ED and BPD needs to be complemented by a diagnosis of BPD. Questionnaires for diagnosing BPD are generally created based on the nine diagnostic criteria given in DSM-5, and sometimes other factors that have a crucial function are also weighed. Most of the existing studies have taken separate measures of BPD symptoms and ED symptoms, drawing samples that meet both criteria for psychological disorders and analyzing them.

In clinical treatment, in parallel to the diagnosis of the disorder, the patient's psychological condition needs to be assessed. Validated assessment questionnaires can help to differentiate between patients with comorbidities and those with only a single disorder. There is one current study confirming the validity of comorbidity diagnostic scales in a certain cultural context. The trial used a non-clinical sample, assessed for a Swedish version of the Social Security and Pleasure Scale (SSPS), and recruited clinical patients with BPD or ED for comparison [28]. Lack of access to social security and absence of fulfillment and self-compassion are vulnerability factors across diagnoses [28]. This factor is correlated with having BPD and ED. The outcomes point to the validity of the scale for psychometric assessment and its usefulness in the treatment of patients with BPD and ED [28].

More exact diagnostic results are in order to allow for greater discretion in the treatment process. Given that both disorders are inherently socio-culturally relevant, the differences in symptoms brought about by cultural background cannot be neglected in the diagnostic process.

5. Treatment methods

There are two main types of common therapies for ED: pharmacologic and non-pharmacologic. As of now, there are still no approved and effective medications for the specialized treatment of AN and BN, which can only be supplemented by the use of anxiolytic or antidepressant medications or hormonal medications, etc. [29] Instead, BED can be treated with lisdexamfetamine dimesylate (LXD) and supplemented with medications that help in weight loss [29]. Among non-pharmacological treatments, cognitive-behavioral therapy (CBT), family therapy, nutritional counseling, and dialectical behavioral therapy (DBT) are widely used to treat ED [29]. The purpose of these treatments is to improve the patient's incorrect perception of body weight and shape, restore normal social functioning, and promote abnormal eating behaviors to help ED patients regain a normal life.

Common BPD therapeutic approaches include psychotherapy, mentalization-based treatment (MBT), DBT, transference-focused psychotherapy (TFP), schema therapy (ST), and others [11]. The aim is to enable patients to reduce depression, self-harming behavior and adapt to social life by enhancing their psychosocial functioning, identifying feelings and regulating emotions, and refining interpersonal relationships [11]. There is no evidence of which medications are valid for the treatment of BPD, but almost all patients with BPD have experienced treatment with psychotropic medications [30].

On this basis, researchers have been selecting therapeutic modalities that can be efficacious in patients with comorbidities of BPD and ED. DBT has been shown to be effective in improving symptom levels in patients with BPD and ED co-morbidities [31, 32]. The study additionally confirmed a significant correlation between BPD and ED symptoms [31]. And the application of DBT in the adolescent population can also be effective in patients to reduce the risk of suicide and self-harm [32]. Therefore, it is feasible to apply DBT to the treatment of patients with comorbidities of these two psychological problems. Nevertheless, the specific therapeutic effects of DBT need to be further explored. Researchers can also set up control groups and refine the symptoms for comparison.

Moreover, some modified therapies have been applied to treat co-morbid patients in this category, such as modified mentalization-based treatment (MBT-ED) and specialist supportive clinical management (SSCM-ED), two methods generally utilized ED treatment [33]. The results suggested that participants improved throughout the course of the program, but the high dropout rate rendered the explanations less valid [33]. This is a challenge that relevant research has to face. It is also for this reason that there is insufficient data in the research literature for some of the other treatment options.

Alternatively, ST has been applied to treat patients with comorbidities of ED and DBP [34]. However, there are fewer studies in the related field and the efficacy needs to be confirmed by further practice [34].

The etiology of both ED and BPD is related to the living environment, rendering family relationships positive for the treatment of both disorders. At the same time, the patient's behavior often has a negative impact on family members, so the patient's family should also be given reasonable treatment and help [35]. This can also indirectly improve the patient's situation.

In brief, most current treatments for ED and BPD comorbidity still utilize DBT, but in different situations, there are also other alternatives for treatments, as well as some cure rates.

6. Conclusion

Overall, there is still a lack of research on the pathology of ED and BPD, and there is still insufficient evidence on the neuroscientific and genetic dimensions of the research that contributes to these mental disorders. Yet, socio-cultural and family environments, among others, are well researched and recognized for the formation of ED and BPD, among others. Thus most of the treatments currently available for both disorders address the behavioral level and less directly the physiological level. Future research could focus more on drug development to help address ED and BPD in terms of pharmacology. After all, there are virtually no effective drugs for specialized treatments for these two types of disorders now. Treating both ED and BPD from the perspective of ameliorating behavior is concerned with the patient's ability to have good interpersonal relationships and adapt to social life, so more research could be done on the effects of interaction with the environment on symptom expression during this process to discover potential mechanisms.

In terms of traditional attitudes, ED and BPD are still regarded as women's diseases, which to some extent affects the diagnosis of the patients. Because both types of disorders are prone to comorbid other mood disorder issues, inaccurate judgment may result in not finding the right treatment plan. On this occasion, it is also possible to focus on the differences in the expression of symptoms of the disease in men and women and in different cultures, and to find treatments adapted to the different population groups.

More importantly, clinical efforts need to pay more attention to the propensity for suicide or self-injury in ED patients with comorbid BPD. Patients with co-morbidities should be identified and managed early to reduce morbidity and mortality and to minimize harm. The mechanisms that lead to an increased risk of suicide in ED patients after combining BPD could also be further explored.

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