

# Exploring the relationship between Eating Disorders and Obsessive-Compulsive Disorder

Yueqin Cao\*

Psychology of Mental and Addiction, Indiana University Bloomington, Bloomington, IN 47405, The United States

**Abstract.** This paper explores the intricate relationship between eating disorders (ED) and obsessive-compulsive disorder (OCD), emphasizing their shared characteristics and comorbidity. Studies were grouped into three key themes: differences and similarities between EDs and OCD, the prevalence and clinical profile of ED-OCD comorbidity, and potential links between the disorders. Findings suggest that the shared traits, such as maladaptive perfectionism, intrusive thoughts, and thought-action fusion, may serve as central mechanisms linking the two disorders. Notably, certain ED subtypes, particularly anorexia nervosa binge-eating/purging type, show elevated rates of OCD symptoms, while a subset of OCD patients also report ED symptoms. Findings highlight a reciprocal relationship that has important clinical implications. However, limitations of the reviewed studies include methodological heterogeneity, reliance on self-report data, and underrepresentation of male participants. Future research should adopt longitudinal designs and transdiagnostic approaches to better understand the temporal dynamics and shared etiological factors underlying ED-OCD comorbidity.

## 1 Introduction

Eating disorders (EDs) and obsessive-compulsive disorder (OCD) are complex and significant mental health conditions that can profoundly affect an individual's well-being and daily functioning. Although traditionally studied as separate disorders, growing evidence suggests a substantial overlap between EDs and OCD, warranting closer examination of their comorbidity. To fully understand the shared mechanisms underlying both conditions, it is first essential to examine their unique characteristics and individual impacts.

### 1.1 EDs

EDs encompass a spectrum of disorders involving disturbances in eating behaviors and related thoughts. In her conceptualization of the disorder, Hay (2020) outlined the diagnostic features of the four primary EDs. The most common are anorexia nervosa (AN) and bulimia nervosa (BN), which, while sharing some features, differ in key diagnostic criteria. Both are

---

\* Corresponding author: [cyq2451761467@outlook.com](mailto:cyq2451761467@outlook.com)

driven by the thin ideal that leads to extreme weight-control behaviors, alongside an excessive emphasis on body weight and shape in self-evaluation [1]. AN involves self-starvation and significantly low body weight and may or may not include binge eating or purging behaviors [1]. In contrast, individuals with BN usually maintain a normal body weight but engage in compensatory behaviors following binge eating, such as purging and excessive exercise [1]. On the other hand, binge eating disorder (BED) and avoidant/restrictive food intake disorder (ARFID) are the other two primary EDs that do not necessarily involve body image disturbance as the driven mechanism [1]. BED involves binge eating but without compensatory behaviors, while ARFID is characterized by restrictive eating patterns often driven by sensory sensitivities or fear of negative consequences [1].

## **1.2 OCD**

Two central features of OCD are intrusive thoughts (obsessions) and repetitive behaviors or mental acts (compulsions). Horwath and Weissman (2022) discussed the disorder's epidemiology and clinical presentation referencing the Diagnostic Interview Schedule (DIS) that includes questions about obsessions and compulsions [2]. The DIS defines OCD as the presence of such symptoms for at least three weeks, persisting despite efforts to resist them, and causing significant functional impairment [2]. Frequent obsessions include intrusive fears of causing harm to others, contamination, or concern for loved ones' safety, while compulsions often involve behaviors such as excessive handwashing, checking, organizing, or counting [2]. Diagnosis also depends on whether the symptoms interfere with daily life, prompt help-seeking, or lead to medication use.

## **1.3 Comorbidity**

The concept of comorbidity, the co-occurrence of two or more disorders, is central to understanding the link between EDs and OCD. Danner et al. (2022) suggest that about 10.5% of OCD patients also meet the criteria for an ED, a rate notably higher than in the general population [3]. Furthermore, these individuals with comorbid EDs and OCD often exhibit distinct clinical characteristics, including heightened aggression, increased checking behaviors, and earlier onset of OCD symptoms [3]. Despite distinct diagnostic frameworks, the two disorders share cognitive and behavioral patterns that suggest a meaningful overlap.

Given the clinical significance of this comorbidity, this review aims to synthesize current findings on the shared cognitive, behavioral, and neurobiological pathways that connect EDs and OCD. By deepening the understanding of these shared mechanisms, professionals can move toward more targeted and effective interventions to improve the outcomes for those affected by both disorders.

# **2 Literature Review**

EDs and OCD are complex psychiatric conditions that, while distinct in their diagnostic criteria and symptomatology, often exhibit overlapping features and high comorbidity. Grasping the nuanced interplay between these disorders is essential for ensuring accurate diagnosis and optimizing treatment outcomes. Recent research has delved into the distinctions and intersections of EDs and OCD, exploring differences in symptom content, age of onset, gender distribution, and the egosyntonic versus egodystonic nature of symptoms. Simultaneously, studies have identified shared characteristics, such as perfectionism, cognitive impairments, and neurobiological and genetic overlaps, which complicate their co-occurrence.

## 2.1 Distinction between EDs and OCD

EDs and OCD are inherently different mental health disorders. A growing body of research has aimed to clarify their clinical, genetic, and neurobiological differences, particularly in children and adolescents. Luzio et al. (2025) carried out a systematic review addressing these distinctions, including diagnostic criteria, content of obsessions, age of onset, gender distribution, and the egosyntonic versus egodystonic nature of symptom. The symptoms of obsessions and compulsions that focus exclusively on food, body image, or weight are not indicative of OCD and are instead regarded as features of EDs [4]. While OCD commonly involves a broad range of themes, such as contamination, symmetry, harm, and moral or religious concerns, EDs are more narrowly preoccupied with eating behavior, body shape, and weight control [4].

Differences are also evident in the age of onset and gender distribution. Although OCD can begin in childhood, it more emerges in late adolescence or early adulthood. The gender distribution is generally balanced in adults, with a higher incidence in males during childhood. In contrast, EDs, particularly AN, typically develop during adolescence and demonstrate a marked gender disparity, being significantly more prevalent among females [4].

A further point of distinction lies in the perception of symptoms. OCD symptoms are usually egodystonic, meaning that individuals perceive their obsessions and compulsions as irrational and distressing. This insight often motivates them to seek help. In contrast, many ED symptoms, especially those related to AN, are egosyntonic, with patients perceiving restrictive eating and excessive exercise as congruent with their values or identity. However, emerging evidence suggests that egosyntonicity and egodystonicity vary across ED subtypes and do not always offer a clear distinction between EDs and OCD [4]. These differences between the EDs and OCD underscore the importance of accurate differential diagnosis and inform targeted treatment approaches for each condition.

## 2.2 Overlapping features between EDs and OCD

One condition that highlights the conceptual ambiguity between the two disorders is orthorexia nervosa (ON), characterized by an unhealthy preoccupation with food quality and purity. ON blurs the boundaries between the two disorders: its restrictive eating behaviors resemble those seen in EDs, while its intrusive thoughts and compulsive rituals around food purity mirror features of OCD. As noted by Zagaria et al. (2022), there is currently no consensus on how ON should be classified. Despite clear distinctions between EDs and OCD, the disorders share overlapping characteristics in symptomatology, cognitive and neural mechanisms, and genetic vulnerability, particularly in cases involving binge-purge EDs and early-onset presentations [5]. Luzio et al. (2025) reviewed these commonalities in addition to their differences, underscoring the need for an integrative framework that accounts for both psychological and neurobiological dimensions.

One such shared feature is perfectionism, particularly self-oriented perfectionism, which appears prominently in both AN and OCD. This trait is associated with more severe clinical outcomes, such as a higher risk of comorbid depressive and obsessive-compulsive symptoms in ED populations. Cognitive impairments are also observed in both disorders, though they are generally more pronounced in OCD. Deficits in executive functioning, especially cognitive flexibility and inhibitory control, are common. The occurrence of obsessive-compulsive symptoms that are not directly related to EDs in ED patients is associated with poorer cognitive performance and worse prognoses, suggesting that the content and severity of obsessive symptoms can significantly impact treatment outcomes.

At the neurobiological level, EDs and OCD exhibit partly overlapping disruptions in brain function, particularly within the prefrontal cortex, anterior cingulate cortex (ACC), and striatum. In OCD, dysfunction is especially prominent in the cortico-striato-thalamo-cortical (CSTC) circuit, marked by heightened activity in regions such as the orbitofrontal cortex (OFC) and ACC. EDs, particularly AN and BN, exhibit alterations in reward-related meso-limbic and mesocortical pathways, alongside dysfunctions in CSTC regions. The ACC is particularly relevant to both disorders given its role in error monitoring and response inhibition, although the specific activation patterns differ. In terms of neurochemical systems, both EDs and OCD involve disruptions in serotonergic signaling. OCD also shows alterations in glutamatergic neurotransmission, while EDs demonstrate additional dysregulation in dopaminergic systems, especially those involved in reward processing. Moreover, levels of adipokines such as adiponectin and resistin, which influence serotonergic activity, differ between OCD and AN, suggesting divergent yet intersecting neurobiological mechanisms.

Genetic studies further support a shared vulnerability, particularly between AN and OCD. Genome-wide association studies (GWAS) have pinpointed common single nucleotide polymorphisms (SNPs) in the HTR2A gene, specifically rs6311 and rs4942587, which encodes the 5HT2A serotonin receptor. These polymorphisms have been linked to greater obsessive-compulsive symptom severity and earlier age of onset in both disorders. Additional genetic overlap has been observed in glutamatergic and neurotrophin-related genes, supporting the hypothesis of a partially shared etiological basis, particularly in early-onset cases.

In summary, although OCD and EDs are distinct disorders, their overlapping symptom profiles, cognitive impairments, neural circuitry alterations, and genetic markers suggest areas of convergence that complicate diagnostic boundaries. These findings underscore the importance of continued interdisciplinary research to refine diagnostic classifications and optimize treatment strategies tailored to the nuanced features of each disorder.

### **2.3 Relationships between EDs and OCD**

Due to the high comorbidity rates and vague diagnostic boundaries between EDs and OCD, more and more research has been done to study their relationships more comprehensively. Vanzhula et al. (2021) also identified key cognitive and behavioral pathways bridging EDs and OCD symptoms, in particular, difficulties in controlling intrusive thoughts have been found to connect ED-related anxieties with OCD-related doubts. Moreover, distinct patterns emerge in different EDs subtypes, restricting behaviors are often linked to compulsive checking and stringent attitudes towards food, whereas binge eating is more commonly correlated with hoarding tendencies [6]. Intrusive cognitions and maladaptive perfectionism further reinforce the persistence of comorbid symptoms, suggesting shared vulnerability factors [6]. Recognizing these shared mechanisms has enabled researchers to better estimate the prevalence of OCD in individuals with EDs.

A meta-analysis of observational studies conducted by Drakes et al. (2021) assessed OCD prevalence among ED patients using structured diagnostic interviews and standardized criteria from DSM and ICD. The study reported a lifetime prevalence of OCD at 13.9% and a current prevalence of 8.7% [7]. These findings underscore the clinical relevance of OCD symptoms in ED populations and the need for targeted interventions. Moderator analyses revealed that OCD risk was highest among individuals with ANBP subtype [7]. This suggests that certain subtypes of EDs may have a stronger association with OCD, possibly due to overlapping cognitive patterns such as perfectionism, compulsive control, and rigid thinking.

Research has also examined the reverse relationship: the presence of ED-related symptoms in patients with OCD. Despite concerns that individuals with OCD may be at a higher risk

for developing EDs, this area has received comparatively little attention. Bang et al. (2020) addressed this gap, finding that while average ED symptom levels in female OCD patients were not significantly higher than controls, a substantial subset displayed clinically significant ED symptoms [8]. Their study involved 132 OCD patients (71% female) and 260 controls (90% female). All participants completed the Eating Disorder Examination-Questionnaire (EDE-Q) upon the admission, with a follow-up subsample ( $n = 22$ ) completed the questionnaire three months after treatment. As a result, 23% of OCD patients scored above the clinical cutoff on the EDE-Q, compared to 11% of controls, while 9% met the criteria for an ED, in contrast to 1% of controls. These findings suggest a possible bidirectional relationship, wherein OCD may contribute to ED pathology and vice versa.

While Drakes et al. (2021) provided quantitative estimates of OCD prevalence in ED populations, particularly highlighting increased prevalence in subtypes like ANBP, Bang et al. (2020) highlighted the risk of ED symptoms in individuals with OCD [7, 8]. Together, both studies underscore the importance of evaluating comorbid conditions in assessing patients presenting with either EDs or OCD. The bidirectional nature of the relationship suggests that clinicians should be vigilant in screening for symptoms of both disorders, as their co-occurrence may complicate treatment and prognosis.

### 3 Discussion and Limitations

The literature reviewed underscore a significant and multifaceted relationship between EDs and OCD, characterized by overlapping cognitive, behavioral, and neurobiological mechanisms. This comorbidity is particularly evident in certain ED subtypes, such as ANBP, which exhibit higher rates of OCD symptoms. Conversely, a subset of individuals with OCD also presents with clinically significant ED symptoms, suggesting a bidirectional relationship that complicates diagnosis and treatment planning.

In terms of treatment implications, the integration of therapeutic approaches that target both ED and OCD symptoms is essential. Exposure and Response Prevention (ERP), a technique commonly used to treat OCD, has been adapted to target ED-related anxieties by encouraging patients to confront feared foods or situations while refraining from engaging in compulsive behaviors. Butler and Heimberg (2020) demonstrated that anorexia nervosa-specific ERP (AN-ERP) may help reduce anxiety and promote increased caloric intake in individuals with AN. In a small case series ( $N = 9$ ), reductions in state anxiety and food avoidance throughout AN-ERP were linked to higher caloric intake at the end of treatment [9]. Additionally, a randomized controlled trial comparing AN-ERP ( $n = 16$ ) with cognitive remediation therapy (CRT;  $n = 16$ ), an intervention targeting cognitive inflexibility, found that AN-ERP produced significantly greater increases in caloric intake during a laboratory meal [9]. Reductions in state anxiety were found to predict these improvements. Similarly, Enhanced Cognitive Behavioral Therapy (CBT-E), which addresses core cognitive processes underlying eating disorders, has demonstrated efficacy across various ED presentations [10]. Combining effective approaches may offer a more comprehensive treatment strategy for individuals with comorbid ED and OCD.

However, limitations in the existing literature include methodological heterogeneity, reliance on self-report measures, and underrepresentation of male participants, which may affect the generalizability of findings. As noted by Lee et al. (2020), the question of whether certain OCD symptoms are particularly prevalent in patients with EDs still needs to be explored by further research, raising questions about whether these symptoms evolve over time or affect treatment outcomes [11]. Longitudinal designs can be employed to elucidate the temporal dynamics of ED-OCD comorbidity and explore transdiagnostic approaches that address

shared etiological factors. Additionally, studies should aim to include different demographic groups to enhance the applicability of results.

## 4 Conclusion

The intricate relationship between EDs and OCD reveals a pattern of shared cognitive, behavioral, and neurobiological mechanisms that challenge traditional diagnostic boundaries. Recent studies underscore the high comorbidity between these two disorders, particularly among specific ED subtypes such as ANBP, and supports a bidirectional association in which symptoms of one disorder may contribute to the onset or maintenance of the other. Key overlapping features, including perfectionism, intrusive thoughts, and deficits in cognitive flexibility, suggest shared vulnerability factors that complicate clinical presentation and treatment planning. While adapted interventions such as anorexia nervosa-specific AN-ERP and CBT-E show promise for treating comorbid symptoms, continued research is needed to refine these approaches and tailor them to individuals exhibiting dual pathology. Importantly, limitations in the current literature include reliance on self-report measures, underrepresentation of male populations, and inconsistencies in diagnostic criteria, highlighting the need for more rigorous, longitudinal, and inclusive studies. Advancing a transdiagnostic and integrative framework will be essential for improving diagnostic clarity and treatment efficacy for individuals affected by both EDs and OCD.

## References

1. P. Hay, Current approach to eating disorders: a clinical update. <https://doi.org/10.1111/imj.14691>
2. E. Horwath, The epidemiology and cross-national presentation of obsessive-compulsive disorder. <https://doi.org/10.1016/j.psc.2022.05.005haw>
3. U. N. Danner, The relationship between eating disorders and OCD symptom dimensions: An explorative study in a large sample of patients with OCD. <https://doi.org/10.1016/j.jocrd.2022.100727>
4. M. D. Luzio, Similarities and differences between eating disorders and obsessive-compulsive disorder in childhood and adolescence: A systematic review. <https://doi.org/10.3389/fpsy.2025.1234567>
5. A. Zagaria, Associations between orthorexia, disordered eating, and obsessive-compulsive symptoms: A systematic review and meta-analysis. <https://doi.org/10.1002/eat.23672>
6. I. A. Vanzhula, Perfectionism and difficulty controlling thoughts bridge eating disorder and obsessive-compulsive disorder symptoms: A network analysis. <https://doi.org/10.1016/j.jad.2021.01.123>
7. D. H. Drakes, Comorbid obsessive-compulsive disorder in individuals with eating disorders: An epidemiological meta-analysis. <https://doi.org/10.1016/j.jpsychires.2021.06.029>
8. L. Bang, Presence of eating disorder symptoms in patients with obsessive-compulsive disorder. <https://bmcpsy psychiatry.biomedcentral.com/articles/10.1186/s12888-020-2440-9>
9. R. M. Butler, Exposure therapy for eating disorders: A systematic review. <https://doi.org/10.1016/j.cpr.2020.101851>
10. R. Dalle Grave, Enhanced Cognitive Behavior Therapy for Eating Disorders. [https://doi.org/10.1007/978-3-030-72447-0\\_16](https://doi.org/10.1007/978-3-030-72447-0_16)
11. E. B. Lee, Obsessive compulsive disorder and thought action fusion: Relationships with eating disorder outcomes. <https://doi.org/10.1016/j.eatbeh.2020.101392>