

Diagnosis of Eating Disorders in Primary Care

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Eating disorders, particularly anorexia nervosa and bulimia nervosa, are significant causes of morbidity and mortality among adolescent females and young women. Eating disorders are associated with devastating medical and psychologic consequences, including death, osteoporosis, growth delay, and developmental delay. Prompt diagnosis is linked to better outcomes. A good medical history is the most powerful tool. Simple screening questions, such as "Do you think you should be dieting?" can be integrated into routine visits. Physical findings such as low body mass index, amenorrhea, bradycardia, gastrointestinal disturbances, skin changes, and changes in dentition can help detect eating disorders. Laboratory studies can help diagnose these conditions and exclude underlying medical conditions. The family physician can play an important role in diagnosing these illnesses and can coordinate the multidisciplinary team of psychiatrists, nutritionists, and other professionals to successfully treat patients with eating disorders. (Am Fam Physician 2003;67:297-304,311-2. Copyright© 2003 American Academy of Family Physicians.)

📄 A patient information handout about eating disorders, written by the authors of this article, is provided on page 311.



Members of various family practice departments develop articles for "Problem-Oriented Diagnosis." This is one in a series from the Department of Family Medicine at the University of Cincinnati College of Medicine. Guest coordinator of the series is Susan Montauk, M.D.

See page 237 for definitions of strength-of-evidence levels.

Eating disorders are among the most common psychiatric problems that affect young women,¹ and these conditions impose a high burden of morbidity and mortality. Unfortunately, the diagnosis of eating disorders can be elusive, and more than one half of all cases go undetected.² The family physician's office is an ideal setting to identify eating disorders and initiate treatment in a timely fashion. This review focuses on recognition and diagnosis of eating disorders in primary care. A comprehensive review of treatment and other aspects of these conditions is available in the American Psychiatric Association's practice guideline on the treatment of eating disorders.³

Epidemiology

Eating disorders occur most commonly in adolescents and young adults and are 10 times more common in females than in males. They occur in all ethnic groups but are most common among whites in industrialized nations. The principal eating disorders are anorexia nervosa,

bulimia nervosa, and nonspecified eating disorder. Anorexia has two subtypes—restricting type and binge-eating/purging type. Bulimia also has two subtypes—purging and nonpurging.

In young women, the risk of developing anorexia is 0.5 to 1 percent, and mortality is estimated at 4 to 10 percent.^{4,5} In the same population, the risk of developing bulimia is 2 to 5 percent,^{1,6} and the incidence of disordered eating that does not meet strict criteria for eating disorders may be twice that of the above conditions.² Frequent dieting and desire for weight loss occur much more commonly than overt eating disorders. In 1999, the Youth Risk Behavior Surveillance Survey⁷ reported that 58 percent of students in the United States had exercised to lose weight, and 40 percent of students had restricted caloric intake in an attempt to lose weight. Many adolescents and young adults who do not meet the strict diagnostic criteria for eating disorders have disordered eating patterns, which can have a significant adverse impact on health. The distinction between normal dieting and disor-

It is important to aggressively treat patients who have traits of eating disorders but who do not meet the full criteria for anorexia or bulimia.

dered eating is based on whether the patient has a distorted body image.

Etiology

Risk factors for developing an eating disorder include participation in activities that promote thinness, such as ballet dancing, modeling, and athletics,⁴ and certain personality traits, such as low self-esteem, difficulty expressing negative emotions, difficulty resolving conflict, and being a perfectionist.¹ Eating disorders are particularly common in

young women with type 1 diabetes mellitus. Up to one third of women with type 1 diabetes may have eating disorders, and these women are at especially high risk of microvascular and metabolic complications.⁸

The role of family history in the development of eating disorders is not clear. Some studies⁹ of twins demonstrate a strong link, and others demonstrate no correlation. A family history of mood disorders in a first-degree relative also might be a risk factor.⁵

Diagnosis

Early diagnosis with intervention and earlier age at diagnosis are correlated with improved outcomes in patients who have eating disorders.⁵ Because family physicians serve as primary care providers for a large percentage of adolescents, they have an important role in diagnosing these disorders.

The hallmark of anorexia is a refusal to maintain body weight at or above 85 percent of expected weight, as defined by age-appropriate body mass index charts. Patients with anorexia use caloric restriction or excessive exercise to control emotional need or pain, and they are terrified of becoming overweight. Patients with nonpurging-type bulimia also might severely restrict calories or exercise excessively to lose weight but do not meet the weight criteria for diagnosis of anorexia.

Bulimia is characterized by uncontrollable binge-eating episodes, often followed by purging behaviors such as vomiting or the use of laxatives. Patients with binge-eating/purging-type anorexia also might binge and purge. Patients who have bulimia may be of normal weight, or they may be under- or overweight, whereas patients with binge-eating/purging-type anorexia are underweight.

Both of the major eating disorders are characterized by a disturbance in the perception of body shape, which is closely tied to self-image. Summaries of diagnostic criteria for anorexia and bulimia are provided in *Tables 1 and 2*.¹⁰ It is also important to aggressively treat patients who have traits of eating disorders

TABLE 1

Diagnostic Criteria for Anorexia Nervosa

- A. Refusal to maintain body weight at or above a minimally normal weight for age and height (e.g., weight loss leading to body weight less than 85 percent of that expected; or failure to make expected weight gain during period of growth, leading to body weight less than 85 percent of that expected)
- B. Intense fear of gaining weight or becoming overweight, even though patient is underweight
- C. Disturbance in the way in which one's body weight or shape is experienced, undue influence of body weight or shape on self-evaluation, or denial of the seriousness of the current low body weight
- D. Amenorrhea in postmenarchal females (i.e., the absence of at least three consecutive menstrual cycles. A woman is considered to have amenorrhea if her periods occur only following hormone administration.)

Specify type:

Restricting type: during the current episode, the patient has not regularly engaged in binge eating or purging (i.e., self-induced vomiting or the misuse of laxatives, diuretics, or enemas)

Binge-eating/purging type: during the current episode, the patient has regularly engaged in binge eating or purging

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but who do not meet the full criteria for anorexia or bulimia.¹¹

Differential Diagnosis

A wide variety of medical problems can masquerade as eating disorders. Hyperthyroidism, malignancy, inflammatory bowel disease, immunodeficiency, malabsorption, chronic infections, Addison's disease, and diabetes should be considered before making a diagnosis of an eating disorder. Most patients with a medical condition that leads to eating problems express concern over their weight loss. However, patients with an eating disorder have a distorted body image and express a desire to be underweight.¹⁰

Psychiatric comorbidity is extremely common; illnesses such as affective disorders, obsessive-compulsive disorder, somatization disorder, and substance abuse must be considered when patients present with such symptoms.¹²

Major depression is the most common comorbid condition among patients with anorexia, with a lifetime risk as high as 80 percent.⁵ Anxiety disorders, especially social phobia, also are common.⁵ Obsessive-compulsive disorder has a prevalence of 30 percent among patients with eating disorders.¹³ Substance abuse prevalence is estimated at 12 to 18 percent in patients with anorexia and 30 to 70 percent in patients with bulimia.¹⁴

Personality disorders (Axis II diagnoses) also are common, with comorbidity rates reported at 21 to 97 percent.¹⁵ The wide range is related to the complexity of evaluating these diagnoses. Patients with bulimia are more likely to have a cluster B diagnosis (dramatic/erratic), whereas patients with anorexia are more likely to have a cluster C diagnosis (avoidant/anxious).¹⁵

Screening Tools

All patients in high-risk categories for eating disorders should be screened during routine office visits.¹⁶ The medical history is the most powerful tool for diagnosing eating disorders. Physical examination and laboratory

Patients with eating disorders have very high rates of comorbid psychiatric conditions.

findings might be normal, especially early in the course of eating disorders.

A number of comprehensive psychiatric interviews can be used to diagnose eating disorders,^{17,18} but these are impractical in the primary care setting. One promising screening tool is the SCOFF questionnaire (*Table 3*).¹⁹ Because of its 12.5 percent false-positive rate, this test is not sufficiently accurate for diagnosing eating disorders, but it is an appropriate screening tool.

TABLE 2
Diagnostic Criteria for Bulimia Nervosa

- A. Recurrent episodes of binge eating. An episode of binge eating is characterized by both of the following:
 - (1) In a discrete period of time (e.g., within any two-hour period), eating an amount of food that is larger than what most people would eat during a similar period of time and under similar circumstances
 - (2) A sense of lack of control over eating during the episode
- B. Recurrent inappropriate compensatory behavior in order to prevent weight gain, such as self-induced vomiting; misuse of laxatives, diuretics, enemas, or other medications; fasting; or exercising excessively
- C. The binge eating and inappropriate compensatory behaviors both occur, on average, at least twice a week for three 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 type:

Purging type: during the current episode, the patient has regularly engaged in self-induced vomiting or the misuse of laxatives, diuretics, or enemas

Nonpurging type: during the current episode, the patient has used inappropriate compensatory behaviors, such as fasting or exercising excessively, but has not regularly engaged in self-induced vomiting or the use of laxatives, diuretics, or enemas

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TABLE 3
SCOFF Questions

- Do you make yourself **S**ick (induce vomiting) because you feel uncomfortably full?
- Do you worry that you have lost **C**ontrol over how much you eat?
- Have you recently lost more than **O**ne stone (14 lb [6.4 kg]) in a three-month period?
- Do you think you are too **F**at, even though others say you are too thin?
- Would you say that **F**ood dominates your life?

One point for every yes answer; a score ≥ 2 indicates a likely case of anorexia nervosa or bulimia nervosa (sensitivity: 100 percent; specificity: 87.5 percent).

*Reprinted with permission from Morgan JF, Reid F, Lacey JH. The SCOFF questionnaire: assessment of a new screening tool for eating disorders. *BMJ* 1999; 319:1467.*

Other screening questions that might be helpful are listed in *Table 4*.^{18,20} Positive responses to any of these questions should prompt further investigation with a more comprehensive questionnaire. When screening patients, it is important to take their developmental stage into account; some questions might be inappropriate for younger patients.

History and Presenting Symptoms

Patients with eating disorders can have a wide range of symptoms. Those with milder illness might have nonspecific complaints, such as fatigue, dizziness, or lack of energy.⁴ Patients might deny that they have symptoms, but their family members might express concern. Patients who have anorexia typically will be unconcerned about significant weight loss. Other symptoms that might be reported or elicited include amenorrhea, sore throat, gastroesophageal reflux disease, abdominal pain, cold intolerance, constipation, polyuria, polydipsia, and palpitations.

When taking a medical history, it is also important to take a dietary history to ask about the use of laxatives or diuretics. *Table 5* compares important clinical features of anorexia and bulimia.

When obtaining a history, it is important to establish trust and rapport with the patient, especially when the patient does not perceive a problem. Talking to the family and patient together, as well as talking to the patient individually, is appropriate. If the patient is an adolescent, questions must be asked in a developmentally appropriate, precise, non-judgmental way.²¹

Physical Examination

Complications of anorexia and bulimia can affect nearly every organ system. However, many patients might have a completely normal physical examination, especially early in the disorder. It is important to explain to patients and their families that a normal physical examination does not rule out an eating disorder.

Accurate weight measurements are important in diagnosing an eating disorder. Abnormal growth curves, especially in children and adolescents, can be revealing. A patient who

TABLE 4
Suggested Screening Questions for Anorexia Nervosa and Bulimia Nervosa

- How many diets have you been on in the past year?
- Do you think you should be dieting?
- Are you dissatisfied with your body size?
- Does your weight affect the way you think about yourself?

A positive response to any of these questions warrants further evaluation.

*Information from Anstine D, Grinenko D. Rapid screening for disordered eating in college-aged females in the primary care setting. *J Adolesc Health* 2000;26:338-42.*

initially had normal growth parameters might stop gaining weight or might lose weight while height increases. Eventually, height will be affected, and growth will diminish.

To obtain accurate weight measurements, office staff must be trained to use standardized protocols to record consistent, reliable measurements. Scales should be located in a private area, and comments about weight should be minimized and made discreetly. Staff should be aware that some patients with eating disorders, to avoid revealing their true weight, might drink extra fluids, put weights in their pockets, or wear layers of heavy clothing before being weighed.¹

Vital signs might be abnormal, such as bradycardia, orthostatic hypotension, and hypothermia. Abnormal skin findings include dry skin, loss of subcutaneous fat, lanugo (fine body hair), and hypercarotene-mia (an orange hue caused by increased ingestion of carrots). Patients who induce vomiting might have calluses on the dorsum of the dominant hand, as well as loss of den-

To avoid revealing their true weight, some patients with eating disorders might drink extra fluids, put weights in their pockets, or wear layers of heavy clothing before being weighed.

tal enamel. Salivary gland enlargement is another sign of purging behavior.

Pulmonary complications of eating disorders are rare, but vomiting can cause a pneumomediastinum. Pulmonary edema may occur in patients who undergo refeeding. In addition to bradycardia, cardiac findings may include acrocyanosis and decrease in overall heart size and stroke volume. Cardiomegaly can indicate ipecac use. Electrocardiogram findings may include bradycardia, prolonged QT interval, and nonspecific ST-T changes.

The gastrointestinal system also can be adversely affected. There can be decreased bowel motility, leading to abdominal distension. Gastroesophageal reflux and pancreatitis

TABLE 5
A Comparison of Features of Anorexia Nervosa and Bulimia Nervosa

Features	Anorexia nervosa	Bulimia nervosa
History and symptoms	Amenorrhea, constipation, headaches, fainting, dizziness, fatigue, cold intolerance	Bloating, fullness, lethargy, GERD, abdominal pain, sore throat (from vomiting)
Physical findings	Cachexia, acrocyanosis, dry skin, hair loss, bradycardia, orthostatic hypotension, hypothermia, loss of muscle mass and subcutaneous fat, lanugo	Knuckle calluses, dental enamel erosion, salivary gland enlargement, cardiomegaly (ipecac toxicity)
Laboratory abnormalities	Hypoglycemia, leukopenia, elevated liver enzymes, euthyroid sick syndrome (low TSH level, normal T ₃ , T ₄ levels)	Hypochloremic, hypokalemic, or metabolic alkalosis (from vomiting), hypokalemia (from laxatives or diuretics), elevated salivary amylase (might also be present in bingeing/purging subtype of anorexia)
ECG findings	Low voltage; prolonged QT interval, bradycardia	Low voltage; prolonged QT interval, bradycardia

GERD = gastroesophageal reflux disease; TSH = thyroid-stimulating hormone; T₃ = triiodothyronine; T₄ = thyroxine; ECG = electrocardiogram.

can cause epigastric pain. If the patient is constipated, stool might be palpable in the left lower quadrant.

Laboratory Evaluation

Laboratory findings might be completely normal, but targeted laboratory testing can be helpful to rule out medical illness. In patients who have eating disorders, the complete blood cell count might be normal, but leukopenia is not uncommon, probably because of increased margination of neutrophils. Immune function does not appear to be impaired. In severe cases, pancytopenia might be present.¹² Blood glucose levels might be low.² Hypochloremic, hypokalemic, or metabolic alkalosis might be present in patients who purge. Hypokalemia also might result from diuretic and laxative use. Severe hypokalemia might lead to cardiac arrhythmias, muscle weakness, or confusion. Hyponatremia might occur with excessive water intake. Thyroid-function test findings might be consistent with the euthyroid sick syndrome, with low triiodothyronine and thyroxine levels and a normal thyroid-stimulating hormone level.

Osteopenia in eating disorders can result from several factors. Decreased estrogen levels and inadequate micronutrients, especially during adolescence when bone strength is typically increasing, can lead to clinically significant osteopenia after as few as six months

of illness.² It is worthwhile to obtain dual-energy x-ray absorptiometry scans after six months of amenorrhea in patients with anorexia and in patients with bulimia who have a history of anorexia.¹²

Treatment

Treatment intensity and setting depend on the severity of the illness. Patients with mild illness can be managed on an outpatient basis. Patients who are medically or psychiatrically unstable require inpatient treatment (*Table 6*).³ [Evidence level C, expert opinion] Treatment goals include attainment and maintenance of a healthy weight, management of physical complications, management of comorbid psychiatric illness, and prevention of relapse. Eliciting cooperation from the patient, helping to change maladaptive thoughts, and educating the patient about proper health and nutrition also are important.³

Adequate treatment of eating disorders requires a multidisciplinary team approach. The family physician can and should be an integral member of that team. Early in the illness, frequent visits to the primary care physician's office are helpful for surveillance of medical conditions, as well as for nutritional re-education. The family physician also will be indispensable in the role of coordinating the entire team of professionals involved in the patient's care.

Prognosis

The prognosis of patients who have eating disorders is variable. The general consensus is that 50 percent of patients with anorexia have good outcomes, 30 percent have intermediate outcomes, and 20 percent have poor outcomes. The percentages are similar in bulimic patients, with 45 percent having good outcomes, 18 percent having intermediate outcomes, and 21 percent having poor outcomes. Patients with anorexia have a mortality rate six times that of peers without anorexia.⁵

Factors that predict improved outcomes for eating disorders include early age at diagnosis,

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TABLE 6
Level-of-Care Criteria for Patients with Eating Disorders

Characteristic	Level 1: Outpatient	Level 2: Intensive outpatient	Level 3: Full-day outpatient	Level 4: Residential treatment center	Level 5: Inpatient hospitalization
Medical complications	Medically stable to the extent that more extensive monitoring, as defined in Levels 4 and 5, is not required			Medically stable (not requiring NG feeds, IV fluids, or multiple daily laboratories)	Adults: HR < 40 beats per minute; BP < 90/60 mm Hg; glucose < 60 mg per dL (3.3 mmol per L); K ⁺ < 3 mg per dL (0.8 mmol per L); temperature < 36.1°C (97°F); dehydration; renal, hepatic, or cardiovascular compromise Children and adolescents: HR < 50 beats per minute; orthostatic BP; BP < 80/50 mm Hg; hypokalemia; hypophosphatemia
Suicidality	No intent or plan			Possible plan but no intent	Intent and plan
Weight, as percent of healthy body weight	> 85 percent	> 80 percent	> 70 percent	< 85 percent	Adults: < 75 percent Children and adolescents: acute weight decline with food refusal
Motivation to recover (cooperativeness, insight, ability to control obsessive thoughts)	Good to fair	Fair	Partial; preoccupied with ego-syntonic thoughts more than 3 hours per day; cooperative	Fair to poor; preoccupied with ego-syntonic thoughts 4 to 6 hours per day; cooperative with highly structured treatment	Poor to very poor; preoccupied with ego-syntonic thoughts; uncooperative with treatment or cooperative only with highly structured environment
Comorbid disorders (substance abuse, depression, anxiety)	Presence of comorbid condition may influence choice of level of care				Any existing psychiatric disorder that would require hospitalization
Structure needed for eating/gaining weight	Self-sufficient		Needs some structure to gain weight	Needs supervision at all meals or will restrict eating	Needs supervision during and after all meals, or NG/special feeding
Impairment and ability to care for self; ability to control exercise	Able to exercise for fitness; able to control obsessive exercise		Structure required to prevent excessive exercise	Complete role impairment, cannot eat and gain weight by self; structure required to prevent patient from compulsive exercising	
Purging behavior (laxatives and diuretics)	Can greatly reduce purging in nonstructured settings; no significant medical complications, such as ECG abnormalities or others suggesting the need for hospitalization			Can ask for and use support or skills if desires to purge	Needs supervision during and after all meals and in bathrooms
Environmental stress	Others able to provide adequate emotional and practical support and structure		Others able to provide at least limited support and structure	Severe family conflict, problems, or absence so as unable to provide structured treatment in home, or lives alone without adequate support system	
Treatment availability/living situation	Lives near treatment setting			Too distant to live at home	

NG = nasogastric; IV = intravenous; HR = heart rate; BP = blood pressure; K⁺ = potassium level; ECG = electrocardiogram.

Adapted with permission from Practice guideline for the treatment of patients with eating disorders (revision). American Psychiatric Association Work Group on Eating Disorders. *Am J Psychiatry* 2000;157(suppl 1):20.

brief interval before initiation of treatment, good parent-child relationships, and having other healthy relationships with friends or therapists.⁵

Because of the severity of these illnesses and

the improvement in outcomes when diagnosis occurs earlier, the family physician can play a crucial role in helping patients recover from eating disorders by detecting them at an early stage.

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