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COMMENTARY

# Eating Disorders in Adolescence

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## Introduction

Adolescent eating disorders are on the rise, and this silent pandemic could be particularly alarming. Eating disorders are severe, potentially fatal illnesses that affect people of all ages, particularly affecting adolescents' physical and psychological development (1). Eating disorders affect people of all genders and racial and ethnic backgrounds and are recognized to have the highest mortality risk of all mental health illnesses. Estimates indicate that approximately 30 million people in the United States suffer from an eating disorder. About 95 percent of the patients suffering from an eating disorder are between the ages of 12 to 25 (2).

Genetics, social, and psychological factors contribute to the risk of developing an eating disorder. Some examples include the role of social media, inheritable conditions, and/or other mental illnesses. However, it's essential to realize that eating disorders involve more than just food and weight. Eating disorders are characterized by secrecy and denial (3), so patients frequently conceal or falsely describe their symptoms out of shame or guilt. Because mental health care is one of the most crucial components of rehabilitation, it is vital to understand eating disorders. If untreated, eating disorders can have serious adverse health effects such as organ failure or death.

## Types of Eating Disorders

Eating disorders are different types of psychological illnesses that affect eating habits in adolescents that are severely harmful (4). There are various conditions in eating disorders, but only a few are most common in adolescents, such as Anorexia Nervosa, Bulimia Nervosa, Binge eating disorder, Rumination disorder, and lastly, Avoidant/Restrictive food intake disorder.

Anorexia Nervosa carries one of the highest mortality rates in adolescent psychiatric illnesses (5). Anorexia is a condition that causes restricted oral intake and consequent low body weight. With this illness, people tend to see themselves as overweight despite being severely underweight. This illness can also cause individuals to restrict their calorie intake and hyper-fixate their weight.

Bulimia Nervosa is an illness that causes binge eating for a period of time that will apply gut

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discomfort. Individuals with Bulimia disorder often force themselves to throw up after excessive food intake (6).

Binge eating disorder is commonly found in adolescents. This disorder causes an individual to eat excessively, but unlike bulimia, they do not purge (7). Individuals with this eating disorder do not take note of their calorie intake and continue to eat food when they are uncomfortably full. Purging can cause a feeling of lack of control and guilt.

Rumination disorder is one of the newest discovered food disorders that cause individuals to regurgitate food they have previously chewed and swallowed, re-chew it, and then re-swallow it or spit it out. This illness can cause regurgitation shortly after meal ingestion (8). Rumination disorder occurs most commonly in adolescents.

Avoidant/Restrictive food disorder is most commonly found in young adolescents that causes individuals to refuse to intake nutritional foods leading to low weight and dependence on supplemental feedings (9). Individuals with this disorder are disturbed by foods due to a lack of interest in eating or a distaste for specific smells, tastes, colors, and more.

## Prevalence in Adolescents

Eating disorders can begin at any age; however, if left untreated, eating disorders may last for many years. Eating disorders in the United States are prevalent because of environmental factors, which include events and influences in an individual's life, such as diet, culture, media, trauma, and social influences (10). Approximately 2.7% of adolescents are affected by an eating disorder in the United States (11).

Females are more commonly diagnosed compared to males to have a diagnosis of anorexia nervosa or bulimia nervosa and being underweight. Binge eating is more common in males than females, and they are more likely to get diagnosed. Females are more likely to report weight dissatisfaction, dieting for weight control, and use of purging but are either as likely as males to report binge eating or excessive exercise for weight control (12). Caucasians have a higher lifelong prevalence of eating disorders, particularly anorexia nervosa, bulimia nervosa, and binge eating disorder, compared to other ethnic groups (13). Hispanics have elevated rates of any binge eating disorder but low prevalence of anorexia nervosa and bulimia nervosa (14).

Eating disorders are more common in lower socioeconomic status groups as they report having higher rates of disordered eating behavior, including vomiting, use of diet pills, diuretics, or laxatives as a means to lose weight (15).

## Epidemiology and Risk Factors

Factors that contribute to eating disorders can be genetic, social, or psychological. Eating disorders, especially non-specific ones, are common during childhood and adolescence. Such diseases were attributed mainly to the family environment and exposure to the media (16). Social and family environments are the most critical risk factors for eating disorders (16). Family environments and meal times appeared to be fundamental in shaping eating behaviors and the development of diseases. The media and social environment have been related to the worship of thinness. Additionally, eating disorders can be associated with nutritional problems, including malnourishment and disfigurement (16).

### *Genetic Factors*

Genetics can be a family history, and chemical imbalance narrates starvation and temperament traits. Genetics are 40-50% of the risks of developing an eating disorder (17). For example, a child born to a mother with anorexia nervosa is 12% more likely to develop this eating disorder (17).

### *Health Risks*

Patients with anorexia have related cardiac issues that result in one-third of deaths (18). Cardiac complications that occur among people with anorexia include bradycardia and hypotension. Anorexia and bulimia are at greater risk for heart failure. The heartbeat of an individual with this disorder can be slower or faster than the regular heartbeat.

Up to 50% of people with a Binge eating disorder (BED) have obesity (18). Obesity increases the risks of heart disease, stroke, type 2 diabetes, and cancer. Studies have found that people with BED have an even greater risk of developing health problems like sleep problems, chronic pain conditions, asthma, and irritable bowel syndrome (18).

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## Effects on the Body

### *Anorexia Nervosa*

Many women have many complications, but there is a history of eating disorders when trying to get pregnant later in the future. They will likely bleed during pregnancy, have a miscarriage, preterm birth, or induced abortion. It was proven with evidence that women with eating disorders or a history of eating disorders are more commonly known to have used hormonal birth control and to be moderate heavy smokers. These effects become severe for any woman trying to get pregnant after having problems with any associated eating disorder (19). Another complication with anorexia nervosa is alterations of the gut microbiome. Medical complications in the human body due to anorexia nervosa usually occur due to starvation and malnutrition, for example, sodium depletion, hypovolemia, hypophosphatemia, and hypomagnesemia (20). These disorders can also result in gastrointestinal complications, including gastric dilations and severe liver dysfunction. They are also at high risk of various arrhythmias. Underweight patients are at risk of osteoporosis (21). Anorexia also affects the body in four cardiovascular domains: structural, repolarization, conduction, hemodynamic, and peripheral vascular (22).

### *Bulimia Nervosa*

Bulimia nervosa causes the patient to overeat, and when binge eating, you can get diseases because your body can't handle the amount of food. These diseases include diabetes. Diabetic patients are at high risk for hyperglycemia, ketoacidosis, and premature microvascular complications. Patients with Bulimia Nervosa who vomit daily cause electrolyte aberrations from this. Bulimia Nervosa also increases the risk of cardiovascular diseases, including ischemic heart disease and death in females. Effects that come to the patient from vomiting are trauma to the oral mucosa and pharynx and dental erosions. The parotid glands are also affected, and they develop sialadenosis. While the patient is vomiting increases intrathoracic and intra-alveolar pressures, leading to pneumomediastinum. Excessive purging exposes the esophagus to gastric acid and damages the opening to the stomach. (23).

### *Binge Eating*

The clinical importance of BED is related to its comorbidity with obesity and complications of being overweight. BED also comes with psychiatric symptoms like depression and anxiety, with concerns about one's image and weight. BED patients show relevant alexithymia and are deficient in emotional identification. Eating impulsiveness has been related to more significant physical discomfort and worse quality of life. Overeating can also lead to many health disorders such as diabetes, obesity, high blood pressure, high cholesterol, and heart problems (24).

### *Rumination Disorder*

Rumination can cause mental and physical distress to the patient causing problems with how they view life. This disorder also results in significant weight loss, especially in adolescents. More in-depth electrolyte disturbances and dental damages occur. These problems have been commonly found in patients diagnosed with rumination disorder. Another common thing that develops with this disorder is anxiety, depression, and somatization (25).

### *Avoidant/Restrictive food disorder*

Most patients with this eating disorder have neurological or gastroenterological disorders. They diagnose this when a child fails to meet their nutritional needs leading to significant weight loss. The comorbidities of restrictive food disorder are autism spectrum disorder, cognitive impairment, and intellectual disability (26).

## Mental Health

### *Body Dysmorphia*

People with BDD have some compulsive behaviors, such as combing their hair in a specific way. These behaviors are typically hard to control or resist. Patients with BDD are also associated with feelings and guilt and shame, causing them to have high rates of suicidal ideation and suicidal attempts (27).

Many patients don't acknowledge that there's help for them, such as effective treatment and therapy. They will hide and/or misrepresent their symptoms out of guilt or embarrassment. Unfortunately, patients often have difficulty with intimate relationships and social functions, but it's not only that they also have academic or occupational problems. BDD is associated with biological, psychological, and environmental factors. Usually, BDD develops with past traumas such as abuse and violence; patients are more likely to have flashbacks that make them recall their pain very clearly. BDD patients took a survey,

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and 68% suffer from emotional neglect, 56% suffer from emotional abuse, 33.3% suffer from physical neglect, 34.7% suffer from physical abuse, and 28% from sexual abuse. These results show the understanding that BDD patients have been associated with a low-quality life and an increase in suicidality (27).

### *Social Media Effect on Eating Disorders*

EDs have one of the highest medical complication rates among disorders and put adolescents at increased risk for many physical problems. EDs often happen when you're an adolescent; intervening is crucial to the outcome, especially during youth development. By age 6, girls are exposing concerns about their shape and weight. However, teens are unlikely to seek treatment and ask for help with their EDs for countless reasons but mainly fearing what their parents might say when they disclose their symptoms or not being ready for personal treatment. Only about 20% of adolescents seek professional help putting those who haven't at more risk of progressing illnesses and poorer outcomes (28).

Research shows teens engaging with social media idealize thinness and are more likely to suffer from eating disorders or body image concerns; social media plays a crucial role in these concerns. 97% of adolescent's report using at least one social media such as YouTube, Instagram, Snapchat, FaceBook, Twitter, Tumblr, or Reddit. In addition, 95% of adolescents own or have access to a smartphone daily (28).

One study found that about 52% of girls and 45% of boys often skip meals, do heavy exercises, and other behaviors associated with eating disorders. Of all participants, 75% of girls and 70% of boys were found to have at least one social media account, with Instagram being the most common. (29)

### *Suicidality*

Suicidal attempts and death caused by suicide are common in EDs. An estimate of suicide attempts ranges broadly from 3.0% to 40%. Data from an epidemiologic survey shows that higher prevalence of lifetime suicide attempts, especially in people with anorexia nervosa binge eating, followed by 31.4% for bulimia, 22.9% for binge eating disorder, and 15.7% for AN restricting type (30).

The national US epidemiologic survey states between 17% - 45% reported a suicide attempt before the onset of their EDs. Some possible co-occurrences are disorders such as depression, bipolar disorder, substance abuse, psychological and personality traits, self-image, early cognitive schema, interceptive deficits, alexithymia, and impulsivity (30).

### *Obsessive Compulsive Disorder*

Research shows that 14-30% of patients with eating disorders tie in with obsessive-compulsive traits and obsessive-compulsive personality disorder. OCD is frequently comorbid with EDs, with 20-60% of patients with EDs having a lifetime history of having OCD; OCD can also predict future development with anorexia. OCD rates are higher for females with 7-18% and 0%-5% for male patients; the patients included in those percentages have or had an ED (31).

## Treatment

Eating disorder treatment depends on your disorder and symptoms. It combines psychological therapy, medical monitoring, nutrition education, self-help, partial hospital, intensive outpatient, and medication therapy (32).

### *Medications*

The most common medications used to treat eating disorders are Antidepressants. Antidepressants may be beneficial if you have bulimia or a binge eating disorder. It can also help reduce symptoms of anxiety or depression, which are seen in those with eating disorders. You could need to take medication for physical health problems caused by the eating disorder (32).

### *Behavioral Therapy*

Eating disorder treatments also involve addressing other health problems caused by an eating disorder which can be consequential or even life-threatening if they go untreated for too long. Suppose an eating disorder doesn't improve with quality treatment or causes health problems. In that case, you may need hospitalization, an inpatient program, and organized eating disorder treatment to maintain your physical and mental health and return to a healthy weight (33).

Whether you start by seeing your primary care practitioner or some type of mental health

professional, you'll likely benefit from a referral to a team of professionals who concentrate on eating disorder treatment. Members of your treatment team may include A mental health professional, A registered dietitian, a medical or dental specialist, your partner, your parents, or other family members (34).

Managing an eating disorder can be a long-term challenge. You would perhaps need to regularly see members of your treatment team, even if you're eating disorder and related health problems are under control (34).

## Prognosis

An eating disorder, Anorexia Nervosa, can be a deadly disease during adolescence and is and has the highest fatality rate of all psychiatric conditions (5). Treatment for adolescents can be complex and has limited treatment options. Doctors' training in caring for people with eating disorders and their practical experience with underweight adolescents varies. The earlier the treatment, the higher the chances of recovery (1). By the end of treatment, most patients are within the normal weight range. An overview of the presentation and treatment of anorexia nervosa in adolescents is provided in this study, with a focus on the evaluation and management of physical health hazards, such as refeeding syndrome. Some researchers have found that approximately 70% of adolescents recover better than adults (35). However, recovery is a life-long process, and therapy should remain an ongoing recovery due to the fact that some habits may resurface again, like perfectionism. It has been estimated that 50% of patients have a full recovery, 30% improve, and 20% remain chronically ill (5).

## Conclusion

It is crucial that people do not underestimate eating disorders and their impacts as a result. Eating disorders, ED, are extremely serious, even fatal, diseases. Each person who is impacted by an ED experiences it differently, and each person's recovery is unique. Furthermore, it is not uncommon for people to go through extensive periods of therapy due to setbacks or a relapse. Adolescents are more likely to recover than adults that have been dealing with an ED for years. Although it is never too late to get help, getting help as soon as you are diagnosed is best for your physical and mental health. There is so much that can be done for these individuals who suffer. One such action we can take to prevent eating disorders is to educate parents and those who are around adolescents.

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## References

1. Hornberger, L. L., Lane, M. A., & COMMITTEE ON ADOLESCENCE (2021). Identification and Management of Eating Disorders in Children and Adolescents. Pediatrics, 147(1), e2020040279. https://doi.org/10.1542/peds.2020-040279
2. Reynolds, Kathryn M.D., Reese, Jasmine M., MD. M.P.H. and Lucrezia, Samantha, M.D. (n.d.). Eating disorder facts. Johns Hopkins All Children's Hospital. https://www.hopkinsallchildrens.org/Services/Pediatric-and-Adolescent-Medicine/Adolescent-and-Young-Adult-Specialty-Clinic/Eating-Disorders/Eating-Disorder-Facts
3. Reese, J. (2022). Assessment and treatment of eating disorders in adolescents. Contemporary OB/GYN, 67(5), 26–29.
4. Frank, G., Shott, M. E., & DeGuzman, M. C. (2019). The Neurobiology of Eating Disorders. Child and adolescent psychiatric clinics of North America, 28(4), 629–640. https://doi.org/10.1016/j.chc.2019.05.007
5. Neale, J., & Hudson, L. D. (2020). Anorexia nervosa in adolescents. British journal of hospital medicine (London, England: 2005), 81(6), 1–8. https://doi.org/10.12968/hmed.2020.0099
6. Kaye W. (2008). Neurobiology of anorexia and bulimia nervosa. Physiology & behavior, 94(1), 121–135. https://doi.org/10.1016/j.physbeh.2007.11.037
7. Bohon C. (2019). Binge Eating Disorder in Children and Adolescents. Child and adolescent psychiatric clinics of North

America, 28(4), 549–555. https://doi.org/10.1016/j.chc.2019.05.003
8. Martinez, M., Rathod, S., Friesen, H. J., Rosen, J. M., Friesen, C. A., & Schurman, J. V. (2021). Rumination Syndrome in Children and Adolescents: A Mini Review. Frontiers in pediatrics, 9, 709326. https://doi.org/10.3389/fped.2021.709326
9. Thomas, J. J., Lawson, E. A., Micali, N., Misra, M., Deckersbach, T., & Eddy, K. T. (2017). Avoidant/Restrictive Food Intake Disorder: a Three-Dimensional Model of Neurobiology with Implications for Etiology and Treatment. Current psychiatry reports, 19(8), 54. https://doi.org/10.1007/s11920-017-0795-5
10. The Different Causes of Eating Disorders https://www.verywellmind.com/what-causes-eating-disorders-4121047
11. National Institute of Mental Health. Retrieved from https://www.nimh.nih.gov/health/statistics/eating-disorders#part_2571
12. Striegel-Moore RH, Rosselli F, Perrin N, DeBar L, Wilson GT, May A, Kraemer HC. Gender difference in the prevalence of eating disorder symptoms. Int J Eat Disord. 2009 Jul;42(5):471-4. DOI: 10.1002/eat.20625. PMID: 19107833; PMCID: PMC2696560.
13. Cheng ZH, Perko VL, Fuller-Marashi L, Gau JM, Stice E. Ethnic differences in eating disorder prevalence, risk factors, and predictive effects of risk factors among young women. Eat Behav. 2019 Jan; 32:23-30. DOI: 10.1016/j.eatbeh.2018.11.004. Epub 2018 Nov 23. PMID: 30529736; PMCID: PMC6382562.
14. Alegria M, Woo M, Cao Z, Torres M, Meng XL, Striegel-Moore R. Prevalence and correlates of eating disorders in Latinos in the United States. Int J Eat Disord. 2007 Nov;40 Suppl(Suppl): S15-21. DOI: 10.1002/eat.20406. PMID: 17584870; PMCID: PMC2680162.
15. Gibbons, P. (2001). The Relationship Between Eating Disorders and Socioeconomic Status: It's Not What You Think. Nutrition Noteworthy, 4(1). Retrieved from https://escholarship.org/uc/item/1k70k3fd
16. Gonçalves Jde A, Moreira EA, Trindade EB, Fiates GM. Eating disorders in childhood and adolescence. Rev Paul Pediatr. 2013 Jan-Mar;31(1):96-103. English, Portuguese. doi: 10.1590/s0103-05822013000100016. PMID: 23703051.s
17. Lonergan, A.R. (2020). Protect me from my selfie: Examining the association between photo-based social media behaviors and self-reported eating disorders in adolescence. International Journal of Eating Disorders. https://onlinelibrary.wiley.com/doi/full/10.1002/eat.23256
18. Mitchell JE. Medical comorbidity and medical complications associated with binge-eating disorder. Int J Eat Disord. 2016 Mar;49(3):319-23. DOI: 10.1002/eat.22452. Epub 2015 Aug 27. PMID: 26311499.
19. O'Brien KM, Whelan DR, Sandler DP, Hall JE, Weinberg CR. Predictors and long-term health outcomes of eating disorders. PLoS One. 2017 Jul 10;12(7):e0181104. DOI:
20. Voderholzer U, Haas V, Correll CU, Körner T. Medical management of eating disorders: an update. Curr Opin Psychiatry. 2020 Nov;33(6):542-553. DOI: 10.1097/YCO.0000000000000653. PMID: 32925184.10.1371/journal.pone.0181104. PMID: 28700663; PMCID: PMC5507321.
21. Mitchell JE, Crow S. Medical complications of anorexia nervosa and bulimia nervosa. Curr Opin Psychiatry. 2006 Jul;19(4):438-43. DOI: 10.1097/01.yco.0000228768.79097.3e. PMID: 16721178.
22. Sachs KV, Harnke B, Mehler PS, Krantz MJ. Cardiovascular complications of anorexia nervosa: A systematic review. Int J Eat Disord. 2016 Mar;49(3):238-48. DOI: 10.1002/eat.22481. Epub 2015 Dec 29. PMID: 26710932.
23. Nitsch A, Dlugosz H, Gibson D, Mehler PS. Medical complications of bulimia nervosa. Cleve Clin J Med. 2021 Jun 2;88(6):333-343. DOI: 10.3949/ccjm.88a.20168. PMID: 34078617.
24. Amianto F, Ottone L, Abbate Daga G, Fassino S. Binge-eating disorder diagnosis and treatment: a recap in front of DSM-5. BMC Psychiatry. 2015 Apr 3;15:70. DOI: 10.1186/s12888-015-0445-6. PMID: 25885566; PMCID: PMC4397811.
25. Kusnik A, Vaqar S. Rumination Disorder. 2022 May 5. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2022 Jan–. PMID: 35015429.
26. Mairs R, Nicholls D. Assessment and treatment of eating disorders in children and adolescents. Arch Dis Child. 2016 Dec;101(12):1168-1175. DOI: 10.1136/archdischild-2015-309481. Epub 2016 Jun 28. PMID: 27381185.

27. Hong K, Nez Govorova V, Uzunova G, Schlussel D, Hollander E. Pharmacological Treatment of Body Dysmorphic Disorder. Curr Neuropharmacol. 2019;17(8):697-702. DOI: 10.2174/1570159X16666180426153940. PMID: 29701157; PMCID: PMC7059151.
28. Kasson E, Vázquez MM, Doroshenko C, Fitzsimmons-Craft EE, Wilfley DE, Taylor CB, Cavazos-Rehg PA. Exploring Social Media Recruitment Strategies and Preliminary Acceptability of an mHealth Tool for Teens with Eating Disorders. Int J Environ Res Public Health. 2021 Jul 28;18(15):7979. DOI: 10.3390/ijerph18157979. PMID: 34360270; PMCID: PMC8345665.
29. SM (2019). The relationship between social media use and disordered eating in young adolescents. International Journal of Eating Disorders. https://onlinelibrary.wiley.com/doi/abs/10.1002/eat.23198
30. Rania M, Monell E, Sjölander A, Bulik CM. Emotion dysregulation and suicidality in eating disorders. Int J Eat Disord. 2021 Mar;54(3):313-325. DOI: 10.1002/eat.23410. Epub 2020 Nov 18. PMID: 33205495; PMCID: PMC7984062.
31. Bang L, Kristensen UB, Wisting L, Stedal K, Garte M, Minde Å, Rø Ø. Presence of eating disorder symptoms in patients with obsessive-compulsive disorder. BMC Psychiatry. 2020 Jan 30;20(1):36. DOI: 10.1186/s12888-020-2457-0. PMID: 32000754; PMCID: PMC6993325.
32. Eating disorder treatment: Know your options. Mayo Clinic. https://www.mayoclinic.org/diseases-conditions/eating-disorders/in-depth/eating-disorder-treatment/art-20046234. Date accessed: 02Aug2022
33. Hospitalization For Eating Disorders. Verywellmind. https://www.verywellmind.com/inpatient-hospitalization-1138353. Date accessed: 02Aug2022
34. Treating Eating Disorders in Primary Care. American Family Physician. https://www.aafp.org/pubs/afp/issues/2008/0115/p187.html. Date accessed: 02Aug2022
35. Ackard, D. M., Richter, S., Egan, A., & Cronemeyer, C. (2014). Poor outcome and death among youth, young adults, and midlife adults with eating disorders: an investigation of risk factors by age at assessment. The International journal of eating disorders, 47(7), 825–835. https://doi.org/10.1002/eat.22346