Review Psikiyatride Güncel Yaklaşımlar-Current Approaches in Psychiatry 2023; 15(4):687-696
doi: 10.18863/pgy.1224756

Suicidal Behavior in Eating Disorders

Yeme Bozukluklarında İntihar Davranışı

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ABSTRACT

Many studies have shown that people with eating disorders have higher rates of suicidal ideation, suicide attempts, and completed suicide than the general population. One of the diseases with the highest suicide rate among psychiatric disorders is anorexia nervosa. Some hypotheses have been proposed to explain possible causes of increased suicidal behavior in eating disorders. Some conditions common to eating disorders and suicidal behavior, such as dissatisfaction with the body and interoceptive deficits, have been cited. It has been conclusively shown that psychiatric comorbidity, especially the co-diagnosis of depression, increases the risk of suicide in patients with eating disorders. However, increased suicidal behavior in eating disorders cannot be explained by comorbidity alone. The interpersonal psychological theory of suicide (IPTS), developed by Joiner, aims to understand why people commit suicide and to explain the differences in individual suicidal behavior. Some researchers have thought that the increased suicidal behavior of people with eating disorders, especially anorexia nervosa patients, is expected from the perspective of IPTS. The compensatory behaviors of patients with eating disorders, such as vomiting or chronic restrictive food intake, are painful and challenging actions for the body. It can be considered that repeated encounters with painful and challenging experiences form a habit in the individual and reduce pain avoidance. When viewed from the IPTS perspective, decreased pain avoidance may explain the increased suicide attempts and completed suicides of individuals. Clinicians working with eating disorder patients must conduct regular and comprehensive assessments of suicide. Comorbidities such as major depression, anxiety disorder, and substance-use disorder should not be overlooked in patients with eating disorders and should be taken seriously.
Keywords: Eating disorder, suicide, anorexia nervosa, interoceptive deficit

ÖZ

Yeme bozukluğu olan kişilerin intihar düşüncesi, intihar girişimi ve tamamlanmış intihar oranlarının genel toplumdan yüksek olduğu pek çok araştırma sonucunda gösterilmiştir. Psikiyatrik bozukluklar arasında en yüksek intihar oranına sahip olan hastalıklardan biri anoreksiya nervozadır. Yeme bozukluklarında artmış intihar davranışlarının olası nedenlerini açıklamak için bazı hipotezler öne sürülmüştür. Hem yeme bozukluğu hem de intihar davranışında, bedenden memnun olmama ve interoseptif kusurlar gibi ortak olan bazı durumlara atıf yapılmıştır. Psikiyatrik komorbidite varlığının, özellikle de depresyon ek tanısının, yeme bozukluğu hastalarında intihar riskini artırdığı kesin olarak gösterilmiştir. Yine de yeme bozukluğunda artmış intihar davranışı sadece komorbidite ile açıklanamaz. Joiner tarafından geliştirilen kişilerarası psikolojik intihar kuramı (KPİK) insanların neden intihar davranışlarında bulunduklarını anlamaya ve bireysel intihar davranışlarındaki farklılıkları açıklamayı amaçlar. Yeme bozukluğu hastalarının kronik kısıtlayıcı besin alımı ve kusma gibi telafi davranışları acı verici ve vücut için zorlayıcı eylemlerdir. Acı verici ve zorlayıcı deneyimlerle tekrarlanan karşılaşmaların bireyde alışkanlık oluşturarak acıdan kaçınmayı azalttığı düşünülebilir. KPİK penceresinden bakıldığında; acıdan kaçınmanın azalması, bireylerin artmış intihar girişimleri ve tamamlanmış intiharlarını açıklayan bir faktör olabilir. Yeme bozukluğu hastalarıyla çalışan klinisyenlerin düzenli ve kapsamlı intihar değerlendirmeleri yapmaları çok önemlidir. Yeme bozukluğu hastalarında başta majör depresyon olmak üzere, eşlik eden anksiyete bozukluğu, madde kullanım bozukluğu gibi komorbiditelerin atlanmayıp agresif biçimde tedavi edilmesi gerekir.
Anahtar sözcükler: Yeme bozukluğu, intihar, anoreksiya nervoza, interoseptif defisit

Introduction

Suicide is the voluntary taking of one's own life. Suicidal ideation, suicide attempts, and completed suicides are all considered suicidal behavior. Suicidal ideation and suicide attempt are the most important predictors of completed suicide (Jenkins et al. 2002). The World Health Organization's report "Suicide Prevention: a global imperative," in 2014, estimates that more than 20 million people attempt suicide each year, and more than 800.000 people die by suicide. Suicide is the second leading cause of death after traffic accidents between the ages of 15-29 and constitutes 8.5% of all deaths (Fleischmann and DeLeo 2014). People who died by suicide had

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Received: 27.12.2022 | **Accepted:** 02.04.2023

a high rate of being diagnosed with a psychiatric disorder (Cavanagh et al. 2003, Arsenault-Lapierre et al. 2004). Many researchers have shown that patients with eating disorders have higher rates of suicidal ideation, suicide attempt, and completed suicide than the general population. (Harris and Barraclough 1998, Pompili et al. 2006, Carano et al. 2012). Suicide is a significant cause of mortality in eating disorders (Chesney et al. 2014).

In DSM 5, nutrition and eating disorders are classified under eight subcategories. Three of them are clinically most common; anorexia nervosa, bulimia nervosa, and binge eating disorder. For the first time, binge eating disorder was classified as a distinct disorder in DSM 5 (APA 2013). Anorexia nervosa can be seen in two different clinical subtypes. In the binge eating and purging subtype (bulimic type), there have been recurrent binge eating and purging episodes for the past three months. This subtype differs from bulimia nervosa patients by having a low body mass index. There have been no recurrent binge eating and purging episodes in the restrictive subtype for the past three months. It is a subcategory that loses weight by dieting, not eating, and/or exercising excessively.

In a previously published review, the death rate due to suicide in eating disorders was reported as 0%-5.3% (Öncü and Sakarya 2013). Many studies conducted so far consistently show that the risk of suicide is higher in eating disorder patients than in the normal population (Ahn et al. 2019, Rania et al. 2021, Udo and Grilo 2022). This article aims to determine the frequency of suicidal behavior and the factors that increase the risk of suicide in patients with eating disorders. In addition, it is purposed to review the current literature explaining the effects of eating disorder subtypes and the presence of additional psychiatric diagnoses on suicidal behavior. Thus, it is thought that awareness on the subject will increase. This study aims to provide a framework for clinicians working with eating disorder patients to understand, predict and manage the potential risk of suicidal behavior in the light of current literature data.

Anorexia Nervosa and Suicidal Behavior

Anorexia nervosa is considered to have one of the highest mortality rates among psychiatric disorders. Compared with women aged 15-34 in the general population, women with anorexia nervosa are approximately 5.2 times more likely to die prematurely and 18 times more likely to die from suicide precisely (Keshaviah et al. 2014).

The Standardized Mortality Ratio (SMR) reflects the relative rate of death by suicide in people with a particular risk factor compared to the general population. The SMR will be one of the suicide-death rates in people with a specific mental illness equals the expected suicide rate in the general population compared with people of the same age and sex. The risk of suicide increases when the SMR is greater than "1", and the risk of suicide decreases when it is lower than "1". Preti et al. (2011) calculated the standardized death rate (SMR) as 31 for 16,342 anorexia nervosa patients collected from 40 studies.

Suicidal thoughts in patients with anorexia nervosa have been reported at a rate of 20-43% in different studies (Favaro and Santonastaso 1997, Milos et al. 2004). Considering that the lifetime suicidal ideation rate in the general population is 5.6-14.4% (Nock et al. 2008), it can be said that suicidal ideation is more common in anorexia patients than in the general population. The frequency of non-fatal suicide attempts seems higher in the anorexia nervosa bulimic subtype than in the restrictive subtype (Pisetsky et al. 2013).

Bulimia Nervosa and Suicidal Behavior

The lifetime rate of suicidal ideation in bulimia nervosa patients is similar to anorexia nervosa patients: 15-38% (Favaro and Santonastaso 1997, Milos et al. 2004). Studies have shown a similar rate of non-fatal suicide attempts for patients with anorexia and bulimia (Franko and Keel 2006).

In a meta-analysis for bulimia nervosa, data from 1768 patients from 16 studies were reviewed, and the SMR was calculated as 7.5. Since there were not enough studies in this meta-analysis, SMR could not be calculated for binge eating disorder (Preti et al. 2011). Another group of researchers examining suicidal behavior in eating disorder patients, unlike Preti et al., calculated the SMR as 30.9 in bulimia nervosa patients (Huas et al. 2013).

Although the frequency of suicidal ideation and non-fatal suicide attempts is similar in anorexia nervosa and bulimia nervosa patients, it is known that completed suicide is higher in anorexia nervosa patients. This may be because anorexia nervosa patients use more lethal suicide methods than bulimia nervosa patients (Guillaume et al. 2011).

Binge Eating Disorder and Suicidal Behavior

Binge eating disorder (BED) was first addressed as a distinct disease category in DSM 5 and was classified under eating disorders not otherwise specified. Since the process of considering binge eating disorder as a separate diagnosis covers about ten years, few studies investigate the relationship between BED and suicidal behavior (Conti et al. 2017).

When the results of existing studies were examined, the frequency of suicidal ideation in patients with BED ranged from 26.3% to 51.7% (Ackard et al. 2003, Portzky et al. 2014). The incidence of suicide attempts has been reported as 2,3-34% (Suokas et al. 2014, McElroy et al. 2016).

Studies show that the risk of suicide increases when binge eating disorder is associated with another psychiatric disorder, especially with major depression and bipolar disorder (McElroy et al. 2011, Welch et al. 2016). Carano and colleagues compared BED patients with and without alexithymia features and found that BED patients with alexithymic features had more suicidal thoughts and attempts (Carano et al. 2012). In another study evaluating suicidal thoughts in adolescents with BED, it was reported that suicidal thoughts were more common in girls with BED compared to boys. (Ackard et al. 2011). Table 1 lists the studies evaluating suicidal behaviors in eating disorders.

Table 1. Studies evaluating suicidal behaviors in eating disorders

Study	Sample	AN	BN	BED	Other Eating Disorder	The rates of suicide attempts	The rates of completed suicides
Cliffe et al, 2020	4895	2266	1419	541	669	&6,7	%0.04
*Fichter et al, 2016	5839	1639	1930	363	1907	SMR-AN: *5.35	SMR-BN: *1.49
Ahn et al, 2018	899	213	344	150	192	%20,8	-no data-
Suokas et al, 2014	2462	913	1271	171	107	%6,3	%0.8

AN: anorexia nervosa, BN: bulimia nervosa, BED: binge eating disorder
* In the study of Fichter et al., suicide attempts were calculated as SMR (standardized mortality ratio)

Studies Examining the Relationship Between Eating Disorder and Suicide

Previous studies in the field have identified some predictors of suicidal behavior in eating disorder patients. The main symptoms that are thought to be predictive for suicide are; the presence of comorbid psychiatric conditions, especially depression (Bulik et al. 2008, Milos et al. 2004), vomiting, and other compensatory behaviors (Pisetsky et al. 2013, Portzky et al. 2014). Substance abuse, impulsive behaviors, characteristics, cluster B personality disorders, panic disorder, post-traumatic stress disorder, low self-directedness, and eating disorder severity are also associated with suicide attempts (Bulik et al. 2008). Low body mass index may also predict suicide in anorexia nervosa (Lindblad et al. 2006, Button et al. 2010).

In a study conducted in 2018 to determine the predictors of suicide in eating disorder patients, the data of 899 eating disorder patients were examined, and it was found that 20.8% of the patients had a history of suicide attempts. The researchers found that the eating disorder subtype was the most important predictor of suicide. Restrictive anorexia nervosa patients were found to have a lower percentage of suicide attempts compared to bulimic anorexia patients and bulimia nervosa patients. Self-mutilative behavior in history, hospitalization history, comorbid depression, and impulse regulation disorder has also been reported as significant risk factors for suicide attempts. While comorbid anxiety disorder, depression, disease duration, and low body mass index seem more related to a suicide attempt in anorexia nervosa patients, a disorder in impulse control was an essential factor associated with suicide attempts in bulimia nervosa patients (Ahn et al. 2019). Contrary to this result, Guillaume et al.'s study reported that patients with restrictive subtype anorexia made more serious and severe suicide attempts and completed suicide rates were higher than other types (Guillaume et al. 2011).

In a recent study conducted in the USA, the prevalence, clinical profile, and psychiatric comorbidities of eating disorder patients with and without a history of suicide attempts were examined. In the bulimic subtype of anorexia nervosa, suicide attempt (44,1%) was higher than in other eating disorders (Udo et al. 2019). The higher suicide attempt rate is consistent with other studies that found the bulimic subtype of anorexia nervosa to be associated with higher impulsivity and substance use (Buhren et al. 2014, Peterson et al. 2016). Another remarkable finding in the study of Udo et al. (2019) is that earlier onset of the eating disorder increases suicide attempts only in patients with bulimia nervosa.

In a study reviewing the prevalence of eating disorders in Europe, the prevalence of anorexia nervosa was between 1 and 4%, the prevalence of bulimia nervosa was between 1 and 2%, the prevalence of binge eating disorder was between 1 and 4%, and the prevalence of subthreshold eating disorders was between 2-3%. In the general population, an eating disorder was determined in 0,3-0,7% of men. In this comprehensive review, which includes comorbid psychiatric disorders in patients with eating disorders, comorbid psychiatric disorders were reported in more than 70% of individuals with eating disorders. The most common comorbidities were anxiety disorders (>50%), mood disorders (>40%), and substance use disorders (>10%). It has been emphasized that increased suicide attempts and impulsivity cannot be explained by comorbidity alone (Keski-Rahkonen and Mustelin 2016).

In a long-term follow-up study conducted in Denmark evaluating suicide attempts in eating disorder patients, 2462 patients (95% of cases were female) who applied to the eating disorder clinic of Helsinki University central hospital between 1995 and 2010 were followed up (mean follow-up 8,7 years). During the follow-up period, 156 (6,3%) of 2462 patients had attempted suicide, and 20 of these 156 suicides were reported as completed suicides. It was found that 42.3% of patients who attempted suicide had recurrent suicide attempts. The risk of attempting suicide was highest at the beginning of treatment, and it was observed that the risk decreased over time. It was thought that the reason for the decrease in the risk of suicide was that the patients had been under follow-up and treatment (Suokas et al. 2014). At the end of the follow-up, the researchers stated that the strongest predictor of suicide-related death in a patient with an eating disorder was a previous suicide attempt. In previous studies, the strongest predictor of completed suicide was a person's previous suicide attempt (Cavanagh et al. 2003). In the same study, Suokas et al. (2014) compared eating disorder patients and the control group that was matched in terms of age, gender, and sociodemographic factors and found that the risk of suicide attempts in eating disorder patients was approximately five times higher. Although the risk of a suicide attempt is high in all types of eating disorders, the highest risk was found in patients with anorexia nervosa. The main predictors for suicidal behavior in eating disorder patients are shown in Table-2.

Table 2- Main predictors for suicidal behavior in eating disorder patients

Eating disorder subtype	History of previous suicide attempt
Comorbid psychiatric disorders (especially major depressive disorder)	Impulsivity
Vomiting and other compensatory behaviors	Substance abuse
Self-mutilative behaviors	Low body mass index (in anorexia nervosa)
History of hospitalization	Presence of B cluster personality traits

Causes of Suicidal Behavior in Eating Disorders

Individuals with anorexia nervosa, bulimia nervosa, and binge eating disorders have higher suicidal behavior than the general population. When eating disorders and other psychiatric conditions appear concurrently, the risk of suicide is higher. It is possible for eating disorders to directly or indirectly contribute to suicide. Some researchers argue that eating disorders and suicide share common risk factors, such as genetic factors, emotional regulation disorders, trauma, and stressful life events. The presence of these factors predisposes the individual to the development of both conditions. Most suicide risk in eating disorders seems driven by concomitant psychopathology and genetic factors (Smith et al. 2018).

Various explanations have been proposed for the frequent coexistence of eating disorders and suicidal behavior. Coren and Hewitt (1998) argue that the reason for increased suicidal behavior in eating disorder patients is comorbid mental disorders (such as major depression). On the other hand, a group of researchers suggests several common genetic risks for developing eating disorders and suicidal behavior in individuals (Wade et al. 2015, Thornton et al. 2016). Some researchers state that the reason suicidal behavior is higher in eating disorder patients than in the normal population is due to shared genetic and biological factors that make the person vulnerable to both conditions. Family and twin studies have shown a familial tendency to eating disorders and suicidal behaviors (Yao et al. 2016). To date, few biomarkers have been found to predict suicide risk prospectively. A recent meta-analysis found that cytokine disruption and low fish oil nutrient levels (omega-3, omega-6, saturated fatty acid, and monosaturated fatty acids) were weak predictors of suicidal behavior (Chang et al. 2016).

As a result of a study by Wade et al. on 1002 twins in Australia, it was shown that there is a common genetic influence between eating disorders and suicidal behavior, and that influence is independent of depression. Researchers stated that more research is needed to examine this common genetic influence and its possible relationship with emotion regulation deficiencies (Wade et al. 2015). Studies to understand the shared genetic

basis of eating disorders and suicidal behaviors are still in the early stages. More work seems to be needed to identify specific biological and genetic pathways.

Psychiatric Comorbidities

Psychiatric and medical comorbidities increase significantly in the follow-up of individuals with eating disorders. In a recent review of 202 studies, most randomized controlled trials found psychiatric comorbidities in 58% of patients with eating disorders. The most common comorbid mental disorders were anxiety disorders (62%), mood disorders (54%), substance-use disorders (27%), and post-traumatic stress disorder (27%). Since comorbidity increases mortality and suicidal behavior, it is crucial to detect it (Hambleton et al. 2022).

It was found that the suicide mortality rate (SMR) of anorexia nervosa patients with comorbidities was seven times higher than the SMRs of anorexia patients without comorbidities (Kask et al. 2016). Bulik et al. also reported that over 80% of anorexia patients had fatal suicide attempts during a depressive episode (Bulik et al. 2008). In particular, comorbid depressive episodes seem strongly associated with suicide attempts in patients with anorexia nervosa.

The increased incidence of suicide in eating disorders cannot be explained by the presence of comorbidity alone. Yao et al. (2016) examined the health records of more than two million people in Sweden, examining the presence of suicide attempts and suicide-related deaths and the presence of anorexia and bulimia diagnoses. A diagnosis of anorexia nervosa has been associated with increased suicide attempts and suicide deaths in both men and women, independent of concomitant psychiatric comorbidity (e.g., major depression). Some researchers suggest that because eating disorders and suicidal behaviors have some common risk factors, such as dissatisfaction with the body (Kim and Kim 2009), interoceptive defects (Forrest et al. 2015), and disturbances in emotion regulation (Stice 2002), suicidal behavior is more common in individuals with eating disorders. The concepts of the interpersonal psychological theory of suicide (IPTS) and interoceptive deficits may also be important in understanding why eating disorders and suicidal behaviors are so common.

Interpersonal Psychological Theory of Suicide (IPTS)

The interpersonal psychological theory of suicide put forward by Thomas E. Joiner aims to understand why people commit suicide and to explain the differences in individual suicidal behavior. This theory suggests that individuals at risk for suicidal behavior can thus be identified (Joiner 2005). According to Joiner, to understand the process of suicide, three concepts must be understood. These are thwarted belongingness, perceived burdensomeness, and the acquired capability for suicide. Joiner explains thwarted belongingness as an unfulfilled need to belong, making people willing to commit suicide. Perceived burdensomeness, on the other hand, tells that the individual's thinking that she (he) is a burden for the people around her (his) negatively affects the relationship with herself (himself) and makes her(his) suicidal. The presence of these two conditions makes the individual suicidal and is associated with suicidal behaviors other than death, but not sufficient for completed suicide. According to Joiner, "To die of suicide is not something that can be done easily." There is one more condition for the completion of suicide; it is acquired suicidal competence. In the presence of acquired suicidal proficiency, the person's fear of death decreases or disappears completely, and the way for the person to kill herself (himself) is opened. According to the interpersonal psychological theory of suicide, all three conditions must be present for completed suicide. In many studies on suicidal behavior, it has been shown that fatal suicide attempts are well below suicidal ideation and non-fatal attempts. In other words, suicidal behavior does not result in death in every person who has suicidal ideation or attempts suicide. Joiner explains this situation as that although most people have a suicidal desire, they do not have the acquired capability for suicide, so most of them cannot attempt fatal suicide attempts.

In summary, according to the theory, for a fatal suicide attempt to occur, an individual must both desire suicide and can take her (his) own life. This action is considered fearlessness and tolerance for pain associated with death. The chronic restrictive food intake of patients with eating disorders is a painful and challenging provocative action for the body. It can be thought that repeated encounters with painful and challenging experiences form a habit in the individual and reduce pain avoidance. From the perspective of IPTS, it can be explained why individuals with eating disorders, especially anorexia patients, have increased fatal suicide attempts and increased completed suicides. For instance, a person's initial reaction to vomiting probably includes fear; however, with repeated exposure, a reduction in fear can be expected. Continuous exposure to painful and fearful behavior can lead to a decrease in fear and the development of pain tolerance over time. Excessive starvation and vomiting behaviors may represent a kind of the equivalent of self-harm; may be linked to self-hatred and self-aggression (Van Orden et al. 2010, Smith et al. 2018 c). Although probable discomfort

and pain are associated with all eating disorder behaviors, overexposure and repetitive participation in these behaviors can simultaneously build pain tolerance and reduce fear. The interpersonal psychological theory of suicidal behavior proposes that repeated painful and/or provocative events habitually reduce fear of pain and death. Fearlessness about pain and death is ultimately linked to later suicidal behavior (Selby et al. 2010).

Interoceptive Deficits

Interoception is the perception of the physiological state of the whole body, including the heart, pain, gastrointestinal, and emotional sensations (Craig 2002). There are studies showing that there are interoceptive defects in eating disorder patients (Garner et al. 1983, Leon et al. 1995). Deficiencies in inner awareness (namely, impaired ability to perceive internal states accurately) and suicide attempts have been associated in previous studies. Forrest et al. found that people who have attempted suicide have significantly more perceptual deficits than people who have thought about or planned a suicide attempt but have never been suicidal (Forrest et al. 2015).

People with interoceptive deficits may perceive their bodies more as an object due to some inability to perceive internal stimuli, and this may be a factor that facilitates self-harm (Ainley and Tsakiris 2013). It is much easier to damage an object than to damage a feeling body (Smith et al. 2016).

People with a deficit in understanding internal stimuli may ignore both the painful stimulus of a chronic restrictive diet and the pain and fear of attempting suicide. In one study, it was found that eating disorder patients with suicidal attempts had more interoceptive deficits than those without suicide attempts (Smith et al. 2018 b).

Emotion Regulation Deficiencies

Emotion regulation consists of the active efforts of people to manage their emotional states (Koole 2010). It has been shown that deficiencies in emotion regulation strategies are effective in the onset and maintenance of many mental disorders. Many research results in recent years show that difficulties in distinguishing, defining and regulating emotions play an important role in the onset and maintenance of eating disorders (Lavender et al. 2015, Westwood et al. 2017). Fox et al. (2013) showed that patients with anorexia nervosa have greater emotional dysregulation compared to controls. Studies conducted in individuals with bulimia nervosa and binge eating disorder have also shown that these patients have a significantly higher lack of emotion regulation than the control group (Svaldi et al. 2012). In a review, obese people with and without binge eating disorder were compared and it was shown that negative emotions triggered eating only in individuals with binge eating disorder (Leehr et al. 2015).

Emotion regulation strategies may be adaptive and maladaptive. While acceptance, problem-solving, and re-evaluation are considered as adaptive emotion regulation strategies; rumination, avoidance, and suppression are maladaptive emotion regulation strategies. It has been found that deficiencies in adaptive emotion regulation strategies are associated with eating disorders in both men and women (Aldao et al. 2010, Lavender et al. 2015).

Treatment Approaches to Patients with Eating Disorders and Suicidal Behaviors

Intervention and treatment options for patients with eating disorders and suicidal behavior are significant and comprehensive issues. This review summarizes the essential recommendations in light of current literature data. The fact that the prevalence of psychiatric comorbidities and suicidal behaviors in eating disorder patients is higher than that of the general population makes it necessary for clinicians working with this patient group to keep in mind the additional comorbidities and increased risks for suicidal behavior and to examine the patient in these contexts as well. It is known that the risk of suicide increases significantly in some eating disorders. Since the most robust relationship between suicide attempts and eating disorders is shown in patients with compensatory behaviors such as vomiting (Lipson and Soneville 2020), it is recommended to follow up with patients with eating disorders more carefully according to their clinical features.

Fluoxetine is one of the drugs approved by the FDA for patients with eating disorders. The use of fluoxetine in treating bulimia nervosa has been approved by the FDA. Fluoxetine is beneficial for bulimic symptoms with its specific mechanism of action (Lutter 2017). The FDA has also approved lisdexamfetamine for binge eating disorder. However, no medical treatment is explicitly approved for treating anorexia nervosa (Himmerich et al. 2020). There is preliminary evidence that olanzapine (Attia et al. 2019), aripiprazole (Frank et al. 2017), and the cannabinoid receptor agonist dronabinol (Andries et al. 2014) are beneficial in patients with anorexia nervosa.

There is also evidence of topiramate's efficacy in treating patients with bulimia nervosa and binge eating disorders (Himmerich and Treasure 2018, McElroy et al. 2019).

Studies for the specific pharmacological treatment of suicidality in eating disorders are insufficient. However, combining psychotherapeutic and psychopharmacological strategies seems reasonable, deciding based on the underlying cause and comorbidities. It is known that the presence of a diagnosis of depression in patients with eating disorders increases suicidal behavior (Kask et al. 2016, Bulik et al. 2016). In this context, the diagnosis of additional depression should not be overlooked. A point to be considered in treating comorbid depression in patients with eating disorders should be not giving bupropion to patients with anorexia nervosa and restrictive type bulimia nervosa (Himmerich 2020). Using bupropion in these patients is not preferred because it will increase weight loss.

It is critical for physicians working with eating disorder patients to keep in mind possible pharmacokinetic problems. Possible changes can be seen in all drug absorption, distribution, metabolism, and elimination processes due to low body mass index, low blood proteins, and altered liver metabolism rates. In general, dose planning should be done by considering low body mass index, especially in anorexia nervosa patients. Some researchers aim to reinforce the antidepressant effect in patients with anorexia nervosa by increasing the synthesis of neurotransmitters such as serotonin and recommend the replacement of serotonin precursors such as tryptophan in addition to antidepressants (Haleem et al. 2017).

Conclusion

Many studies have shown that patients with eating disorders have higher rates of suicidal ideation, suicide attempts, and completed suicide than the general population. Anorexia nervosa is considered to have one of the highest death and suicide rates among psychiatric disorders. Some hypotheses have been proposed to explain possible causes of increased suicidal behavior in eating disorders. Common conditions such as dissatisfaction with the body, interoceptive deficits, and deficiencies in emotion regulation strategies were cited in both cases. It has also been conclusively shown that psychiatric comorbidity significantly increases the risk of suicide in patients with eating disorders. In patients with eating disorders, the risk of suicide increases significantly, especially in major depression. However, increased suicidal behavior in eating disorders cannot be explained by comorbidity alone. Clinicians working with eating disorder patients must conduct a regular and comprehensive assessment of suicide risk. In patients with eating disorders, comorbidities such as major depression, anxiety, and substance-use disorders should not be missed and should be treated aggressively. Because the existing literature evaluating suicidal behavior in eating disorders is generally long-term follow-up and retrospective studies, critical risk factors for suicide in eating disorder patients are not yet understood. More research is needed in this area.

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Authors Contributions: The author(s) have declared that they have made a significant scientific contribution to the study and have assisted in the preparation or revision of the manuscript
Peer-review: Externally peer-reviewed.
Conflict of Interest: No conflict of interest was declared.
Financial Disclosure: No financial support was declared for this study.