

Bulimia Nervosa: A Psychiatric Problem of Disorder

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Abstract

This study deals with bulimia nervosa (BN) that is a serious and potentially life-threatening eating disorder, which is characterized by binge-eating and extreme weight control policy. It is a distressing and disabling disorder followed by compensatory purging behaviors, such as self-induced vomiting, misuse of diuretics and laxative; and non-purging behaviors, such as excessive exercise, severe dieting, and long-time fasting. Physical, emotional, mental, sexual, and verbal abuse can also develop bulimia nervosa. BN patients frequently have a normal weight, but sometimes they may be underweighted or overweighted. Bulimia nervosa is frequently accompanied with the effects of normal physiologic functioning. The most common causes of morbidity and mortality among bulimia nervosa patients are electrolyte and metabolic disturbances. This study reviews the key features and associated problems of bulimia nervosa and its negative effects in global healthcare environment.

Keywords: Bulimia nervosa, eating disorders, medical complications, psychiatric illness, purging

1. Introduction

Bulimia nervosa (BN) is an eating disorder (ED) that is characterized by recurrent binge-eating, where self-evaluation is excessively influenced by body image and weight. Eating disorder is a main cause of physical and psychosocial morbidity among teenage girls. It is a foolish strategy to remain within their normal range for weight (Feixas et al., 2010). The BN patients go to the bathroom right after eating or during meals, and wait for a long-time to purge the consumed foods until they feel that their eaten foods are completely purged. The purging processes of BN patients are characterized by regular use of extreme weight control methods, such as laxative use, use of diuretics, stimulants, ruminatory regurgitation, severe dieting, long time fasting, water fasting, self-induced vomiting, and excessive exercise (Hay & Claudino, 2010; DSM-5, 2013).

BN is related to psychiatric conditions, such as depression, anxiety, and substance abuse disorders that are associated with substantial economic and social burden (Keski-Rahkonen & Mustelin, 2016; Le et al., 2018). It is a serious emotional eating disorder, and the patient try to discard the extra calories in an unhealthy way that leads to feelings of shame, guilt and disgust. It affects almost all body systems; especially the renal and electrolyte system effects are remarkable (Nitsch et al., 2021). It hampers about 5% of teenage girls and young women, and often occurs in women 10 times more than in men. The prevalence can be as high as 10% in vulnerable populations, such as among college-aged females. It is seen in people of any sex, gender, age, race, and ethnicity (WHO, 1993; Hsu, 1996). It occurs in 2.3% among white women but in only 0.40% among black women (Striegel-Moore et al., 2003).

Exact cause of bulimia nervosa (BN) development is not known yet. Many factors work for the growing of eating disorders, such as genetics, biology, emotional, societal expectations and other issues (Himmerich et al., 2019). BN may be possible genetic link and first-degree relatives with an eating disorder may be more likely to

develop an eating disorder. It is estimated that depression, anxiety, substance is closely linked with eating disorders. People who diet extremely may build eating disorders (Abraham & Kellow, 2013).

2. Literature Review

In any research area, the literature review is an introductory section of research, where the seminal works of previous researchers in the same field within the existing knowledge are highlighted (Polit & Hungler, 2013). It helps the inexperienced researchers to understand the subject, and it serves as an indicator of the subject that has been carried out before (Creswell, 2007). Bhaskaran Sathyapriya and her coworkers have discussed key features, associated problems, the relevant psychological theories, major psychological features, and different treatment approaches of bulimia nervosa (Sathyapriya et al., 2018).

Allison Nitsch and her coauthors have realized that bulimia nervosa is four-times more common than the anorexia nervosa. Bulimia nervosa is characterized by binge-eating that is followed by compensatory purging behaviors, such as self-induced vomiting, diuretic abuse, laxative abuse, and misuse of insulin (Nitsch et al., 2021). Giada Pietrabissa and her coworkers have shown that although cognitive behavioral therapy is the gold standard treatments for bulimia nervosa (BN) and binge eating disorder (BED), but for long-term its efficacy is weak. They have suggested that translating research into practice may inform how to ensure high quality patient care (Pietrabissa et al., 2019).

Philip S Mehler and Melanie Rylander have observed that in bulimia nervosa, medical complications, such as self-induced vomiting and laxative abuse are a direct result of both the mode and the frequency of purging behaviors. They have stressed that these complications are potentially extremely dangerous and need to be well-understood to effectively treat patients with bulimia nervosa (Mehler & Rylander, 2015). Mercedes Borda-Mas and her coworkers have studied the clinical case of a 20 year old woman diagnosed with bulimia nervosa (BN), borderline personality disorder (BPD), and impaired executive functioning. They have wanted to determine the efficacy of cognitive-behavioral therapy (CBT) and dialectic behavioral therapy (DBT) in a case of BN and BPD comorbidity, and the psychological intervention of choice for BN, and BPD is beneficial for alteration of executive functions or not (Borda-Mas et al., 2022).

Guillem Feixas and his coauthors have explored the cognitive structures, understood as construct systems, and of patients suffering from bulimia nervosa (Feixas et al., 2010). Sarah Barakat and Sarah Maguire summarize the existing academic research related to the symptom profile of BN, the costs and burden imposed by the illness, barriers to the receipt of care, and the evidence base for available psychological treatments (Barakat & Maguire, 2023). Paul E. Keck and his coauthors have discussed evidence for using antidepressants, even when patients are not “depressed”; merits of psychotherapies, including those shown to work and those that can harm; and augmentation therapies that can help increase response from partial to full remission (Keck et al., 2004).

Maria Bakland and her coauthors has introduced a new group based treatment for patients with bulimia nervosa (BN) and binge eating disorder (BED) that is a combining guided Physical Exercise and Dietary therapy (PED-t), in which many clinical settings consists of an uncommon group of professionals, has shown the capacity to alleviate BN and BED symptoms. PED-t is an empirically derived conceptual model of neurobiological, psychosocial and behavioral impacts. These authors have observed that about 50–60% of referred patients do not respond to evidence-based treatments currently available due to the complex nature of aetiology and maintenance factors (Bakland et al., 2019). Devajit Mohajan and Haradhan Kumar Mohajan have discussed aspects of anorexia nervosa (AN) and its various effects (Mohajan & Mohajan, 2023a, g). They have also discussed effects of obesity and body fat percentage; various measurement indices, such as body mass index, Broca index, and Ponderal index (Mohajan & Mohajan, 2023b,c,d,e,f).

3. Research Methodology of the Study

Research is a logical and systematic search for new useful information on a specific topic, which investigates to find solutions of scientific and social problems through systematic analysis (Rajasekar et. al., 2013). The academicians always take the research as an essential and influential work to lead in academic world (Pandey & Pandey, 2015). Methodology is a guideline to complete a familiar research that helps the researchers to grow the trust of a reader in the research findings (Kothari, 2008). It relates the nature and power to science, truth, and epistemology (Ramazanoglu & Holland, 2002). Research methodology is the procedure to perform a research in a systematic and process oriented way that provides a guideline to the researchers to investigate a problem (Abbasi, 2015). To rationalize the selection of a research methodology, a researcher must understand its philosophical origins and unique characteristics (Rieger, 2019).

We have started our study with historical background, and then highlight the basic concept of bulimia. We then think that we will introduce symptoms and complications of bulimia. Finally, we have consulted the prevention and treatment of bulimia. To prepare this article we have taken the help from the secondary data sources of bulimia nervosa. The valuable materials of this article are collected from the published papers, research reports,

published books and notebooks, internets, websites, etc. Throughout the study we have consulted them unsparingly (Mohajan, 2017, 2018, 2020).

4. Objective of the Study

The principal objective of this study is to discuss the aspects of bulimia nervosa and its various effects. Some other minor objectives are as follows:

- to show historical background of BN,
- to discuss basic concepts and symptoms of BN, and
- to provide treatment strategies of BN.

5. Historical Background

Bulimia nervosa (BN) is a new eating disorder in diagnostic history. Ancient Egyptians have been described as purging themselves every month for three days in succession, believing that human diseases came from food (Blinder & Chao, 1994). The term “bulimia” was noted in the ancient Greek literature with the origin word “bulimy” or “ox-hunger” which means “*ravenous hunger*” (Castillo & Weiselberg, 2017). Romans tickle their throats with feathers after each meal to induce vomiting to create wider space in stomach for engulfing gluttonous feasting full of palatable foods (Stice et al, 2008). The phrase “*canine hunger*” is seen in the works of the 5th century physician Theodorus Priscianus (Lewis & Short, 1900).

In 1398, bulimia has occurred in the English translation (Stein & Laakso, 1988). In 1743, **Robert James** (1703-1776), described “*true boulimus*” which was characterized by intense preoccupation with food and overeating at very short intervals, terminated by vomiting (James, 1743). In 1785, English physician and medical writer George Motherby (1731-1793) has studied three types of bulimia: i) bulimia of pure hunger, ii) bulimia associated with “swooning”, and iii) bulimia terminated by vomiting (Stunkard et al., 1990).

In 1979, bulimia nervosa was first formally described by British psychiatrist **Gerald Francis Morris Russell** (1928-2018), indicating as an “*ominous variant*” of anorexia nervosa. He thought that it is a “*chronic phase of anorexia nervosa*”. He observes that the patient after overeating, excessive weight gain is repaired by compensatory methods, such as self-induced vomiting, due to intense fears of becoming fat. He proposed two criteria to diagnose BN: i) an irresistible urge to overeat, followed by self-induced vomiting or purging, and ii) a morbid fear of becoming fat (Russell, 1979).

6. Basic Concepts of Bulimia

Bulimia nervosa is a mental illness, which is four times more common than anorexia nervosa. It is an uncontrollable desire to binge-eating linked to a depraved desire for consumption of food (Nitsch et al., 2021). There are two types of bulimia nervosa: i) purging, and ii) non-purging. Purging of bulimia nervosa indicates that the patient regularly engages in self-induced vomiting or the abuse of laxatives, diuretics, or enemas. On the other hand, non-purging indicates that the patient uses other inappropriate compensatory behaviors, such as lengthy fasting or excessive exercise to control weight but has not regularly engaged in usual purging (Keck et al., 2004). Many factors, such as genetic, environmental, psychosocial, social, biological, neurobiological, and temperamental are influenced to the BN. It is realized that sexual, physical, and emotional trauma are related to BN (Udo & Grilo, 2018). It can permanently damage stomach and intestines, and also causes many other problems, such as constipation, diarrhea, irritable bowel syndrome, etc. (Mehler & Rylander, 2015).

The term bulimia is derived from two Greek words “*bous*” meaning ox, and “*limos*” meaning hunger, and therefore, bulimia means “*morbid hunger*”. It suggests having the appetite of an ox, as well as the ability to consume an ox, or as much as an ox (Parry-Jones & Parry-Jones, 1994). BN patients feel “*hunger like an ox*”, which indicates repeatedly eating abnormally large amounts of food, particularly carbohydrate foods, in one sitting and feeling out of control while doing so, and then try to purging them (**DSM-4**, 2000; Keck et al. 2004).

Most people with bulimia are at a normal weight and normal BMI or slightly overweight, as they find food and eating immensely pleasurable, but struggling to consistently stay on a diet (Flett et al., 2011). Various studies show that 70% of bulimics are within the normal weight range, 15% are overweight, and 15% are underweight (Mitchell et al., 1991). Sometimes people with anorexia nervosa (AN) may eventually develop into bulimia nervosa (BN) (Mohajan & Mohajan, 2023a).

7. Symptoms of Bulimia

Rapid and out of control eating is considered bulimia nervosa, and the syndrome is heterogeneous. When the person takes huge food, s/he releases almost all feeding foods by self-induced vomiting or other forms of purging (more than 90% of purging), such as misuse of diuretics or diet pills. These attempts are repeated several times in a week or even in a day (Mehler, 2003). Forced vomiting may effects on metabolic rate; sores, scars or calluses on the knuckles, bad breath, and thyroid dysfunction may happen due to low caloric intake (Flett et al.,

2011). Electrolyte imbalance can lead to abnormal heart rhythms, cardiac arrest, and even death. Weight fluctuations are common among BN patients, and hypoglycemia may happen after vomiting loss of or disturbance of menstrual periods in girls and women are seen with fainting or dizziness and disturbance in sleeping (Hay, 2013).

Diabetic BN patients are at the high risk for hyperglycemia, ketoacidosis, and premature micro-vascular complications due to their blood glucose imbalance (Nitsch et al., 2021). They have a low self-esteem and feelings of shame, self-loathing or guilt, present a distorted body image, and show extreme body dissatisfaction (Sathyapriya, et al, 2018).

Bulimia nervosa patients are constantly worrying for being fat and want to take too much exercise. They suffer from psychiatric disorders, such as major depressive and bipolar disorders, and anxiety disorders, such as panic disorder, social phobia, and obsessive-compulsive disorder (Keck et al., 2004). Renal potassium loss due to frequent vomiting can create dehydration and hypokalemia (Mehler, 2003). They may experience depression, anxiety, or obsessive compulsive behaviors. Moodiness and irritability may occur due to lack of vitamins. Their teeth enamel is damaged heavily by the stomach acid in vomitus that may also inflame salivary gland ducts (Dynesen et al., 2008).

8. Complications of Bulimia

Bulimia nervosa is a major source of physical and psychosocial morbidity among young girls and women. Various oral complications, such as dental erosion, reduced salivary flow rate, tooth hypersensitivity, dental caries, periodontal disease, and xerostomia are seen due to long-term self-induced vomiting (Valena & Young, 2002; Dynesen et al., 2008). Also self-induced vomiting damages the esophageal sphincters, which affects areas of the pharynx and larynx (Rothstein, 1998).

Laxative abuse creates stimulate colonic motility, and may produce a large volume of watery diarrhea. As a result, inflammation of the mucosa, alterations in muscular layers of the colon and degeneration of the myenteric and Auerbach's nerve plexi caused by a direct toxic effect from the stimulant laxatives (Roerig et al., 2010; Mehler & Rylander, 2015). Bulimia nervosa can develop cardiovascular disease, such as ischemic heart disease and death in females (Tith et al., 2020). Russell sign can be seen among BN patients that develops calluses on the dorsal aspect of the dominant hand (Strumia, 2013).

9. Prevention and Treatment of Bulimia

Bulimia nervosa (BN) is a serious mental illness that requires proper treatment. Actually, it is not a lifestyle choice of an individual. It is characterized by repeated episodes of binge-eating that is followed by compensatory behaviors, such as self-induced vomiting, abuse of laxatives or diuretics, long-time fasting, excessive physical exercise, medication, use of any illicit drug for controlling weight inappropriately (Haedt et al., 2006).

BN patients frequently avoid to take treatment and unwilling to consult with a physician about their problems. Early treatment is necessary for the better improvement of BN. Willingness to recover is vital to establish an adequate treatment program (Geller et al., 2001). BN patients are at the risk of developing various medical complications that affect all body systems, especially the renal and electrolyte systems. Therefore, hypokalemia of BN patients should be managed properly and quickly to prevent electrocardiographic changes (Nitsch et al., 2021).

Full cure from BN is very difficult process. But effective and long-term treatment can cure the BN patients. The patients should adopt healthier eating patterns and reverse the serious complications with patients. BN can be prevented through the increasing self-confidence, adjusting eating patterns, and proper mental and physical treatment (Bakland et al., 2019).

10. Conclusions

At present it is evident that BN is no longer a western disease, and it becomes a global concern. It is characterized by binge-eating and is followed by compensatory strategies. BN patients always have negative self-evaluations, and place themselves in inappropriate importance on weight and body image. Family members should be alert to create awareness about the importance of family meals and healthy balanced diet. Educational institutions play an important role in molding the young women by educating them about the importance of a well-balanced diet and good eating behavior. Prevention of BN is necessary to build a healthy humanity worldwide. BN is generally a curable disease and early treatment gives better result.

References

- Abbasi, M. I. (2015). *Marxist Feminism in Alice Walker's Novels: The Temple of My Familiar, Meridian and the Color Purple*. PhD Thesis, National University of Modern Languages, Islamabad.
- Abraham, S., & Kellow, J. E. (2013). Do the Digestive Tract Symptoms in Eating Disorder Patients Represent

- Functional Gastrointestinal Disorders? *BMC Gastroenterol*, 13, 38.
- Bakland, M., et al. (2019). Patients' Views on a New Treatment for Bulimia Nervosa and Binge Eating Disorder Combining Physical Exercise and Dietary Therapy (the PED-t): A Qualitative Study. *Eating Disorders*, 27(6), 503-520.
- Barakat, S., & Maguire, S. (2023). Accessibility of Psychological Treatments for Bulimia Nervosa: A Review of Efficacy and Engagement in Online Self-Help Treatments. *International Journal of Environmental Research and Public Health*, 20, 119. <https://doi.org/10.3390/ijerph20010119>.
- Blinder, B., J., & Chao, K. H. (1994). *Bulimia Nervosa/Obesity: A Historical Overview*. Department of Psychiatry and Human Behavior, University of California, Irvine.
- Borda-Mas, M. et al. (2022). Bulimia Nervosa, Borderline Personality Disorder, and Executive Functions: Treatment and Follow-up in a Case Study. *Revista Argentina de Clínica Psicológica*, XXIX(3), 24-33.
- Castillo, M., & Weiselberg, E. (2017). Bulimia Nervosa/Purging Disorder. *Current Problems in Pediatric and Adolescent Health Care*, 47(4), 85-94.
- Creswell, J. W. (2007). *Qualitative Inquiry and Research Design: Choosing Among Five Approaches*. Thousand Oaks, CA: Sage Publications.
- DSM-4 (2000). *Diagnostic and Statistical: Manual Mental Disorders* (4th Ed.). American Psychiatric Association, Washington, DC.
- DSM-5 (2013). *Diagnostic and Statistical Manual of Mental Disorders*. Arlington: American Psychiatric Pub, American Psychiatric Association.
- Dynesen, A. Bardow, A., & Petersson, B. (2008). Salivary Changes and Dental Erosion in Bulimia Nervosa. *Oral Surgery, Oral Medicine, Oral Pathology Oral Radiology*, 106, 696-707.
- Feixas, G. et al. (2010). Self-Construction, Cognitive Conflicts and Polarization in Bulimia Nervosa. *International Journal of Clinical and Health Psychology*, 10(3), 445-457.
- Flett, G. L., Newby, J., Hewitt, P. L., & Persaud, C. (2011). Perfectionistic Automatic Thoughts, Trait Perfectionism, and Bulimic Automatic Thoughts in Young Women. *Journal of Rational-Emotive & Cognitive-Behavior Therapy*, 29(3), 192-206.
- Geller, J., Cockell, S. J., & Drab, D. L. (2001). Assessing Readiness for Change in the Eating Disorders: The Psychometric Properties of the Readiness and Motivation Interview. *Psychological Assessment*, 13(2), 189-198.
- Haedt, A. A., Edler, C., Heatherton, T. F., & Keel, P. K. (2006). Importance of Multiple Purging Methods in the Classification of Eating Disorder Subtypes. *International Journal of Eating Disorders*, 39(8), 648-654.
- Hay, P. J. (2013). A Systematic Review of Evidence for Psychological Treatments in Eating Disorders: 2005-2012. *The International Journal of Eating Disorders*, 46(5), 462-469.
- Hay, P. J., & Claudino, A. M. (2010). Bulimia Nervosa. *BMJ Clinical Evidence*, 2010, 1009. PMID: 21418667; PMCID: PMC3275326.
- Himmerich, H., & Hotopf, M., et al. (2019). Psychiatric Comorbidity as a Risk Factor for the Mortality of People with Bulimia Nervosa. *Social Psychiatry and Psychiatric Epidemiology*, 54(7), 813-821.
- Hsu, L. K. (1996). Epidemiology of the Eating Disorders. *Psychiatric Clinics of North America*, 19 (4), 681-700.
- James, R. (1743). *A Medical Dictionary*. London: Thomas Osborne.
- Keski-Rahkonen, A., & Mustelin, L. (2016). Epidemiology of Eating Disorders in Europe: Prevalence, Incidence, Comorbidity, Course, Consequences, and Risk Factors. *Current Opinion in Psychiatry*, 29(6), 340-345.
- Keck, P. E., Pope, H. G. Jr., & Hudson, J. I. (2004). Update on Eating Disorders Bulimia Nervosa: Persistent Disorder Requires Equally Persistent Treatment, *Current Psychiatry*, 3(1), 12-22.
- Kothari, C. R. (2008). *Research Methodology: Methods and Techniques* (2nd Ed.). New Delhi: New Age International (P) Ltd.
- Le, L. K., Hay, P., & Mihalopoulos, C. (2018). A Systematic Review of CostEffectiveness Studies of Prevention and Treatment for Eating Disorders. *Australian & New Zealand Journal of Psychiatry*, 52(4), 328-338.
- Lewis, C. T., & Short, C. (1900). *A Latin Dictionary Founded on the Andrew's Edition of Freund's Latin Dictionary*. Publisher: Oxford at the Clarendon Press.
- Mehler, P. S. (2003). Clinical Practice. Bulimia Nervosa. *The New England Journal of Medicine*, 349(9), 875-881.

- Mehler, P. S., & Rylander, M. (2015). Bulimia Nervosa: Medical Complications. *Journal of Eating Disorders*, 3, 12. PMID: 25866627; PMCID: PMC4392812.
- Mitchell, J. E., Specker, S. M., & de Zwaan, M. (1991). Comorbidity and Medical Complications of Bulimia Nervosa. *The Journal of Clinical Psychiatry*, 52(Suppl), 13-20.
- Mohajan, D., & Mohajan, H. K. (2023a). Anorexia Nervosa: A Dreadful Psychosocial Health Complication. Unpublished Manuscript.
- Mohajan, D., & Mohajan, H. K. (2023b). Obesity and Its Related Diseases: A New Escalating Alarming in Global Health. *Journal of Innovations in Medical Research*, 2(3), 12-23.
- Mohajan, D., & Mohajan, H. K. (2023c). Body Mass Index (BMI) is a Popular Anthropometric Tool to Measure Obesity among Adults. Unpublished Manuscript.
- Mohajan, D., & Mohajan, H. K. (2023d). Broca Index: A Simple Tool to Measure Ideal Body Weight. *Innovation in Science and Technology*, 2(2), 21-24.
- Mohajan, D., & Mohajan, H. K. (2023e). A Study on Body Fat Percentage for Physical Fitness and Prevention of Obesity: A Two Compartment Model. Unpublished Manuscript.
- Mohajan, D., & Mohajan, H. K. (2023f). Ponderal Index: An Important Anthropometric Indicator for Physical Growth. Unpublished Manuscript.
- Mohajan, D., & Mohajan, H. K. (2023g). Long-Term Regular Exercise Increases VO₂max for Cardiorespiratory Fitness. *Innovation in Science and Technology*, 2(2), 38-43.
- Nitsch, A. et al. (2021). Medical Complications of Bulimia Nervosa. *Cleveland Clinic Journal of Medicine*, 88(6), 333-343.
- Pandey, P., & Pandey, M. M. (2015). *Research Methodology: Tools and Techniques*. Bridge Center, Romania, European Union.
- Parry-Jones, W. L., & Parry-Jones, B. (1994). Implications of Historical Evidence for the Classification of Eating Disorders. *British Journal of Psychiatry*, 165(3), 287-292.
- Pietrabissa, G. et al. (2019). Brief Strategic Therapy for Bulimia Nervosa and Binge Eating Disorder: A Clinical and Research Protocol. *Frontiers in Psychology*, 10, Article 373.
- Polit, D. F., & Hungler, B. P. (2013). *Essentials of Nursing Research: Methods, Appraisal, and Utilization* (8th Ed.). Philadelphia: Wolters Kluwer/Lippincott Williams and Wilkins.
- Rajasekar, S. P., Philominathan, P., & Chinnathambi, V. (2013). *Research Methodology*. arXiv: physics/0601009v3 [physics.gen-ph]
- Ramazanoglu, C., & Holland, J. (2002). *Feminist Methodology: Challenges and Choices*. Sage Publications, London.
- Rieger, K. L. (2019). Discriminating among Grounded Theory Approaches. *Nursing Inquiry*, 26, e12261.
- Roerig, J. L., Steffer, K. J., Mitchell, J. E., & Zunker, C. (2010). Laxative Abuse, Epidemiology, Diagnosis and Management. *Drugs*, 70(12), 1487-503.
- Rothstein, S. (1998). Reflux and Vocal Disorders in Singers with Bulimia. *Journal of Voice*, 12(1), 89-90.
- Russell, G. (1979). Bulimia Nervosa: An Ominous Variant of Anorexia Nervosa. *Psychological Medicine*, 9(3), 429-448.
- Sathyapriya, B. et al. (2018). Bulimia Nervosa: A Psychiatric Eating Disorder. *Acta Scientific Medical Sciences*, 2(2), 21-26.
- Stein, D. M., & Laakso, W. (1988). Bulimia: A Historical Perspective. *International Journal of Eating Disorders*, 7(2), 201-210.
- Stice, E., Bohon, C., Marti, C. N., & Fischer, K. (2008). Subtyping Women with Bulimia Nervosa Along Dietary and Negative Affect Dimensions: Further Evidence of Reliability and Validity. *Journal of Consulting and Clinical Psychology*, 76(6), 1022-1033.
- Striegel-Moore, R. H., et al. (2003). Eating Disorders in White and Black Women. *American Journal of Psychiatry*, 160(7), 1326-1331.
- Strumia, R. (2013). Eating Disorders and the Skin. *Clinics in Dermatology*, 31(1), 80-85.
- Stunkard, A. J., Harris, J. R., Pedersen, N. L., & McClearn, G. E. (1990). The body-mass Index of Twins Who Have Been Reared Apart. *New England Journal of Medicine*, 322(21), 1483-1487.

- Tith, R. M., & Paradis, G. et al. (2020). Association of Bulimia Nervosa with Long-Term Risk of Cardiovascular Disease and Mortality among Women. *JAMA Psychiatry*, 77(1), 44-51.
- Udo, T., & Grilo, C. M. (2018). Prevalence and Correlates of DSM-5-defined Eating Disorders in a Nationally Representative Sample of US Adults. *Biological Psychiatry*, 84(5), 345-354.
- Valena, V., & Young, W. G. (2002). Dental Erosion Patterns from Intrinsic Acid Regurgitation and Vomiting. *Australian Dental Journal*, 47,106-115.
- WHO (1993). *The ICD-10 Classification of Mental and Behavioural Disorders: Diagnostic Criteria for Research*. World Health Organization (WHO), Geneva, Switzerland.

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