

**ONE OF THE RARE DISORDER IN PSYCHIATRIC – BULIMIA NERVOSA (EXCESS EATING DISORDER)**Harendra Kumar Devarai\*<sup>1</sup>, Satyavathi M.<sup>2</sup>, G. Ramesh<sup>3</sup>, P. Srinivasa Babu<sup>4</sup><sup>1,2</sup>Vignan Pharmacy College, Vadlamudi - Pharm. D.<sup>3,4</sup>Vignan Pharmacy College, Vadlamudi.

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**ABSTRACT**

Bulimia nervosa is the episodic, serious, potentially life-threatening uncontrolled eating disorder characterized by a cycle of binge eating and compensatory behavior such as self-induced vomiting or exercising to excess to avoid gaining weight. This repetitious binge-and-purge cycle can cause damage to your digestive system and create chemical imbalances in the body that harm the functioning of major organs, including the heart. It can even be fatal. An individual suffering from bulimia nervosa may reveal several signs and symptoms, many which are the direct result of self-induced vomiting or other forms of purging, especially if the binge/purge cycle is repeated several times a week and/or day. The most dramatic reports of treatment success are of studies using pharmacological therapies, with antidepressant medications being particularly effective. Tricyclic antidepressants, monoamine oxidase inhibitors, and selective serotonin reuptake inhibitors such as fluoxetine, sertraline, and paroxetine have all shown efficacy in the treatment of bulimia nervosa, with responses ranging between reduction of binge eating and/or purging behavior to complete remission of symptoms. As a possible first step, patients should be encouraged to participate in an evidence based self help program. With support and encouragement, some patients with bulimia may find that an evidence based self help program alone produces effective recovery and remission.

**KEYWORDS:** Bulimia nervosa, monoamine oxidase inhibitors, binge-and-purge cycle, evidence.**INTRODUCTION**

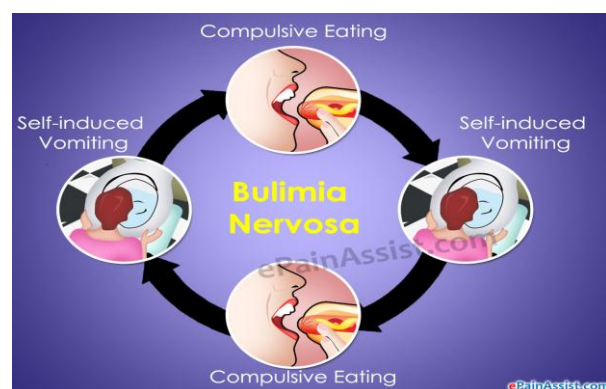
Many of us turn to food when we're feeling lonely, bored, or stressed. But if you have the eating disorder bulimia, overeating is more like a compulsion. And afterwards, instead of eating sensibly to make up for it, you punish yourself by purging, fasting, or exercising to get rid of the calories. This vicious cycle of bingeing and purging takes a toll on your body and emotional well-being.<sup>[1]</sup>

Bulimia nervosa is the episodic, serious, potentially life-threatening uncontrolled eating disorder characterized by a cycle of binge eating and compensatory behavior such as self-induced vomiting or exercising to excess to avoid gaining weight. This repetitious binge-and-purge cycle can cause damage to your digestive system and create chemical imbalances in the body that harm the functioning of major organs, including the heart. It can even be fatal.<sup>[2]</sup>

- Binge eating refers to eating a large amount of food in a short amount of time.
- Purging refers to the attempts to get rid of the food consumed.

The forcing of vomiting may result in thickened skin on knuckles and breakdown of the teeth. Bulimia is frequently associated with other mental disorders such as depression, anxiety and problems with drugs or alcohol. There is also a higher risk of suicide or self-harm.<sup>[3]</sup>

In addition, people with bulimia place an excessive emphasis on body shape or weight in their self-evaluation. This can lead to the person's sense of self-esteem and self-worth being defined by the way they look.



### The History of Bulimia Nervosa

The history of bulimia is old. Bulimia typically begins in adolescence or young adulthood in individuals consciously trying to stay slim. Bulimia nervosa was originally described in the late 1950s as a pattern of behavior in some obese individuals. In the 1960s and early 1970s, it was recognized as a commonly associated feature of anorexia nervosa. Recently, it has been identified as a distinct disorder that occurs in persons of normal weight who are not obese and do not have anorexia nervosa.<sup>[4]</sup> To establish the diagnosis of bulimia nervosa, the DSM-IV (Diagnostic and Statistical Manual of Mental Disorders, 4th Edition) requires some form of compensatory behavior to prevent weight gain, such as purging. A number of normal-weight individuals engage in episodes of binge eating but do not engage in any compensatory behavior.

Even in ancient Rome people used to vomit up food they ate in the period of feasting. They even had special places for it called "vomitorium". There is a lot of recollection about these events in ancient Rome books. Roman emperors Claudius and Vitellius were bulimic.<sup>[5]</sup>

Some other cultures like ancient Egyptian purged themselves every month for three days in succession, using emetics and clysters to preserve health. They thought that human diseases come from food.

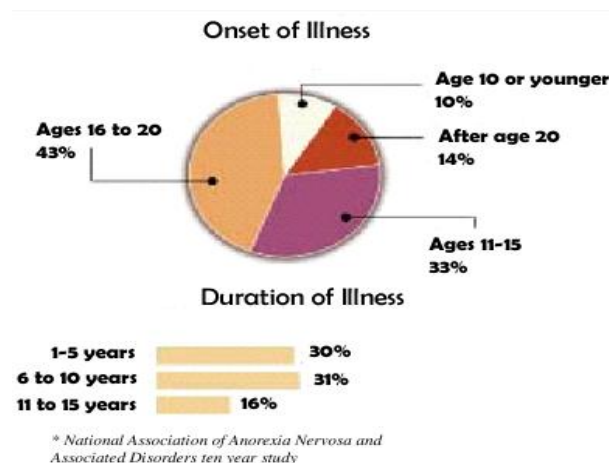
But all these ancient practices of bingeing and purging are similar but not the same as what we call "bulimia" now. From the evidence that have been reported it is obvious that bulimia nervosa as it is presented now was an unknown disease until the late 20th century.

The first description of the modern bulimia nervosa was published in 1979 by Dr Russell. He stated in the result of his research that overeating and self-induced vomiting may have been common practices among other normal female students attending North Americans universities.<sup>[6]</sup> He mentioned that the condition was always most relevant to females.

The modern term "bulimia nervosa" means not just the simple practice of bingeing and purging, there are now certain personality traits behind the term. These traits include addictive tendencies, problem with impulse control, obsession with weight and general looks and certain personality disorders can be associated with the term of bulimia nervosa.<sup>[7]</sup> Bulimia nervosa is a new disease that has emerged due to the intensive pressure to look slim.

**Epidemiology** Between 1% and 3% of young adult females in the United States meet the diagnostic criteria for bulimia nervosa. As many as 40% of young adults engage in episodic binge eating but do not meet the diagnostic criteria.<sup>[8]</sup> Bulimia nervosa occurs in 0.2% of adolescent boys and young adult males and accounts for

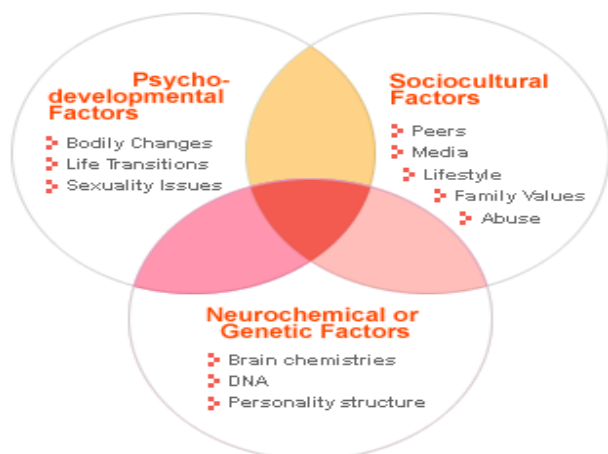
10-15% of bulimics identified in community-based studie.



### Etiology and Pathogenesis

The exact cause is unknown. The reasons for developing BN will differ from person to person. It is thought that multiple factors contribute to the development of this eating disorder, including genetic predisposition and a combination of environmental, psychological and cultural influences. Some of the main causes for bulimia include:

- Stressful transitions or life changes
- History of abuse or trauma
- Negative body image
- Poor self-esteem
- Professions or activities that focus on appearance/performance
- Living in a culture that promotes dieting and having parents that worry about weight are also risks.
- Obesity
- Bulimia is more common among those who have a close relative with this condition. The percentage risk that is estimated to be due to genetics is between 30% and 80%.
- Other risk factors for the disease include psychological stress, cultural pressure to attain a certain body type.
- Psychodynamic theories emphasize the symbolic nature of eating binges as representing gratification of sexual and aggressive wishes. Self-deprecation and self-induced vomiting following binges may thus represent guilt-induced self-punishment for fantasized transgressions.

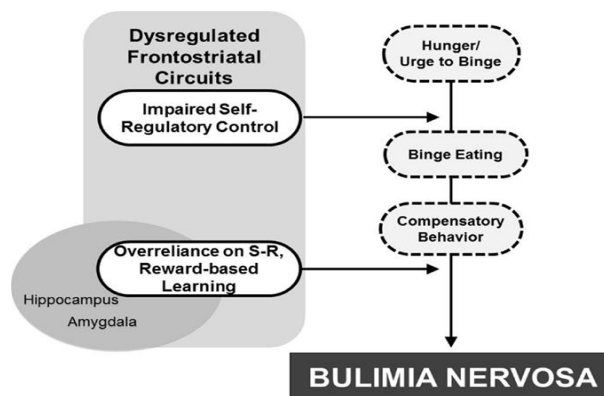


The episodic, uncontrolled nature of the eating behaviors has led some investigators to suggest that bulimia may be a variant of complex partial seizure disorder.<sup>[9]</sup> However, the few electroencephalographic abnormalities reported in patients studied during the testing of this hypothesis did not correlate with treatment response to phenytoin.

One hypothesis suggests that if serotonergic neurons are inadequate or ineffective it could cause an enhanced craving for food.

The strong association between bulimia nervosa and affective disorders together with the tendency of bulimic behavior to respond to antidepressant medication has led to the hypothesis that the disorder is the result of imbalance in the dopamine, norepinephrine, and serotonin systems in the brain.<sup>[10]</sup> Some studies have suggested that neuropeptides such as cholecystokinin, which regulate appetite and satiety in the brain, may be abnormal in patients with bulimia nervosa, but the evidence is far from conclusive.

**Frontostriatal** circuits are neural pathways that connect frontal lobe regions with the basal ganglia (striatum) that mediate motor, cognitive, and behavioural functions within the brain. They receive inputs from dopaminergic, serotonergic, noradrenergic, and cholinergic cell groups that modulate information processing. The strong association between bulimia nervosa and affective disorders together with the tendency of bulimic behavior to respond to antidepressant medication has led to the hypothesis that the disorder is the result of imbalance in the dopamine, norepinephrine, and serotonin systems in the brain.<sup>[11]</sup> Some studies have suggested that neuropeptides such as cholecystokinin, which regulate appetite and satiety in the brain, may be abnormal in patients with bulimia nervosa, but the evidence is far from conclusive.<sup>[12]</sup>



### What is binge eating?

Binge eating involves two key features

- Eating a very large amount of food within a relatively short period of time (e.g. within two hours)
- Feeling a sense of loss of control while eating (e.g. feeling unable to stop yourself from eating).

### What are compensatory behaviours?

Compensatory behaviours are used as a way of trying to control weight after binge eating episodes. They include:

- Vomiting
- Misusing laxatives or diuretics
- Fasting
- Excessive exercise
- Use of any drugs, illicit, prescription and/or 'over the counter' inappropriately for weight control (inappropriate use refers to use that is not indicated and for which the drug has not been prescribed).



### Major Types of Bulimia

There are two common types of bulimia nervosa, which are as follows:

- **Bulimia Nervosa Purging type** -This type of bulimia nervosa accounts for the majority of cases of those suffering from this eating disorder. In this form, individuals will regularly engage in self-induced vomiting or abuse of laxatives, diuretics, or enemas after a period of bingeing.
- **Bulimia Nervosa Non-purging type** -In this form of bulimia nervosa, the individual will use other

inappropriate methods of compensation for binge episodes, such as excessive exercising or fasting. In these cases, the typical forms of purging, such as self-induced vomiting, are not regularly utilized.<sup>[13]</sup>

### Signs and Symptoms

An individual suffering from bulimia nervosa may reveal several signs and symptoms, many which are the direct result of self-induced vomiting or other forms of purging, especially if the binge/purge cycle is repeated several times a week and/or day.<sup>[14]</sup>

The warning signs of BN can be physical, psychological and behavioural. It is possible for someone with BN to display a combination of these symptoms.

### Physical signs and symptoms

- Constant weight fluctuations (loss or gains)
- Signs of damage due to vomiting including swelling around the cheeks or jaw, calluses on knuckles, damage to teeth and bad breath
- Feeling bloated, constipated or developing intolerances to food
- Loss of or disturbance of menstrual periods in girls and women
- Fainting or dizziness
- Feeling tired and not sleeping well
- Constant weight fluctuations (loss or gains)
- Electrolyte imbalances, which can result in cardiac arrhythmia, cardiac arrest, or ultimately death
- Broken blood vessels within the eyes
- Enlarged glands in the neck and under the jaw line
- Oral trauma, such as lacerations in the lining of the mouth or throat from repetitive vomiting
- Chronic dehydration
- Inflammation of the oesophagus
- Chronic gastric reflux after eating or peptic ulcers
- Infertility<sup>[15]</sup>



### Calluses on knuckles

#### Psychological Signs and Symptoms

- Preoccupation with eating, food, body shape and weight.
- Sensitivity to comments relating to food, weight, body shape or exercise.
- Low self esteem and feelings of shame, self loathing or guilt, particularly after eating.

- Having a distorted body image (e.g. seeing themselves as overweight even if they are in a healthy weight range for their age and height)
- Obsession with food and need for control
- Depression, anxiety or irritability
- Extreme body dissatisfaction<sup>[16]</sup>.

### Behavioural Signs and Symptoms

- Evidence of binge eating (e.g. disappearance or hoarding of food).
- Vomiting or using laxatives, enemas, appetite suppressants or diuretics.
- Eating in private and avoiding meals with other people.
- Anti social behaviour, spending more and more time alone.
- Repetitive or obsessive behaviours relating to body shape and weight (e.g. weighing themselves repeatedly, looking in the mirror obsessively and pinching waist or wrists).
- Secretive behaviour around food (e.g. saying they have eaten when they haven't, hiding uneaten food in their rooms).<sup>[17]</sup>
- Compulsive or excessive exercising (e.g. exercising in bad weather, continuing to exercise when sick or injured, and experiencing distress if exercise is not possible).
- Dieting behaviour (e.g. fasting, counting calories/kilojoules, avoiding food groups such as fats and carbohydrates).
- Frequent trips to the bathroom during or shortly after meals which could be evidence of vomiting or laxative use.<sup>[18]</sup>
- Erratic behaviour (e.g. spending large amounts of money on food).
- Self harm, substance abuse or suicide attempts.
- Evidence of binge eating, including disappearance of large amounts of food in short periods of time or finding wrappers and containers indicating the consumption of large amounts of food.
- Evidence of purging behaviours, including frequent trips to the bathroom after meals, signs and/or smells of vomiting, presence of wrappers or packages of laxatives or diuretics.
- Excessive, rigid exercise regimen-despite weather, fatigue, illness, or injury, the compulsive need to "burn off" calories taken in.
- Unusual swelling of the cheeks or jaw area.<sup>[19]</sup>
- Calluses on the back of the hands and knuckles from self-induced vomiting.
- Discoloration or staining of the teeth.
- Creation of lifestyle schedules or rituals to make time for binge-and-purge sessions.
- Withdrawal from usual friends and activities.
- In general, behaviours and attitudes indicating that weight loss, dieting, and control of food are becoming primary concerns.
- Continued exercise despite injury; overuse injuries.



### Binge eating signs and symptoms

- **Lack of control over eating.** Unable to stop eating until the point of physical discomfort and pain.
- **Secrecy surrounding eating.** Going to the kitchen after everyone else has gone to bed. Going out alone on unexpected food runs.
- **Eating unusually large amounts of food** with no obvious change in weight.
- **Disappearance of food,** numerous empty wrappers or food containers in the garbage, or hidden stashes of junk food.
- **Alternating between overeating and fasting.** Rarely eating normal meals, it's all-or-nothing when it comes to food.
- **Purging signs and symptoms**
- **Going to the bathroom after meals.** Frequently disappearing after meals to throw up. Running water to disguise sounds of vomiting.
- **Using laxatives, diuretics, or enemas** after eating. Or taking diet pills or using the sauna to "sweat out" water weight.<sup>[20]</sup>
- **Smell of vomit.** The bathroom or even the person may smell like vomit. They may try to cover up the smell with mouthwash, perfume, air freshener, gum, or mints.
- **Excessive exercising** after eating. Typical activities include high-intensity calorie burners such as running or aerobics.

### Physical signs and symptoms

- **Calluses or scars on knuckles or hands** from sticking fingers down their throat to induce vomiting.
- **Puffy "chipmunk" cheeks** caused by repeated vomiting.
- **Discolored teeth** from exposure to stomach acid when throwing up. May look yellow, ragged, or clear.
- **Not underweight.** Men and women with bulimia are usually normal weight or slightly overweight. Being underweight while purging might indicate a purging type of anorexia.
- **Frequent fluctuations in weight,** by 10 pounds or more due to alternating bingeing and purging.<sup>[21]</sup>

**Table 2.** Oral manifestations of eating disorders and resulting malnourishment.

Eating Disorder	Characteristic Habits	Resulting Oral Risk Factor	Oral Manifestations
Anorexia nervosa	Restrictive	Poor oral hygiene due to exhaustion	Increased risk of periodontal diseases and caries
		Malnourishment	Increased risk of periodontal diseases Soft tissue lesions Angular cheilitis Candidiasis Glossitis
	Purging via vomiting	May exhibit within 1 week: • parotid gland enlargement • salivary dysfunction	Increased risk of caries and/or burning tongue and mouth due to xerostomia
Bulimia nervosa		Increased acidity in oral cavity as a result of high acidity of stomach fluids in the vomitus	Tooth enamel erosion, classically on the lingual surfaces of the maxillary anteriors, may be noted after 6 months resulting in increased risk of caries and tooth sensitivity
Binge eating disorder	Binging	Malnourishment	Risk of soft tissue lesions and periodontal diseases
Night eating syndrome		Increased consumption of fermentable carbohydrates at times of low salivary rate	Increased risk of caries

Dimensions of Dental Hygiene May 2012

### Risk factors for bulimia include

- **Poor body image,** particularly when paired with strict dieting.
- **Low self-esteem,** often stemming from depression, perfectionism, or a critical home environment.
- **Stressful life changes-** starting a new job or going through puberty.
- **History of trauma or abuse-**This includes things such as sexual assault, childhood neglect or abuse, troubled family relationships, or the death of a loved one.<sup>[22]</sup>
- **Heartburn**
- Inflammation of esophagus
- Osteoporosis
- Irregular or slow heartbeat, which can lead to increased risk of heart failure.<sup>[23]</sup>

**Electrolyte levels usually associated with vomiting, laxative abuse, and diuretic abuse**

Method of purging	Serum levels					Urine levels		
	Sodium	Potassium	Chloride	Bicarbonate	pH	Sodium	Potassium	Chloride
<b>Vomiting</b>	↑↓=	↓	↓	↑	↑	↓	↓	↓
<b>Laxatives</b>	↑=	↓	↑↓	↑↓	↑↓	↓	↓	↓=
<b>Diuretics</b>	↓=	↓	↓	↑	↑	↑	↑	↑

Note. Table adapted from "Medical complications of bulimia nervosa and their treatments," by P.S. Mehler, *International Journal of Eating Disorders*, 44:95-104. Copyright 2011 by John Wiley & Sons. Science of Eating Disorders || www.scienceofeds.org

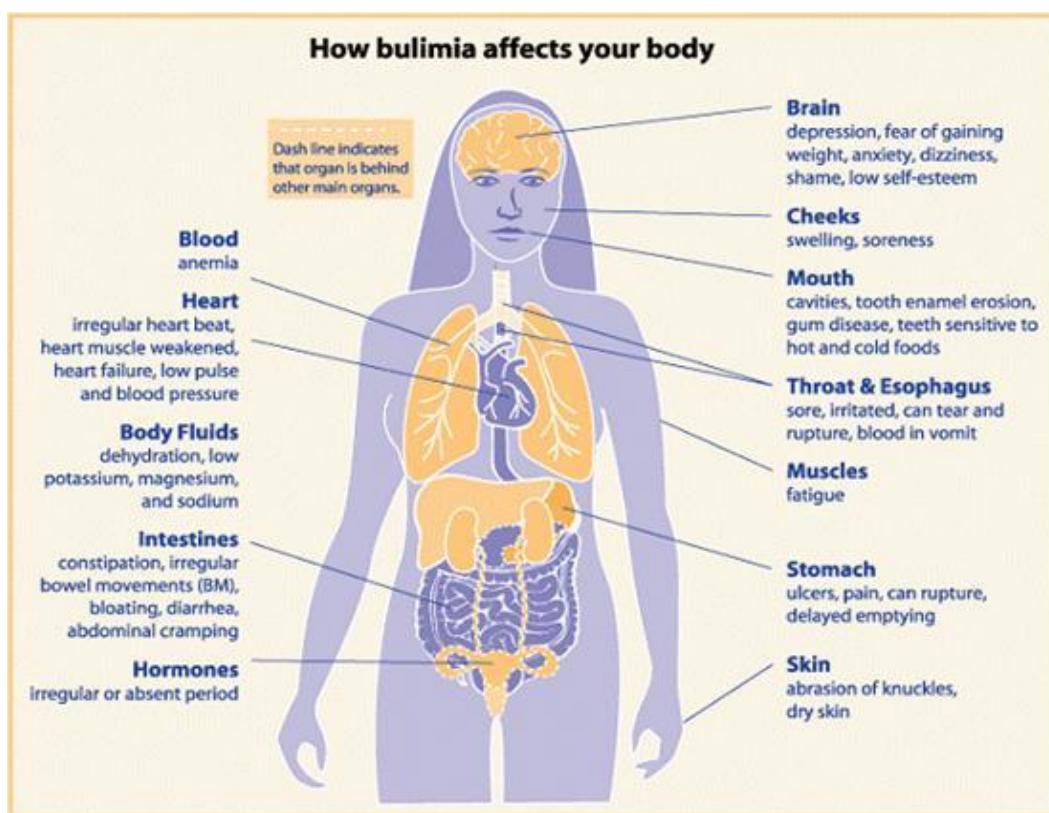
### Effects of bulimia

- When you are living with bulimia, you are putting your body—and even your life—at risk. The most

dangerous side effect of bulimia is dehydration due to purging.<sup>[24]</sup> Vomiting, laxatives, and diuretics can cause electrolyte imbalances in the body, most

commonly in the form of low potassium levels. Low potassium levels trigger a wide range of symptoms ranging from lethargy and cloudy thinking to irregular heartbeat and death. Chronically low levels

of potassium can also result in kidney failure. Using ipecac syrup is also very dangerous and can cause sudden death.



- **Source:** *National Women's Health Information Center*

### Complications

Associated Co-morbidities

Oftentimes bulimia nervosa is also associated with mental health disorders, such as

- Depression
- Anxiety
- Substance Abuse

### Psychiatric Comorbidity

There is a high association of affective disorders with bulimia nervosa, with lifetime rates of over 80%. Major depression is most common, occurring in one-third of patients with bulimia nervosa and more than one-half of patients with mixed bulimia nervosa and anorexia nervosa.<sup>[25]</sup> Depression may precede, follow, or coincide with bulimia. Studies suggest that depression and bulimia operate independently, although both tend to improve with treatment. Anxiety disorders including generalized anxiety disorder, panic disorder, obsessive-compulsive disorder, social phobia, and posttraumatic stress disorder occur in nearly 60% of cases. Patients with bulimia nervosa also have a significant lifetime risk for alcohol and substance abuse, which may be concurrent with their eating disorder.<sup>[26]</sup>

Personality disorders are commonly associated with bulimia nervosa, with rates ranging from 22% to 77% in published studies.<sup>[27]</sup> Cluster B (dramatic) personality disorders including borderline personality disorder are most common, but Cluster C (anxious) personality disorders, including avoidant personality disorder, are frequently diagnosed.<sup>[28]</sup>

### Medical Complications

The most serious medical complications of bulimia nervosa are caused by the cardiovascular effects of fluid and electrolyte imbalance<sup>[29]</sup> Purging behavior, including vomiting and laxative and diuretic abuse, may cause life-threatening cardiac arrhythmias. Orthostatic hypotension associated with light-headedness and dizziness; headaches, insomnia, and fatigue; dental caries and erosion of tooth enamel; and gastritis and esophagitis are common.<sup>[30]</sup> Benign enlargement of the parotid and salivary glands occurs in about 25% of patients. The presence of a skin lesion on the back of the hand is a frequent sign of active behavior. In addition to hypokalemia, blood tests may show hypomagnesemia, disturbances in acid-base balance, and elevated serum amylase.<sup>[31]</sup> Electrocardiogram changes such as ST segment depression and U waves may occur. Cardiomyopathy from emetine poisoning may develop in patients who use ipecac syrup to induce vomiting and may result in death. Patients who use baking soda to

induce vomiting are at risk for developing life-threatening acid-base imbalance. Patients with bulimia

nervosa are at increased risk for developing seizures. They may have irregular menses or be amenorrhic.<sup>[32]</sup>

<b>Medical Complications of Bulimia Nervosa</b>					
<b>Organ System</b>	<b>Complication</b>	<b>Organ System</b>	<b>Complication</b>		
Cardiovascular	Bradycardia	Pulmonary	Cathartic colon		
	Orthostasis/hypotension		Melanosis coli		
	EKG abnormalities		Hypokalemic ileus		
	Arrhythmias (usually secondary to hypokalemia)		Steatorrhea and protein-losing gastroenteropathy (secondary to laxative abuse)		
	Congestive heart failure		Abnormal liver enzymes		
	Myocarditis (secondary to ipecac abuse)		Aspiration pneumonitis (secondary to self-induced vomiting)		
	Hypokalemic cardiomyopathy		Pneumomediastinum		
	Cardiomyopathy/myopathy secondary to ipecac		Dermatologic	Russell's sign (finger calluses and abrasions)	
	Sudden cardiac death			Fluid and Electrolytes	Dehydration
	?-idiopathic edema (secondary to diuretic abuse)				Hypokalemia
?-increased incidence of mitral valve prolapse	Hypochloremia				
Endocrine	Nonsuppression on dexamethasone suppression test	Renal	Metabolic alkalosis		
	Irregular menses		Metabolic acidosis (usually secondary to laxative abuse)		
	Abnormal serotonin metabolism		Hyponatremia		
	Hypoglycemia		Hypocalcemia (rare)		
	?-blunting of TSH response to TRH		Hypophosphatemia (rare)		
	?-blunting of GH response to TRH		Hypomagnesemia		
	?-elevated fasting prolactin levels		Neurological	Reduced glomerular filtration rate	
	?-failure of GH to suppress in response to oral glucose			Tubular dysfunction	
	Increased platelet alpha 2-adrenergic receptor density			Kallopenic nephropathy	
	?-low estradiol levels, abnormal luteal phase, low progesterone levels			Elevation of BUN	
Gastrointestinal	Salivary/parotid gland hypertrophy	Dental	Pyuria, hematuria		
	Hyperamylasemia		Proteinuria		
	Pancreatitis	Other	Polydipsia, polyuria		
	Esophageal perforation		?-EEG abnormalities		
	Esophagitis		Enamel erosion		
	Mallory-Weiss tears		?-Increased incidence of caries		
	Delayed gastric emptying		Periodontal disease		
	Gastric dilatation and rupture		Disordered thermoregulation		
Constipation	Vitamin K deficient coagulopathy				

### Differential Diagnosis

The DSM-IV diagnostic criteria for bulimia.

- A. Recurrent episodes of binge eating. An episode of binge eating is characterized by both of the following:
1. Eating, in a discrete period of time (e.g., within any 2-hour time period), an amount of food that is definitely larger than what most individuals would eat in a similar period of time under similar circumstances.
  2. A sense of lack of control over eating during episode (e.g., a feeling that one cannot stop eating or control what or how much one is eating).
- B. Recurrent inappropriate compensatory behaviors in order to prevent weight gain, such as self-induced vomiting; misuse of laxatives, diuretics, or other medications; fasting; or excessive exercise.
- C. The binge eating and inappropriate compensatory behaviors both occur, on average, at least once a week for 3 months.
- D. Self-evaluation is unduly influenced by body shape and weight.
- E. The disturbance does not occur exclusively during episodes of anorexia nervosa.
- Specify if:
- In partial remission:** After full criteria for bulimia nervosa were previously met, some, but not all, of the criteria have been met for a sustained period of time.
- In full remission:** After full criteria for bulimia nervosa were previously met, none of the criteria have been met for a sustained period of time.
- Specify current severity:
- The minimum level of severity is based on the frequency of inappropriate compensatory behaviors (see below). The level of severity may be increased to reflect other symptoms and the degree of functional disability.
- Mild: An average of 1–3 episodes of inappropriate compensatory behaviors per week.
- Moderate: An average of 4–7 episodes of inappropriate compensatory behaviors per week.
- Severe: An average of 8–13 episodes of inappropriate compensatory behaviors per week.
- Extreme: An average of 14 or more episodes of inappropriate compensatory behaviors per week.

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If the patient also satisfies the diagnostic criteria for schizophrenia or anorexia nervosa, that should be the diagnosis.<sup>[33]</sup> Severe weight loss does not occur in bulimia, and amenorrhea is unusual.

In diagnosing bulimia, it is necessary to rule out neurological disease, such as epileptic-equivalent seizures, central nervous system tumors, Kluver-Bucy-like syndromes and Kleine-Levin syndrome. Kluver-Bucy syndrome includes visual agnosia, compulsive licking and biting, exploration of objects by mouth,

inability to ignore any stimulus, placidity, hypersexuality, and hyperphagia.<sup>[34]</sup> This syndrome is very rare and unlikely to present a problem in differential diagnosis. Kleine-Levin syndrome occurs chiefly in males and is characterized by hyperphagia and periods of hypersomnia lasting 2-3 weeks.<sup>[35]</sup>

### Treatment

Treatment approaches to bulimia nervosa are outlined as follows

#### Treatment Approaches and Goals

##### Approaches:

1. An active approach by the therapist, but one that allows and rewards self-initiated behavior (Bruch, 1976, 1977).
2. An approach that confirms the importance of the bulimic's impressions and begins to correct distortions (Bruch, 1976, 1977).
3. A group therapeutic model that reduces isolation and promotes social reinforcement (White 1981).

##### Goals

1. To develop trust in self and the group.
2. To learn to identify, experience, and express feelings.
3. To understand the legitimacy of feelings, even those that are negative, and learn assertive behaviors.
4. To develop more awareness of non-verbal behaviors, and use this to help identify feelings, using:
  - a. feedback from the group;
  - b. self-analysis of videotape replays.
5. To look at family patterns that contributed, feel them, and let them go.
6. To begin to develop a frustration tolerance; recognize anxiety as a legitimate feeling.
7. To assume responsibility for their own behaviors.
8. To consider what maintaining the disorder does for them.

Multiple studies have been published describing the efficacy of both psychotherapy and psychopharmacology in the treatment of bulimia nervosa.

Dynamically based psychotherapies, particularly those that focus on interpersonal conflicts, eg, assertiveness, negotiation of needs, intimacy fears, etc, are effective, but cognitive-behavioral therapies are by far the most studied.<sup>[36]</sup> Such therapies focus on the thought patterns and feeling states that lead to episodes of binge eating and purging with special emphasis on attitudes pertaining to body weight and shape. Coping strategies for handling the feelings associated with these attitudes, such as maintaining a food journal that includes both "what you are eating, and what's eating you," are suggested to the patient. Patients are expected to eat structured meals and their irrational fears regarding weight gain are addressed.<sup>[37]</sup> Obsessive preoccupation with body shape and size is challenged, as patients are helped to better tolerate painful affect, and to be more direct in interpersonal problem solving.

The most dramatic reports of treatment success are of studies using pharmacological therapies, with antidepressant medications being particularly

effective.<sup>[38]</sup> Tricyclic antidepressants, monoamine oxidase inhibitors, and selective serotonin reuptake inhibitors such as fluoxetine, sertraline, and paroxetine have all shown efficacy in the treatment of bulimia nervosa, with responses ranging between reduction of binge eating and/or purging behavior to complete remission of symptoms.<sup>[39]</sup> The antidepressant venlafaxine and the antiobsessional drug fluvoxamine also have proven efficacy.<sup>[40]</sup> The antidepressant bupropion is contraindicated in anorexia nervosa and bulimia nervosa because of an increased risk of seizures. Studies show that if one antidepressant is ineffective or poorly tolerated, a trial of an alternative antidepressant may be successful.<sup>[41]</sup> Mood-stabilizing drugs such as carbamazepine and valproic acid are sometimes helpful (lithium is contraindicated because of the electrolyte imbalance that is commonly present in bulimia nervosa). Anxiolytics may also play a helpful role in some cases, but their potential for abuse necessitates careful monitoring.<sup>[42]</sup>

### Nonpharmacological treatment

1. As a possible first step, patients should be encouraged to participate in an evidence based self help program. With support and encouragement,



some patients with bulimia may find that an evidence based self help program alone produces effective recovery and remission.

2. Patients with bulimia should also be encouraged to get cognitive behavioral therapy for bulimia nervosa (CBT – BN), which is a form of cognitive behavioral therapy which is specifically designed to treat people with this eating disorder. An average course of treatment with CBT – BN consists of 16 to 20 sessions over a 4 or 5 month period.<sup>[43]</sup>
3. If cognitive behavioral therapy (CBT) doesn't work (or if people do not want CBT) then other forms of therapy should be suggested.
4. Interpersonal therapy is another effective treatment for bulimia, but patients should be informed that gains are typically made more slowly in interpersonal therapy than in CBT –BN. A typical course of interpersonal therapy for bulimia will proceed over 8 to 12 months.
5. Patients who have been purging heavily with laxatives or through vomiting may need to have their electrolyte balance checked. In most cases, reducing the purging behaviors is sufficient to restore an electrolyte balance, although a small percentage of patients may need medical intervention to restore balance.<sup>[44]</sup>
6. The great majority of patients with bulimia can be treated on an outpatient basis.
7. Inpatient treatment may be necessary for patients at risk of self harm behaviors or those with suicidal thoughts or intentions. If inpatient care is warranted it should occur at a facility which specializes in treating eating disorders.<sup>[45]</sup>
8. Patients with bulimia may also present with substance abuse problems. People with substance abuse problems are less likely to respond well to a standard program of care and treatment should be adapted to match the situation of the individual patient.<sup>[46]</sup>
9. Nutritional counselling.
10. Stress management.

### Pharmacologic Treatments

Food and Drug Administration (FDA) approved treatment.

Fluoxetine (Prozac): Initial dose 20 mg/d with advance over 1-2 weeks to 60 mg/d in the morning as tolerated. Some patients may need to begin at a lower dose if side effects are intolerable. A maximum dose of 80 mg/d may be used in some cases.<sup>[47]</sup>

Other evidence-based pharmacologic treatments.

### Antidepressants

Antidepressants as a group are the mainstay of pharmacotherapy for bulimia nervosa. These may be helpful for patients with substantial concurrent symptoms of depression, anxiety, obsessions, or certain impulse disorder symptoms.<sup>[48]</sup> They may be particularly good for patients who have not benefited from or had suboptimal response to suitable psychosocial therapy or

who have a chronic, difficult course in combination with other treatments.<sup>[49]</sup>

Among the antidepressants, the strongest evidence for efficacy with the fewest adverse effects has been associated with selective serotonin reuptake inhibitors (SSRIs). As mentioned above, only fluoxetine (Prozac) is approved by the FDA for the treatment of bulimia nervosa.<sup>[50]</sup> Sertraline (Zoloft) at 100 mg or higher dose/day is the only other SSRI shown to be effective, as demonstrated in a small, randomized controlled trial. Fluvoxamine and citalopram have also shown benefit. However, recent current FDA guidance advises that citalopram not be prescribed in doses over 40 mg/d, which may be suboptimal for many patients. The exact mechanisms underlying the efficacy of antidepressants in bulimia nervosa are unclear, but the effects are presumed to be mediated through their salutary impact on cerebral serotonin systems.<sup>[51]</sup> Higher doses of SSRIs require more vigilance regarding side effects, though they appear to be well tolerated in this population.

Bupropion (Wellbutrin) is relatively contraindicated in the treatment of bulimia nervosa because of a higher risk of seizures in patients with eating disorders associated with this medication.<sup>[50]</sup>

Tricyclic antidepressants (TCAs) and monoamine oxidase inhibitors (MAOIs) have been shown to be effective in small randomized controlled trials in patients with bulimia nervosa, but due to higher risks of adverse effects and toxicity in overdose they are not recommended as initial treatments.<sup>[53]</sup>

- Desipramine and imipramine (up to 300mg/d)

The most recent update of *Antidepressants versus placebo for people with bulimia nervosa* in the Cochrane Database of Systematic Reviews included TCAs, SSRIs, MAOIs, and other classes of drugs (mianserin, trazodone, bupropion).<sup>[54]</sup> Similar results were obtained in terms of efficacy for the different groups of drugs. Patients with TCAs dropped out due to any cause more frequently than patients with placebo, and the opposite was found for fluoxetine.

### Mood stabilizers

- **Topiramate:** Small controlled trials have demonstrated efficacy of this anticonvulsant medication, but since adverse reactions are common, topiramate should be used only when other medications have proven ineffective.<sup>[55]</sup> Since patients tend to lose weight on topiramate, its use is problematic for normal or underweight patients. Topiramate is useful for short-term treatment of binge eating disorder as it improves binge frequency and decreases weight. Open label studies also suggest that topiramate may be efficacious in the long term, but this remains to be conclusively demonstrated.<sup>[56]</sup>

- **Lithium:** Lithium has not been demonstrated to be very effective for bulimia nervosa. In patients with co-occurring bipolar disorder and bulimia nervosa, lithium treatment is particularly difficult to manage because of the risk of frequent and major fluid shifts and associated toxicity.<sup>[57]</sup> As well, some patients have weight gain with lithium, which would have to be aggressively managed if the patients stay on the medication.<sup>[58]</sup>
- **Valproic acid:** Since weight gain is often associated with valproic acid treatment, this medication is often unacceptable to patients with eating disorders who are weight preoccupied, but it is an option for patients who fail other treatments.<sup>[59]</sup>

### Miscellaneous

In small studies, ondansetron, baclofen, and an antiandrogenic oral contraceptive have been shown to have some use as alternative pharmacotherapeutic options in the management of bulimia nervosa.<sup>[60]</sup> Trials investigating naltrexone (ReVia) have shown mixed results, and venlafaxine has not been shown to be beneficial.

Clinicians must be aware of the black box warnings relating to antidepressants and other medications to discuss the potential benefits and risks as part of the consent process with patients and families if such medications are to be prescribed.<sup>[60]</sup> See the statement on Antidepressant Use in Children, Adolescents, and Adults by the Food and Drug Administration.

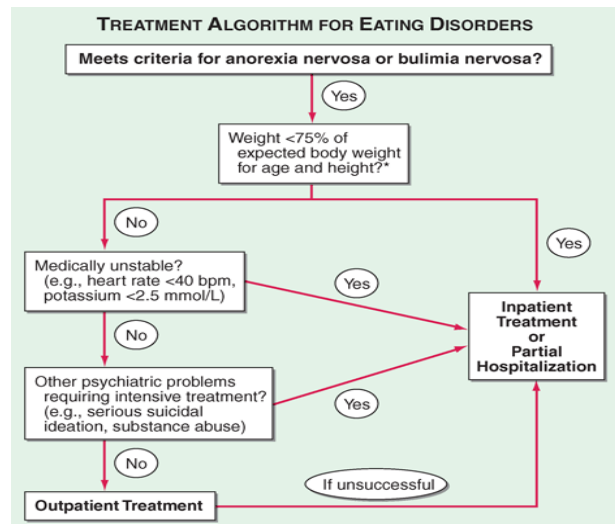
Case reports indicate that methylphenidate may be helpful for patients with bulimia nervosa and concurrent ADHD.

Trials of traditional and nontraditional medication treatments have to be weighed in terms of potential for drug interactions, the medical complications of BN, and the medical comorbidities of BN<sup>[61]</sup>

### Combination treatment

Patients with bulimia nervosa often benefit more from combinations of psychotherapy and pharmacotherapy than from either treatment alone, particularly in the presence of a comorbid depressive disorder, which is seen in the majority of cases. For uncomplicated bulimia nervosa, CBT alone is superior to pharmacotherapy alone.<sup>[62]</sup>

- **Antidepressants-**
  - ✓ SSRI-
    - Fluoxetine (60 mg/day) - Six trials- Fluoxetine was associated with significant improvements in measures of restraint, weight concern, and food preoccupation
    - Fluvoxamine (150-200 mg/day)/ Sertaline(100 mg/day)- statistically significant reduction in the number of binge eating crises and purging compared with the group who received placebo
    - Trazodone (400 mg/day)- also may be helpful
  - ✓ TCA- dropped out more frequently
    - Desipramine (200-300 mg/day)- decreasing binge eating, vomiting, and scores on EAT



Source: Longo DL, Fauci AS, Kasper DL, Hauser SL, Jameson JL, Loscalzo J: *Harrison's Principles of Internal Medicine, 18th Edition*: www.accessmedicine.com  
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### Bulimia recovery tip 1: Break the binge and purge cycle.

The first step in bulimia recovery is stopping the vicious cycle of bingeing and purging. In order to do this, it's essential that you quit trying to diet. Dieting triggers bulimia's destructive cycle of bingeing and purging.<sup>[63]</sup> The irony is that the stricter the diet, the more likely it is that you'll become preoccupied, even obsessed, with food. When you starve yourself, your body responds with powerful cravings-its way of asking for needed nutrition.<sup>[64]</sup>

As the tension, hunger, and feelings of deprivation build, the compulsion to eat becomes too powerful to resist: a "forbidden" food is eaten; a dietary rule is broken.<sup>[65]</sup> With an all-or-nothing mindset, you feel any diet slip-up is a total failure. After having a bite of ice cream, you might think, "I've already blown It, so I might as well go all out."

Unfortunately, the relief that bingeing brings is extremely short-lived. Soon after, guilt and self-loathing set in. And so you purge to make up for bingeing to regain control.<sup>[66]</sup> But purging only reinforces binge eating. Though you may tell yourself this is the last time, in the back of your mind there's a voice saying you can always throw up or use laxatives if you lose control again.<sup>[67]</sup> However, purging doesn't come close to wiping the slate clean after a binge.

### Purging does NOT prevent weight gain

Purging isn't effective at getting rid of calories, which is why most people suffering with bulimia end up gaining weight over time. Vomiting immediately after eating won't eliminate more than 50% of the calories consumed - usually much less.<sup>[68]</sup> This is because calorie absorption begins the moment you put food in the mouth. Laxatives and diuretics are even less effective. Laxatives get rid of only 10% of the calories eaten, and diuretics none at all. You may weigh less after taking them, but that lower

number on the scale is due to water loss, not true weight loss.<sup>[69]</sup>

### Tip 2: Develop a healthier relationship to food

Once you stop trying to restrict calories and follow strict dietary rules, you will no longer be overwhelmed with cravings and thoughts of food. By eating normally, you can break the binge-and-purge cycle and still reach a healthy, attractive weight.

**Pay attention to your hunger.** Don't wait until you're starving. This only leads to overeating! Eat as soon as you notice you're feeling moderately hungry.

**Eat regularly.** Don't skip meals. Try not to let over 4 hours pass without a meal or snack.

**Don't restrict foods.** When something is off limits, it becomes more tempting. Instead of saying "I can never eat ice cream," say "I will eat ice cream as an occasional treat."

**Focus on what you're eating.** How often have you binged in an almost trance-like state, not even enjoying what you're consuming? Instead of eating mindlessly, be a mindful eater. Slow down and savor the textures and flavors. Not only will you eat less, you'll enjoy it more.

### Tip 3: Learn to tolerate unpleasant feelings

While bingeing is often triggered by overly strict dieting that backfires, it can also be a way to control or numb unpleasant moods or feelings.

The next time you feel the urge to binge, ask yourself if there's something else going on. Is there an intense feeling you're trying to avoid? Are you eating to calm down, comfort yourself, or to relieve boredom? If so, instead of using food as a distraction, take a moment to stop whatever you're doing and investigate what's going on inside.

**Identify the emotion you're feeling.** Is it anxiety? Shame? Hopelessness? Anger? Loneliness? Fear? Emptiness?

**Accept the experience you're having.** Avoidance and resistance only make negative emotions stronger. Instead, try to accept what you're feeling without judgement.

**Dig deeper.** Explore what's going on. Where do you feel the emotion in your body? What kinds of thoughts are going through your head?

**Distance yourself.** Realize that you are NOT your feelings. Emotions are passing events, like clouds moving across the sky. They don't define who you are.

Sitting with your feelings may feel extremely uncomfortable at first. Maybe even impossible. But as

you resist the urge to binge, you'll start to realize that you don't have to give in. Even emotions that feel intolerable are only temporary. They'll quickly pass if you stop fighting them. You're still in control. You can choose how to respond.

For a step-by-step guide to learning how to manage stress and uncomfortable emotions, check out HelpGuide's free Emotional Intelligence Toolkit.

### Tip 4: Challenge dysfunctional thoughts

The bingeing and purging of bulimia is often fueled by dysfunctional, self-sabotaging ways of thinking that undermine your confidence, color everything in an unrealistically negative light, and make you feel helpless, inadequate, and ashamed. But you can learn to put a stop to these unhealthy mental habits.<sup>[70]</sup>

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