CHAPTER OVERVIEW

CHAPTER OPENER QUESTIONS

What is the relationship between eating disorders, culture, and gender?

How are anorexia nervosa and bulimia nervosa different? Which is easier to treat?

What are parasomnias and dyssomnias?

What are the most common sleep disorders?

Can someone fall asleep in the middle of a conversation?

Do people sleepwalk because they are dreaming?

Do some people act out their dreams?

What treatments are effective for elimination disorders?

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chapter 14

Eating, Sleep, and Elimination Disorders

The dysfunctions we examine in this chapter involve basic biological processes necessary for human life: eating, sleeping, and eliminating waste. Many of the conditions involve the patterning of the activity, although symptoms of excess and deficiency are diagnostic. The largest category, the sleep-wake disorders, concerns dissatisfaction with the quality, timing, or amount of sleep. The smallest classification, the elimination disorders, consists only of two conditions involving inappropriate toileting. We begin here with the feeding and eating disorders.

14.1 Feeding and Eating Disorders

Among the feeding and eating disorders are conditions that can seriously impair physical and psychological health. They involve patterns of altered consumption, some of which affect the absorption of nutrients. Pica and rumination disorder were moved from "Conditions first diagnosed in infancy, childhood, or adolescence" in the *DSM-IV* to join anorexia nervosa and bulimia nervosa, as well as binge-eating disorder (a formerly provisional diagnosis) and a new condition, avoidant/restrictive food intake disorder, in defining this category. The various feeding and eating disorders are displayed in Table 14-1.

What is the relationship between eating disorders, culture, and gender?

The feeding and eating disorders do not include obesity, currently not listed as a mental disorder. According to the *DSM-5*, "Obesity (excess body fat) results from the long-term excess of energy intake relative to energy expenditure. A range of genetic, physiological, behavioral, and environmental factors that vary across individuals contributes to the development of obesity; thus, obesity is not considered a mental disorder" (American Psychiatric Association, 2013, p. 329). However, since all of the conditions we have been considering develop from a range of genetic, physiological, behavioral, and environmental factors, the distinction is less than clear. Presumably, the more pertinent issue would be that obesity is defined not in terms of the behavior that produces it, but rather in terms of its product, excess body fat—rather analogous to the relationship between smoking (the behavior) and lung cancer (its product).

Diagnostic reliability in the *DSM-III* field trials for eating disorders (at that time, only anorexia nervosa and bulimia nervosa were defined) was 0.59 for adults, but stronger reliability was recorded for children and adolescents. The reliability appears to have improved under the *DSM-IV*. Especially when structured interviews are used, the overall reliability for eating disorder diagnoses is high (Kutlesic, Williamson, Gleaves, Barbin, & Murphy-Eberenz, 1998). Brody, Walsh, and Devlin (1994) assessed binge eating disorder criteria at 0.70, indicating good reliability for this provisional diagnosis. The *DSM-5* field trials found "good" reliability for both binge eating disorder (0.56) and avoidant/restrictive food intake disorder (0.48), but other feeding and eating disorders were not assessed (Regier, et al., 2013).

14.1a Anorexia Nervosa

The condition now diagnosed as anorexia nervosa is one that has been recognized for well over 100 years. It appears to have been exceedingly rare until the mid-twentieth century

Table 14-1 *DSM-5* Feeding and Eating Disorders

Disorder	Key Symptoms	Minimum Duration Required for Diagnosis	Sex Ratio
Anorexia nervosa	Restriction of energy intake, plus intense fear of gaining weight	None	More common among females
Bulimia nervosa	Recurrent binges and compensatory behaviors	3 months	More common in females
Binge-eating disorder	Recurrent binges without compensatory behaviors	3 months	More common in females
Avoidant/restrictive food intake disorder	Persistent failure to meet nutritional needs	None	Equal
Pica	Eating nonfood substances	1 month	Unclear
Rumination disorder	Repeated regurgitation of food	1 month	Unclear

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when its incidence increased, particularly among young females in Western industrialized countries. Self-starvation had been known for many years in early religious literature, but the clinical syndrome was first described and named by doctors in Paris and London in the nineteenth century. William Gull (1888) reported a case of a teenage girl who had nearly starved herself to death "without apparent cause"; she was treated effectively by light feeding every few hours (see Figure 14-1).

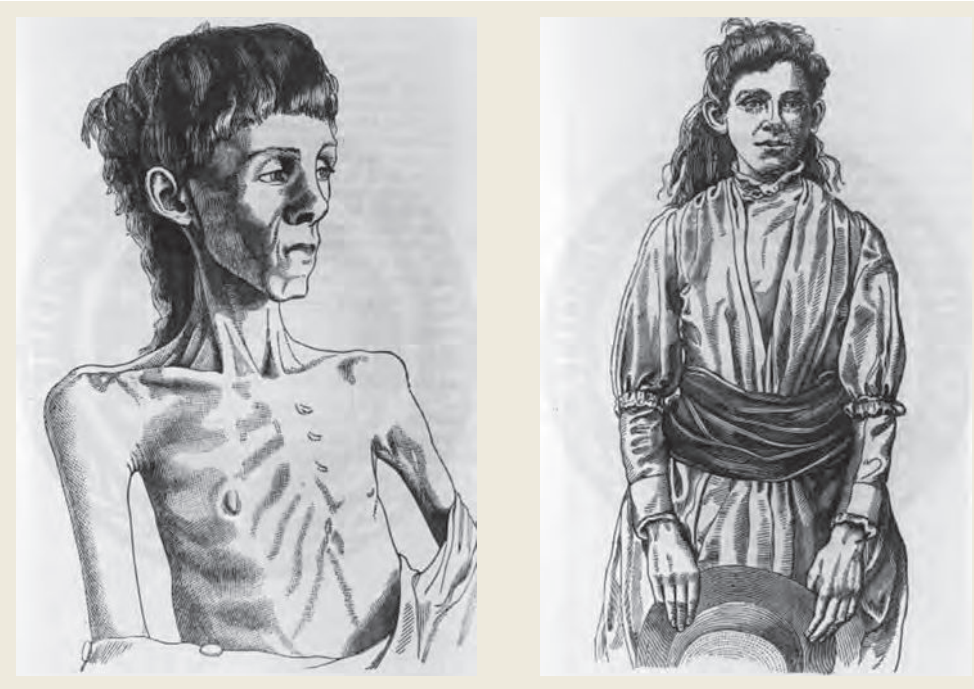
How are anorexia nervosa and bulimia nervosa different? Which is easier to treat?

Anorexia nervosa, as currently defined, (see *DSM-5* Diagnostic Criteria for Anorexia Nervosa) involves three main features: restricted calorie intake insufficient to maintain normal body weight, intense fear of gaining weight, and a disturbance in the perception of body size. The fear of weight gain and the inaccurate perception that one's body is too

Figure 14-1 ***Before and After Anorexia Treatment***

Anorexic teenager before treatment (left) and after recovery (right) (W. Gull, 1888).

Source: Images courtesy U.S. National Library of Medicine



DSM-5 **Diagnostic Criteria for Anorexia Nervosa**

Anorexia Nervosa

A. Restriction of energy intake relative to requirements, leading to a significantly low body weight in the context of age, sex, developmental trajectory, and physical health. Significantly low weight is defined as a weight less than minimally normal or, for children and adolescents, less than that minimally expected.

B. Intense fear of gaining weight or of becoming fat, or persistent behavior that interferes with weight gain, even though at a significantly low weight.

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 persistent lack of recognition of the seriousness of the current low body weight.

Coding note: The ICD-9-CM code for anorexia nervosa is ***307.1***, which is assigned regardless of subtype. The ICD-10-CM code depends on the subtype (see below).

Specify whether:

(F50.01) Restricting type: During the last 3 months, the individual has not engaged in recurrent episodes of binge eating or purging behavior (i.e., self-induced vomiting or the misuse of laxatives, diuretics, or enemas). This subtype describes presentations in which weight loss is accomplished primarily through dieting, fasting, and/or excessive exercise.

(F50.02) Binge-eating/purging type: During the last 3 months, the individual has engaged in recurrent episodes of binge eating or purging behavior (i.e., self-induced vomiting or the misuse of laxatives, diuretics, or enemas).

Specify if:

In partial remission: After full criteria for anorexia nervosa were previously met, Criterion A (low body weight) has not been met for a sustained period, but either Criterion B (intense fear of gaining weight or of becoming fat or behavior that interferes with weight gain) or Criterion C (disturbances in self-perception of weight and shape) is still met.

In full remission: After full criteria for anorexia 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, for adults, on current body mass index (BMI; see below) or, for children and adolescents, on BMI percentile. The ranges below are derived from World Health Organization categories for thinness in adults; for children and adolescents, corresponding BMI percentiles should be used. The level of severity may be increased to reflect clinical symptoms, the degree of functional disability, and the need for supervision.

Mild: BMI ≥ 17 kg/m^2

Moderate: BMI 16–16.99 kg/m^2

Severe: BMI 15–15.99 kg/m^2

Extreme: BMI < 15 kg/m^2

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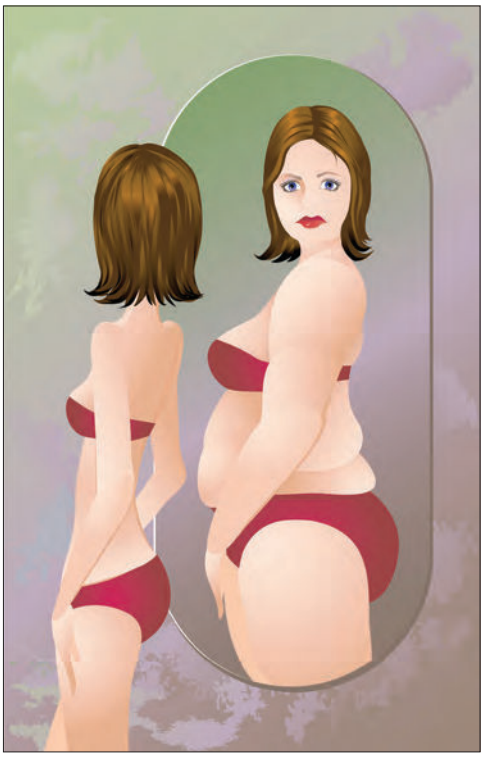
fat result in behaviors to prevent weight gain, even though the individual may already be emaciated. Two eating patterns are characteristic of those with anorexia nervosa. In one, the "restricting type," the individual diets, fasts, or exercises excessively, so that intake of food is inadequate to maintain current weight. In the less common "binge-eating/purging type," the individual regularly consumes food, often in large quantities, but then compensates by inducing vomiting or by misusing laxatives, enemas, or diuretics to produce weight loss.

Most often, weight loss is achieved by severe restriction in diet. As certain food items are restricted in the person's diet, the range of acceptable foods can become very narrow: sometimes, only a few leaves of lettuce comprise the daily menu. Typically, food becomes a pre-occupation for those with anorexia nervosa, often with obsessive-compulsive intensity. The person thinks of food most of the time and may hoard food items or even collect food recipes (American Psychiatric Association, 2013). However, the strict control of eating and the achievement of continued weight loss are considered to be personal accomplishments and a source of pride for the anorexic individual.



In both anorexia nervosa and bulimia nervosa, self-evaluation is unduly influenced by body weight or shape. (iStock)

Concern about weight, body shape, and especially fear of gaining weight are central features of anorexia nervosa. Body size and shape are very important to the self-image of those with the disorder, and perceptions of body image are distorted such that individuals feel fat even when weight is significantly below normal. They tend to view themselves in mirrors frequently, scanning for parts of their bodies that they feel are too heavy or fat in appearance.

Onset of the disorder usually occurs in adolescence; in no case was onset age later than the mid-20s in the National Comorbidity Study, a nationally representative survey (Hudson, Hiripi, Pope, & Kessler, 2007). The course is highly variable, and many who begin with the restricting type of the disorder shift to binge eating/purging type. A variety of physical disruptions consequent on starvation are evident in those with anorexia nervosa. Menstruation often ceases (or is delayed in prepubertal females); the *DSM-IV* diagnosis required cessation of menstruation for at least three consecutive menstrual cycles. **Amenorrhea** is no longer listed among the diagnostic criteria for the disorder, however. There may be intolerance to cold, loss of strength, abdominal pain, constipation, and heart irregularities. **Purging** behaviors may cause loss of tooth enamel and other dental problems, as well as osteoporosis, anemia, electrolyte imbalances, and dehydration. Hospitalization may become necessary, and mortality may be up to 5% per decade (American Psychiatric Association, 2013). Fortunately, average lifetime duration of anorexia appears to be much shorter than for the other eating disorders, averaging only 1.7 years (Hudson, Hiripi, Pope, & Kessler, 2007).

The incidence of anorexia nervosa is much higher among young females in Western industrialized nations where food is plentiful. It appears to be linked to cultural views about beauty and thinness, and driven by widespread media representations of increasingly thin models as images of perfection in fashion. The influence of culture can be seen in the fact that immigrants' risk for the disorder increases as they become more enmeshed in American life (American Psychiatric Association, 2013). Lucas, Beard, O'Fallon, and Kurland (1991) reported that the prevalence of anorexia nervosa over a 50-year period in Minnesota, from 1935 to 1984, rose linearly among females ages 15 to 24, with incidence increasing 36% every 5 years during that period. In the same period, incidence of the disorder did not change for males or older females. Overall, female rates were nearly 12 times higher than male rates of anorexia nervosa during 1980–1984. Since that time, the rate of increase has slowed.

Lifetime prevalence rates now appear to be about 0.9% for women and 0.3% for men (Hudson, Hiripi, Pope, & Kessler, 2007). Male cases tend to be associated with homosexuality (Russell & Keel, 2002). Those at highest risk are white females ages 15–24; in contrast, anorexia nervosa appears to be extremely rare among Black American females (Hoek, 2006). One possible explanation for such racial disparity is that risk for the disorder is greater among those of higher socioeconomic status (Striegel-Moore & Bulik, 2007).

Anorexia nervosa commonly occurs in conjunction with other mental disorders. In a sample of 101 adolescent females in treatment for anorexia nervosa, over 73% were diagnosed with at least one other disorder, most often mood or anxiety disorders. The binge eating/purging type is associated with significantly greater risk of substance use disorders than the restricting type (Salbach-Andre, et al., 2008). The binge eating/purging type is also linked to significantly greater likelihood of suicide attempts (Bulik, et al., 2008).

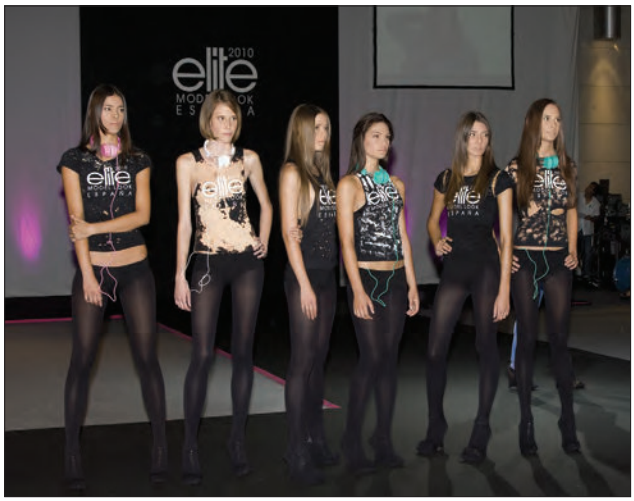
Amenorrhea
Absence of menstruation in a woman of reproductive age

Purging
A compensatory activity intended to reverse the effects of eating, usually involving self-induced vomiting or use of laxatives

Causal Factors

The etiology of anorexia nervosa remains unknown. Psychoanalytic writers proposed that anorexic individuals, when faced with the anxiety-arousing prospect of genital sexuality

at adolescence, regress to already existing oral fixations. Denial of eating is thought to reflect denial of sexuality or, even more specifically in some cases, guilt over the unconscious wish to be impregnated through the mouth. Family systems therapists have emphasized conflicts around issues of independence and changing from childhood to adult ways. Anorexic children are likely to appear in families that are excessively enmeshed—emotionally speaking—have overprotective parents, and lack effective ways of directly resolving conflicts. Thus the anorexic girl may be seen as asserting her independence in the only way she can, by refusing to eat.



Anorexia appears to be linked to cultural views about beauty and thinness, and driven by widespread media representations of increasingly thin models as images of perfection in fashion. (Shutterstock)

Biological and cultural influences interact in the development of the disorder. Anorexia nervosa runs in families, and concordance rates are higher in MZ than DZ twins (American Psychiatric Association, 2013). Concordance has been reported as high as 55% for MZ twins, versus 5% for DZ twins (Fairburn & Harrison, 2003), suggesting substantial genetic contribution to risk for the disorder. Offspring of mothers with anorexia nervosa are at high risk for the disorder as well (Striegel-Moore & Bulik, 2007). However, its strong association with cultural portrayals of beauty in terms of thinness also indicates very important contributions from environmental factors. This may explain the significant variations in prevalence among different ages, ethnic groups, and sexual orientations. As noted above, homosexual orientation is a significant risk factor for eating disorders in males. Greater emphasis on physical attractiveness among gay men places them, like heterosexual women, at higher risk for attitudes and behaviors related to eating disorders (Siever, 1994). Among heterosexual adolescent males, the factors increasing the risk of eating disorders similarly involve low self-esteem and peer pressure to lose weight, although body image issues tend to involve male pursuit not of thinness but of muscularity (Ricciardelli & McCabe, 2004). Certain athletes, especially those involved in aesthetic performance (such as figure skating or gymnastics) or those emphasizing a specific weight (such as judo or wrestling) are at higher risk for eating disorders (Sundgot-Borgen, 1994).

Treatment for Anorexia Nervosa

Outcome of treatment for anorexia nervosa did not improve much throughout the twentieth century: Steinhausen (2002) reports that even after 1950, mortality remained significantly high (ranging up to 22% in some studies), and less than one-half of patients fully recovered. More recently, some promising results have been reported for a particular form of conjoint family therapy for adolescents, in which parents are coached in how to assume control over the anorexic child's eating and weight. External controls are then gradually reduced as the child complies with parental authority so that increasing autonomy is linked with improved eating patterns (Wilson, Grilo, & Vitousek, 2007). However, this approach is less beneficial with older persons or if the disorder has persisted beyond a few years.

Medications are rarely used as the sole therapeutic approach and there is no clear evidence that antidepressants, which are widely prescribed for the condition, have any value over placebo (Wilson, Grilo, & Vitousek, 2007). No drug has been found to promote weight gain for these patients (Fairburn & Harrison, 2003). Inpatient treatment, which allows for close monitoring, nutritional counseling, and specific behavioral contingencies, can be effective in restoring body weight. However, the addition of medication does not add to outcome, and "at present, there is no specific role for pharmacology in the treatment of anorexia nervosa" (Wilson, Grilo, & Vitousek, 2007, p. 577).

Certain athletes, especially those involved in aesthetic performance (such as figure skating or gymnastics) or those emphasizing a specific weight (such as judo or wrestling) are at higher risk for eating disorders. (Shutterstock)

14.1b Bulimia Nervosa

The condition known as bulimia nervosa (see *DSM-5* Diagnostic Criteria for Bulimia Nervosa) differs substantially from anorexia nervosa. Instead of weight loss and strict control of eating associated with a sense of achievement, bulimia nervosa involves a sense of lack of control related to recurrent episodes of eating large quantities of food. The binge episode is then followed by some attempt to compensate, such as purging, fasting, or excessive exercise. Like anorexia nervosa, those with bulimia nervosa fear gaining weight, are dissatisfied with their bodies, and base their self-evaluation on weight and body shape.

Binge eating involves amounts of food larger than others would normally eat in a given time. It usually includes high-calorie foods such as cookies, cakes, and ice cream; Fairburn and Harrison (2003) estimate that between 1,000 and 2,000 food calories are typically consumed during the binge event. Binge eating usually takes place rapidly, in secret, and continues until the individual becomes uncomfortably full. The person often reports feeling out of control during a binge event although he or she is able to stop the act if suddenly interrupted by others. Once the binge eating concludes, the person may employ several techniques to compensate for the binge in order to avoid weight gain. Most commonly vomiting is self-induced, often by

Binge eating
Eating much larger amounts of food than normal within a given time

DSM-5 Diagnostic Criteria for Bulimia Nervosa

307.51 (F50.2) Bulimia Nervosa

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 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 the 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.

use of fingers or instruments to trigger a gag reflex; one-third of those with bulimia nervosa also use laxatives to compensate for binge eating (American Psychiatric Association, 2013). Non-purging methods employ fasting for a day or more, or excessive exercise.

Bulimia nervosa is more common than anorexia nervosa, affecting up to 1.5% of females; the female-to-male ratio is 10:1 (American Psychiatric Association, 2013). Most receiving the diagnosis are white. Onset is usually 5 years later than that for anorexia nervosa, and average duration of the disorder is much longer, about 8.3 years (Hudson, Hiripi, Pope, & Kessler, 2007). Although bulimia may persist for several years, over the longer term symptoms tend to diminish (American Psychiatric Association, 2013). Unlike anorexia nervosa, which tends to occur among individuals of higher socioeconomic status, bulimia nervosa is not related to SES (Striegel-Moore & Bulik, 2007).

The purging behavior is associated with several negative physical consequences—including disturbed electrolyte balance, extensive dental erosion, stomach problems, and diarrhea. Dependence on laxatives for bowel movements may develop in those who use that technique for purging. Bulimia nervosa is often associated with mood disorders, and up to one-third of sufferers also have substance use disorders, usually involving alcohol or stimulants (American Psychiatric Association, 2013).

Causal Factors

Risk for bulimia nervosa is elevated among victims of childhood physical or sexual abuse (American Psychiatric Association, 2013). There are data suggesting familial aggregation in bulimia nervosa, and some studies have suggested heritability estimates between 50% and 83% (Striegel-Moore & Bulik, 2007). However, clinical studies showing 35% concordance in MZ twins versus 30% concordance in DZ twins seem to indicate a weaker genetic link than for anorexia nervosa (Fairburn & Harrison, 2003).

The cultural factors affecting one's tendency to relate body image to self-esteem in bulimia nervosa are assumed to be similar to those for anorexia nervosa. At least among college students, exposure to mass media (especially magazines) that promote thin-beauty ideals is associated with increased likelihood of disordered eating (Harrison & Cantor, 1997). Stice (2001) outlined one pathway by which this may occur in vulnerable individuals: Exposure to thinness-promoting media, particularly in young people who value appearance highly, leads to acceptance (internalization) of these ideals of beauty. Together with a social pressure to be thin, these internalized ideals of beauty lead to dissatisfaction with one's appearance. Because these ideals are unattainable for nearly everyone, negative self-affect develops, leading to dieting and restriction, and thereby increasing the chance that binging will occur in response to severe hunger.

Bulimia nervosa, more common than anorexia nervosa, affects about 1.5% of females. (iStock)

Treatments for Bulimia Nervosa

A greater number of controlled interventions have been conducted with bulimia nervosa than with anorexia nervosa, and the outcome data are more promising, with evidence supporting the use of both medications and psychotherapy. Antidepressant medications produce greater improvements in both binge-eating and purging than placebos (Wilson & Fairburn, 2002). They also improve mood and tend to work rapidly. However, medications are not associated with sustained improvement or with effect sizes equal to those of cognitive-behavioral therapies (Fairburn & Harrison, 2003).

Among psychotherapies, interpersonal therapy focuses on how the person's relationships with other people contribute to the eating disorder. It has shown some evidence of effectiveness but requires further evaluation (2007). The identified treatment of choice for

bulimia nervosa is cognitive-behavioral therapy, under which about half of patients cease binge eating and purging, and many report improvement in depressive symptoms and self-esteem (Wilson & Fairburn, 2002; Wilson, Grilo, & Vitousek, 2007).

One example of a comprehensive CBT intervention for bulimia nervosa comes from Spangler (1999). The 20-week program begins by establishing a regular eating pattern. First, a detailed food record is kept in which the person records each instance of food consumption, including what and how much is eaten, time of day, and context. Foods and situations that the client reports as "low risk" and "high risk" for binge eating are identified. Then, the client begins a defined schedule of normal eating, involving three meals and two snacks per day, so that the person is eating something every 3 to 4 hours. Many bulimics fear that eating on a regular basis will result in weight gain. However, their practice of restriction actually leads to increased hunger, setting the stage for binge eating. Regular eating patterns reduce binge events.

A list of pleasant activities (bathing, phone conversations, gardening) is compiled with the instruction that the client must engage in one immediately after finishing a normal meal to reduce the opportunity and the temptation to engage in compensatory acts. The person is instructed to eat at specified times, whether hungry or not, followed immediately by a pleasant activity (rather than remaining in the kitchen area). As a normal pattern of eating is resumed, the client experiences less hunger and therefore fewer urges to binge and less temptation to purge after normal portions. Weekly weighing reveals that resumption of a regular eating schedule produces little if any weight gain, removing a source of anxiety about normal eating patterns. An educational component adds information about nutrition and contradicts commonly held false beliefs about vomiting (which does not expel the majority of calories consumed) and laxative use (which expels even fewer calories).

Next, Spangler (1999) begins a process to counter the cognitive components of bulimia nervosa by attempting to modify the client's beliefs about body shape and weight, body dissatisfaction, and binging. Through example-giving and standard cognitive disputation, the importance of physical appearance to self-esteem and self-worth is challenged. Food tolerance is increased with the gradual addition of some "high-risk" foods to the daily diet. This shows the client that normal portions of forbidden foods can be consumed without a binge ensuing. Homework assignments might include activities to reveal the body, such as swimming, as a way to reduce the importance of concerns about appearance as well as to promote normal exercise. Stress-reduction and problem-solving skills are also taught as alternatives to binge eating during times of stress. Finally, a relapse prevention component is added. The client lists a set of clues or markers, such as changes in eating pattern or the presence of certain moods, which might increase the chance of relapse. Then a plan is drawn up for the client to follow if the clues or markers appear, including activities in which to engage or family or friends to contact. Spangler (1999) reports improvement that persists during long-term follow-up for clients using interventions of this type.

14.1c Binge-Eating Disorder

The diagnostic criteria for binge-eating disorder include recurrent episodes of binge eating associated with both a sense of lack of control and rapid consumption. Other symptoms are eating until uncomfortably full, eating large amounts when not hungry, eating alone because of embarrassment about eating patterns, and guilt after overeating. Binge-eating disorder requires that binges average at least once a week for a 3-month period, and they must be associated with marked distress. Binges are not accompanied by compensatory behaviors (as in bulimia nervosa) and, as such, the condition is frequently associated with varying degrees of obesity (American Psychiatric Association, 2013).

Most people showing this condition have long histories of unsuccessful dieting. The eating pattern tends to be chronic and is often associated with depression, anxiety, and negative self-image. Unlike anorexia nervosa and bulimia nervosa, which tend to have onset during adolescence, binge-eating disorder may not appear until well into adulthood. Although some

earlier studies suggested that binge-eating disorder is more common among whites than other ethnic groups (Brody, Walsh, & Devlin, 1994), later studies report that the condition is not linked to racial/ethnic status (Striegel-Moore & Bulik, 2007). Nationally representative data show higher lifetime incidence among women (3.5%) than men (2%), a significant but less extreme gender difference than those of other eating disorders (Hudson, Hiripi, Pope, & Kessler, 2007). The *DSM-5* provides 12-month prevalence rates at 1.6% for adult females and 0.8% for adult males (American Psychiatric Association, 2013). In a sample of persons with eating disorders, binge-eating disorder was twice as common as bulimia nervosa (Kutlesic, Williamson, Gleaves, Barbin, & Murphy-Eberenz, 1998).

Some evidence suggests that, like those with other eating disorders, persons with binge-eating disorder may harbor dysfunctional attitudes about body shape and size that excessively influence self-evaluation (Hrabosky, Masheb, White, & Grilo, 2009). Although not all binge eaters engage in such overvaluation, those who do show higher levels of disordered eating and depression (Grilo, et al., 2008). Binge-eating disorder appears to be different from a related pattern of disordered eating, **night eating syndrome**, in which individuals consume more than half of their daily calories in late-night binges. Subjects with either condition show greater depressive symptomatology than a comparison group, but those with binge-eating disorder engage in more binging episodes and feel less control over eating (Allison, Grilo, Masheb, & Stunkard, 2005). In *DSM-5*, night eating syndrome would be diagnosed as in the category "other specified feeding or eating disorder."

Treatments for binge-eating disorder include antidepressant medications and psychotherapy. Cognitive-behavior therapy is generally associated with high treatment completion rates, remission of binge eating in over half of subjects, and improvement in accompanying depression. Antidepressant medications are superior to placebo in reducing binging and in weight loss; however relapse rates are high, and discontinuation of treatment remains problematic (Wilson, Grilo, & Vitousek, 2007). Those who respond rapidly to either type of treatment (that is, show a two-thirds reduction in binge eating within 4 weeks) are more likely to show remission of the disorder and greater weight loss (Grilo, Masheb, & Wilson, 2006).

14.2 Avoidant/Restrictive Food Intake Disorder

Those with avoidant/restrictive food intake disorder do not eat enough food to meet their energy or nutritional needs. A significant weight loss, nutritional deficiency, dependence on supplemental feeding, or marked interference in normal functioning is needed for the diagnosis. Like anorexia nervosa, this disorder is associated with malnutrition that can be life threatening. Unlike anorexia, the lack of appetite or avoidance of food does not involve body shape or image. The condition cannot be associated with lack of available food, gastrointestinal disorders, or a general medical condition, or occur exclusively during anorexia or bulimia. The new *DSM-5* diagnosis replaced the *DSM-IV* condition "feeding disorder of infancy or early childhood," which required childhood onset. Infant feeding disorder may account for half of hospital admissions for failure to thrive, which itself may have community incidence of 3% and appears to be equally prevalent in males and females (American Psychiatric Association, 2000). The avoidance or restriction of food might be attributable to Pavlovian conditioning, in the sense that an aversive experience (such as vomiting or choking) may be paired with particular food-related stimuli. Then, the avoidance of food may emerge as an anticipatory conditioned response, sometimes termed *functional dysphagia* (American Psychiatric Association, 2013).

Night eating syndrome
Eating pattern in which individuals consume more than half of their daily calories in late-night binges

14.2a Pica

Pica essentially involves the persistent (at least 1 month) eating of non-nutritive, nonfood substances such as soil, paint, cloth, string, chalk, and pebbles. The substances eaten

tend to vary with age—with younger children more likely to eat paint or plaster, hair, and cloth, whereas older children are more likely to consume pebbles, animal droppings, sand, and leaves. The eating of these substances must be inappropriate to developmental level (very young children normally put almost anything into their mouths); and it must not be a culturally sanctioned practice. A variety of physical and medical complications can develop among individuals with pica. Some materials eaten may be toxic or may cause gastrointestinal problems—including infections, perforations, and blockages. Typically the condition remits after several months or a few years. Pica is more commonly found in association with intellectual disability, where its incidence can be as high as 15% (American Psychiatric Association, 2000). It is also sometimes seen in females during pregnancy (American Psychiatric Association, 2013).

Ferreri, Tamm, and Wier (2006) describe an intervention for pica involving a 4-year-old autistic boy who had engaged in toy pica for the previous year. The boy would place various plastic toys into his mouth, sucking on and chewing the edges until pieces could be bitten off and swallowed. He became aggressive when attempts were made to remove the toys. The treatment program involved dipping the toys into tapioca pudding, which the boy disliked, before they were made available to him. Pica ceased almost immediately and did not recur after the tapioca dipping was discontinued. The boy continued to use the toys during normal play, however.

14.2b Rumination Disorder

In rumination disorder, individuals repeatedly regurgitate their food. There is no nausea associated with the process. The material is then either discarded or, more commonly, re-chewed or re-swallowed. The condition must persist for a month and not be associated with a general medical condition or neurodevelopmental disorder, or occur as part of anorexic or bulimic patterns. Rumination disorder usually occurs in infants, with onset before 1 year of age. Some older individuals, especially those with intellectual disability, may also show the condition. Malnutrition and weight loss are associated difficulties; it can be fatal in infants if untreated. Rumination disorder appears to be rare (American Psychiatric Association, 2013).

14.3 Sleep-Wake Disorders

Polysomnography
Using a polygraph to make a continuous record during sleep of multiple physiological variables (such as breathing, heart rate, EEG, and muscle contractions)

Dyssomnias
Sleep disorders that are concerned with abnormal sleep amount, quality, or timing

Parasomnias
Sleep disorders that are concerned with abnormal events or behaviors involving the sleep cycle or sleep-wake transitions

Humans spend about one-third of their lives in sleep. However, the *DSM* system did not identify a separate classification of sleep disorders until the *DSM-IV*, and these mental disorders remained less familiar to many clinicians than other diagnoses. The category was reworked in the *DSM-5* as the sleep-wake disorders, with the intention of making the classifications useful both to mental health professional and to general medical practitioners. Consequently, the conditions include a wider range of supporting biological validators than are found elsewhere in the manual. In some instances, formal sleep studies (**polysomnography**) are required for diagnostic determination.

Optimal sleep is considered to be restful and refreshing under most circumstances with good sleep continuity (few periods spent in wakefulness), efficiency (most relative time in bed spent asleep), and short latency (the number of minutes required to fall asleep). Disturbances of sleep in the *DSM-IV* were described in broad terms as the **dyssomnias** (conditions involving abnormal sleep amount, quality, or timing) and the **parasomnias** (concerned with abnormal events or behaviors involving the sleep cycle or sleep-wake transitions). Although that distinction is no longer central to the *DSM-5* organization, the terms retain their descriptive value in discussing the sleep/wake disorders (see Table 14-2).

What are parasomnias and dyssomnias?

People with sleep-wake disorders can have significant life impairment, similar in degree to chronic health conditions like diabetes, heart disease or arthritis (Sateia & Nowell, 2004).

Table 14-2 *DSM-5* Sleep-Wake Disorders

Disorder	Key Symptoms	Minimum Duration Required for Diagnosis	Sex Ratio
Insomnia disorder	Dissatisfaction with sleep amount or quality	3 months	More common among females
Hypersomnolence disorder	Excessive sleepiness despite getting at least 7 hours sleep	3 months	Equal
Narcolepsy	Recurrent irrepressible need to sleep	3 months	Slightly more common among males
Obstructive sleep apnea hypopnea	Nocturnal breathing pauses due to obstruction	None	More common among males
Central sleep apnea	Nocturnal breathing pauses not due to obstruction	None	More common in males
Sleep-related hypoventilation	Decreased respiration with elevated CO_2 levels	None	Unclear
Circadian rhythm sleep-wake disorders	Persistent sleep disruption due to misalignment of circadian rhythm and sleep-wake schedule	None	Unclear
Non-rapid eye movement sleep arousal disorders	Repeated partial wakening with sleepwalking or night terrors	None	Unclear
Nightmare disorder	Repeated distressing nightmares	None	More common among females
Rapid eye movement sleep behavior disorder	Repeated arousal with complex activity during REM sleep	None	More common among males
Restless legs syndrome	Frequent urges to move legs, especially at night	3 months	More common among females

Source: Adapted from the *Diagnostic and Statistical Manual of Mental Disorders,* Fifth Edition, (Copyright 2013), American Psychiatric Association.

Often, the symptoms presented by people with sleep disorders resemble those of other mental disorders—such as panic, anxiety, and depression—and may be misidentified as a result. Correct diagnosis may be difficult, requiring extensive information about history and evaluation in a sleep laboratory. Nonetheless, structured interviews using *DSM-III-R* criteria produced good to excellent inter-observer agreement across different disorders, with highest agreement on insomnia and hypersomnia; the only category with poor reliability was circadian rhythm sleep disorder (Schramm, et al., 1993). Sleep-wake disorders were not assessed in the *DSM-5* field trials.

Many people experience periodic sleep disruption or unusual sleep experiences but rarely seek treatment for the condition. Because sleep patterns are so variable and symptoms are so common, the prevalence of most sleep disorders is uncertain. Diagnoses of these conditions should be restricted to those individuals for whom the sleep disturbances produce significant distress or impairment in important areas of functioning. Still, sleep problems are notable among the elderly with almost 50% complaining about chronic sleep difficulties (Cooke & Ancoli-Isreal, 2006). It is likely that these conditions are under-diagnosed among the general population.

14.4 Dyssomnias

14.4a Insomnia Disorder

In insomnia disorder, individuals have difficulty falling asleep or remaining asleep, or they are unable to get back to sleep after early-morning wakening. They commonly complain that the sleep they achieve is *nonrestorative*—that is, restless and of poor quality. Daytime fatigue is often problematic as a result. To qualify for diagnosis, the sleep disturbance cannot be due to a general medical condition, the effects of a substance, or another mental disorder. Insomnia disorder must persist for at least 3 months, occur 3 nights per week, and cause

significant distress or impairment in functioning. It can be specified as being comorbid with non-sleep mental disorders, other medical disorders, or other sleep disorders. Specifiers are also provided to indicate if the condition is episodic (1–3 months of symptoms), persistent (more than 3 months of symptoms), or recurrent (two or more episodes within 1 year). It is the most prevalent sleep disorder: a third of adults complain about insomnia, and perhaps 10% of the population would meet the diagnostic criteria for insomnia disorder (American Psychiatric Association, 2013).

What are the most common sleep disorders?

People with insomnia often find themselves trapped in a vicious cycle, in which distress at not being able to sleep increases their level of arousal, which in turn makes sleeping less probable. Often, they acquire maladaptive sleep habits, such as napping during the day, that add further to the disturbance. In their attempt to bring on sleep, they may use medications or alcohol to induce drowsiness, followed later by stimulant drugs to combat fatigue the next morning. As a result, substance dependence may develop. Other conditions associated with primary insomnia include mood and anxiety disorders (American Psychiatric Association, 2000).

Nearly 1 in 5 people who consult a physician indicate that insomnia is problematic (Vgontz & Kales, 1999). Onset is rare in childhood or adolescence. Insomnia increases with age, affecting 25% of the elderly population. Generally, younger people report problems falling asleep whereas older people experience more difficulty remaining asleep. The disorder occurs more often in women; for them, first onset is often reported following the birth of a child, or menopause. The course is variable, but over half of people with chronic complaints of insomnia continue to experience symptoms for more than 1 year (American Psychiatric Association, 2013).

Sleep restriction can cause a variety of neurobehavioral symptoms, including memory impairment, depressed mood, and lapses of concentration. These effects accumulate across several days of sleep restriction until they equal the approximate deficits associated with 3 days of total sleep deprivation (Banks & Dinges, 2007). Insomnia disorder may also be related to a range of serious medical conditions, including hypertension, heart disease, and conditions involving muscular or skeletal pain.

Causal Factors

Problems with disrupted sleep run in families, but the genetic contributions to insomnia disorder are unclear (American Psychiatric Association, 2013). Many physical and medical conditions can precipitate the condition; "primary" insomnia (not related to other conditions or causes) makes up only about 15% of chronic insomnia cases (Sateia & Nowell, 2004).

Psychological distress is the most common cause of primary insomnia (Vgontz & Kales, 1999). Development may begin with any specific event or stressor that disrupts sleep. If the disruption continues, the person becomes frustrated, anxious, and concerned about his or her inability to sleep, increasing the emotional arousal and further interfering with sleep. Individuals often attempt to force sleep by remaining in bed longer, but that serves to associate the bed with arousal and wakefulness. The resulting conditioning of arousal is evident, as people may sleep better when not trying to sleep (for example, when watching TV), or when they are in different sleep environments (such as a hotel).

Treatments for Insomnia Disorder

Benzodiazepines are widely used to promote sleep, but they are not recommended for long-term use. Antidepressants may also be helpful. However, pharmacotherapy for insomnia degrades over time (Vgontz & Kales, 1999). The naturally occurring hormone melatonin has been shown in randomized, controlled trials to improve sleep in chronic insomniacs, with few side effects and no withdrawal symptoms after discontinuation (Lemoine, Nir, Laudon, & Zisapel, 2007). Non-pharmacological interventions include stimulus control (restricting use

of bedroom to sleep-related activities only); sleep restriction via a regular sleep-wake schedule without napping; relaxation training; and control of stimulants such as caffeine. Regular exercise, not close to bedtime, is also helpful. Cognitive-behavioral treatment including several of these components can be robust, effective, and durable (Sateia & Nowell, 2004).

14.4b Hypersomnolence Disorder

Hypersomnolence disorder consists of excessive sleepiness despite receiving at least 7 hours of sleep during the main sleep period. Those with the condition may sleep for more than 9 hours without finding sleep refreshing and then have difficulty awakening. Daytime naps are not experienced as restorative or refreshing. Unintentional sleep may occur, especially when the person is in low-stimulation or inactive situations. Individuals struggle to remain alert, but efficiency, concentration, and memory are typically impaired, as are social and occupational functions. Specifiers for the condition include comorbidity with another mental disorder, medical condition, or sleep disorder; duration specifiers for acute (less than 1 month), subacute (1–3 months) and persistent (more than 3 months); and severity indicators for mild (alertness difficulties 1–2 days/week), moderate (alertness difficulties 3–4 days/week) and severe (alertness difficulties 5–7 days/week) (American Psychiatric Association, 2013). During one type of recurrent hypersomnolence disorder (called Kline-Levin syndrome), individuals may spend as much as 20 hours per day in bed (American Psychiatric Association, 2000).

For some people experiencing recurrent hypersomnolence, the sleepiness is associated with disinhibition of sexuality, compulsive overeating, or impulsive behavior. Mood disorders and substance dependence (related to stimulant use) may be more common among those with hypersomnolence disorder, but much is unknown about comorbidity with other disorders. The prevalence for males and females is approximately equal. Hypersomnolence runs in families, but its causes are not clear. Onset is usually between ages 15 and 30, and the course tends to be chronic and stable, sometimes for decades. Its incidence is about 1% in the population, but as many as 10% of individuals presenting at sleep clinics complain of hypersomnolence (American Psychiatric Association, 2013). Treatment usually includes stimulant drugs.

14.4c Narcolepsy

People with narcolepsy experience repeated, irrepressible sleep or the need for sleep, occurring at least three times per week for at least 3 months. The sleep is unintended and may occur in inappropriate situations, such as when driving a car, attending a meeting, or engaging in a conversation. In addition to sleep attacks, the diagnosis of narcolepsy requires either **cataplexy** (sudden loss of muscle control without loss of consciousness; in children, grimaces or jaw opening with tongue thrusting, symptoms that have been called "cataplectic faces"), a deficiency of hypocretin (a hypothalamic neurotransmitter associated with arousal) measured in the cerebrospinal fluid, or short latency (15 minutes or less) to rapid eye movement, or **REM, sleep**. Between 20% and 60% experience **sleep paralysis** (being awake, but unable to move or speak). A significant proportion of sufferers also experience REM intrusions, which produce vivid dreamlike imagery just as one is falling asleep (*hypnagogic hallucinations*) or just after awakening (*hypnopompic hallucinations*). The condition is quite rare (0.04% of the population or less) and may be slightly more common among males (American Psychiatric Association, 2013).

Can someone fall asleep in the middle of a conversation?

Cataplexy
Sudden loss of muscle control without loss of consciousness

REM sleep
Sleep phase that involves rapid eye movements, often associated with vivid dreaming

Sleep paralysis
Being awake but unable to move, just at the junction of sleep and wakefulness

Cataplexy is often precipitated by strong emotions such as anger, laughter, or surprise. Cataplexy occurs outside of sleep attacks, and can range from subtle signs that may not be obvious to others (such as drooping eyelids or a sagging jaw) to dropping items and falling to the ground. Full consciousness is maintained during the episode, which typically lasts only a few seconds or minutes. REM sleep intrusion is associated with intense dreamlike

imagery that may be visual, auditory, or kinetic, often incorporating components from the surrounding environment (for example, movement within a picture hanging on the wall). REM intrusion also results in sleep paralysis in nearly half of those with narcolepsy. Sometimes these combine into frightening experiences of being unable to move while unusual events are unfolding. However, hypnagogic and hypnopompic hallucinations occur in about 15% of the general population; and up to 50% have experienced sleep paralysis, so these REM-related symptoms are not unique to the disorder (American Psychiatric Association, 2000).

Those with narcolepsy typically experience sleepiness daily, and some may take voluntary naps in attempt to manage sleepiness. However, involuntary episodes can present serious risk of harm to self or others: two-thirds of those with narcolepsy have fallen asleep while driving (Aldrich, 1992). Social activities may be curtailed out of fear of sleep attacks or of emotional arousal that may precipitate an episode of cataplexy (in fact, joking and laughing are the most typical triggers for cataplexy). Affected individuals may also have a history of mood or anxiety disorders, as well as obesity (American Psychiatric Association, 2013).

Causal Factors

Narcolepsy is a serious problem that persists throughout life. People with narcolepsy are often overweight or obese and have elevated risk for type II diabetes, but their eating patterns are not abnormal when compared to controls (Dahmen, Becht, Engel, Thommes, & Tonn, 2008). Up to one-half of first-degree relatives of those with narcolepsy also show symptoms of sleepiness and up to 15% have the disorder, suggesting a strong genetic contribution (American Psychiatric Association, 2000). Recently, the risk of narcolepsy among first-degree relatives of those with the disorder was calculated to be 75 times higher than the risk in the general population (Ohayon & Okun, 2006). However, MZ twins have high non-concordance rates (Vgontz & Kales, 1999), indicating unknown environmental contributions to the disorder as well. Because of an association with a specific pattern of human leukocyte antigen (HLA) response, some have proposed that narcolepsy may arise as part of an autoimmune condition (Erman, 2006), although many in the population share similar HLA patterns without narcolepsy. Manipulation of genes controlling production of hypocretin can produce narcoleptic states in dogs and mice, and there is a deficiency of hypocretin in the spinal fluid of some narcoleptics (Nishino, Ripley, Overeem, Lammers, & Mignot, 2000). Increasingly, it appears that narcolepsy may be due to an autoimmune-related loss of neurons in the hypothalamus that produce hypocretin (Dauvilliers, Arnulf, & Mignot, 2007). As noted above, a hypocretin deficiency now satisfies one of the criteria for narcolepsy in the *DSM-5*.

Treatment of Narcolepsy

Therapeutic naps for 10–60 minutes daily may be of benefit in management of the condition. Stimulant drugs are typically used to stave off sleep attacks; methylphenidate is the preferred drug for preventing sleep onset (Vgontz & Kales, 1999). Antidepressant medications may help reduce cataplexy in patients with narcolepsy.

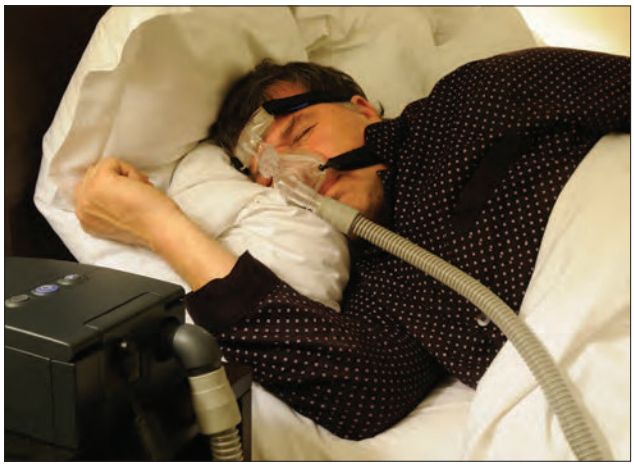
14.4d Breathing-Related Sleep Disorders

The central feature of a breathing-related sleep disorder is sleep disruption (leading to excessive sleepiness or insomnia) caused by a breathing difficulty. Most often, the breathing difficulty is **sleep apnea**, in which breathing ceases during sleep. Essentially, the sleeping individual stops breathing, begins to suffocate, and then rouses from sleep briefly to gasp for breath. In addition to apnea, *hypopnea* (a reduction in airflow, related to unusually slow or shallow breathing) and *hypoventilation* (abnormal blood levels of oxygen and carbon dioxide) also constitute the respiratory events that may disturb sleep in these conditions. These ventilation cycles may occur more than 15 times per hour, so that the individual partially awakens from sleep hundreds of times throughout the night. As a result, sleep is not

Sleep apnea
Frequent cessation of breathing during sleep

experienced as restful or restorative, and symptoms similar to those of insomnia are evident (poor concentration, irritability, mood disturbances, and memory disturbances).

The most common form of breathing-related sleep disorder is obstructive sleep apnea hypopnea, involving repeated obstructions of the upper airway, accompanied by loud snoring. The *DSM-5* diagnosis requires at least five apneas or hypopneas per hour of sleep, verified by polysomnography, that result in nocturnal breathing disturbance or daytime fatigue, or evidence of 15 or more apneas or hypopneas per hour of sleep regardless of resulting symptoms. It can be specified according to severity, based on the degree of reduced blood oxygen saturation. Obstructive sleep apnea is more common in overweight individuals, for whom soft tissues in the neck can block the airway; those with large necks over 16–17 inches are at greater risk. In less obese persons, obstructions can be related to tonsil size, abnormal growths, or nasal airway obstruction.



The nasal continuous positive airway pressure (nCPAP) is used to treat severe sleep apnea by delivering a continuous flow of air to the nostrils through a nose mask. (iStock)

People with breathing-related sleep disorders (as well as those with hypersomnolence disorder) often experience a dull headache on awakening, sometimes accompanied by **sleep drunkenness** (difficulty wakening, confusion, and inappropriate behavior, also called *sleep inertia*). They often are excessively sleepy during the day and may involuntarily fall asleep at inappropriate times, in extreme cases, similar to those with narcolepsy. Naps are usually not refreshing. Mood and anxiety disorders are often associated with breathing-related sleep disorders.

Obstructive sleep apnea hypopnea is more common among middle-aged, overweight males and in children with enlarged tonsils (who, unlike adults, may not snore). It occurs in up to 15% of the adult population, with higher rates (more than 20%) among the elderly (American Psychiatric Association, 2013). Interestingly, sleep-disordered breathing is significantly less common in children who were breastfed for at least two months (Montgomery-Downs, Crabtree, Capdevila, & Gozal, 2007). Obstructive sleep apnea hypopnea tends to have a gradual onset and a chronic course, and it can contribute to premature death by heart arrhythmia or cardiovascular disease. Weight loss and continuous positive airway pressure or other techniques to keep the airway open are the most effective treatments (Vgontz & Kales, 1999).

A much more rare breathing-related sleep disorder is central sleep apnea, in which there are five or more apneas per hour of sleep, not related to obstruction. Snoring is much less common in this condition. The periodic breathing pattern that occurs in central sleep apnea can be subtyped as idiopathic, comorbid with opioid use (which impacts respiratory rhythm), or related to Cheyne-Stokes breathing, an increasing/decreasing air intake pattern that is tied to the development of heart failure. It appears most often in users of long-acting opioids, such as methadone, and in association with renal failure or stroke (American Psychiatric Association, 2013).

Sleep-related hypoventilation need not involve apneas but rather shallow or decreased breathing that leads to elevated levels of carbon dioxide (CO_2) levels in the blood. Sufferers complain of frequent wakening, sleepiness, insomnia, and headaches. The condition is thought to be uncommon, but may be increasing related to rising obesity and chronic obstructive pulmonary disease (COPD) rates (American Psychiatric Association, 2013).

14.4e Circadian Rhythm Sleep-Wake Disorders

Sleep drunkenness
Difficulty awakening from sleep, often including confusion and inappropriate behavior

Circadian rhythm sleep-wake disorders involve a persistent sleep disturbance due to a mismatch between the person's internal 24-hour sleep-wake cycle (the circadian sleep-wake pattern) and the schedule required by the person's environment. As a result of the mismatch

in cycles, affected people usually experience insomnia at some times of the day and sleepiness at other times, with significant distress or impairment of functioning evident (for example, falling asleep at inappropriate times). In some types of Circadian rhythm sleep-wake disorders, an individual may feel "locked in" to a cycle of unusually late sleep and awakening, unable to adjust the cycle to an earlier one such as that required for a job (delayed sleep phase type). In other cases, people may experience earlier sleep onset and awakening, with the inability to adjust to the conventional later sleep/wake times (advanced sleep phase type). The condition may be generated by certain work schedules, especially night shifts (shift work type), or appear as a lack of discernible sleep-wake rhythm, with sleep fragmented into at least three different periods during the day (irregular sleep-wake type). In another pattern (non-24-hour sleep-wake type), the sleep phase gradually increases and drifts out of 24-hour alignment, so that sleep time moves into daytime hours. This subtype is particularly common in blind or visually handicapped persons, for whom the incidence approaches 50% (American Psychiatric Association, 2013).

Persons diagnosed with the delayed sleep phase type of the disorder typically have great difficulty shifting the sleep-wake cycle forward; but once sleep is initiated, it is normal. They feel continually sleep-deprived due to the need to maintain social or occupational obligations, except on weekends or during vacations, when they tend to shift back to a later cycle. Shift work type may be most common among those on nightshift or rotating-shift schedules; shorter sleep duration and more frequent awakenings are often accompanied by difficulties pertaining to family demands and environmental disturbances during sleep times (such as traffic noises and telephones). In addition to sleep disruption, other symptoms associated with circadian rhythm sleep disorders include headache, fatigue, impaired coordination, decreased appetite, and indigestion. All forms of the disorder produce difficulties in concentration and memory, attention, and performance; and depressive symptoms are not uncommon.

The severity of the sleep disruption appears to increase with age. Some forms (e.g., shift work type) show reversal of symptoms with schedule changes, while the delayed sleep phase type may last for decades. The prevalence of circadian rhythm sleep-wake disorders is unknown. More than 7% of adolescents may experience delayed sleep phase type, and more than 10% of night shift workers may experience shift work type. Some types appear to aggregate within families (American Psychiatric Association, 2013). Melatonin, secreted by the pineal gland, helps to regulate sleep-wake cycle rhythm; it appears to be beneficial in the treatment of circadian rhythm sleep-wake disorders (Pandi-Perumal, Srinivasan, Spence, & Cardinali, 2007).

14.5 Parasomnias

14.5a Non-Rapid Eye Movement Sleep Arousal Disorders

The non-rapid eye movement sleep arousal disorders involve incomplete awakening from sleep, accompanied by sleepwalking or sleep terrors (see *DSM-5* Diagnostic Criteria for Non-Rapid Eye Movement Sleep Arousal Disorders). The *DSM-5* diagnostic category is a combination of two separate *DSM-IV* disorders, nightmare disorder and sleep terror disorder. Usually, the incomplete awakening occurs in the first third of the sleep episode and tends to be brief (less than 10 minutes), although longer (up to 1 hour) events may occur. Typically, in the sleepwalking type, the eyes are open; the event may begin simply and become progressively more complex, including getting out of bed and leaving the room. Sleep terrors involve a strong sense of dread and a compulsion to escape, but the person usually does not wake completely and returns to sleep. In both types of episodes, persons do not remember the event the next morning.

Do people sleepwalk because they are dreaming?

Sleepwalking involves repeated episodes of complex motor activities which begin during slow wave non-REM sleep. Depending on the severity, the motor activities can range from sitting up in bed to carrying on conversations, eating food, leaving a building, or even

operating machinery. Episodes usually terminate with return to full sleep (sometimes in new or unfamiliar locations). If awakened (which is difficult), the sleepwalker is typically confused for several minutes and does not report dreaming or awareness of the event. During a sleepwalking episode, the individual commonly has a blank face and is relatively unresponsive to attempts to communicate or be awakened by others. The person may talk or even answer questions, but a genuine dialogue is usually not established. Although their eyes are typically open, sleepwalkers may be clumsy (Plante & Winkelman, 2006). Some injure themselves by walking into walls or falling through windows. Occasionally, sleepwalkers may strike out at others, particularly if sleep terrors are also present.

People with sleep terror disorder do not recall dreaming, apart from fragment images and a sense of terror. (iStock)

There have been reports of complex sexual or violent behaviors, including homicide and rape, occurring during episodes of sleepwalking (Cartwright, 2004; Rosenfeld & Elhajjar, 1998). Actually, a full range of directed sexual activities with self or partners (**sexomnia**) has been reported in sleeping individuals—including masturbation, fondling, sexual verbalizations, and intercourse—with complete amnesia for the episodes reported after awakening the next morning. These types of complex acts are not limited to sleepwalking disorder; they have also occurred within other parasomnias such as REM sleep behavior disorder (below) and confused arousals associated with sleep apnea as well (Schenck, Amulf, & Mahowald, 2007). Although traditionally considered extremely rare, sleep-related violence may be greatly under-reported, with as much as 2% of the population enacting some form of violence during sleep (Lettieri & Williams, 2011). However, the majority of such cases occur in young to middle-aged men with a history of sleepwalking (Plante & Winkelman, 2006). Sleep-related eating may also occur during sleepwalking episodes, especially among females, with varying degrees of amnesia. Inappropriate foods may be consumed at these times as well (American Psychiatric Association, 2013).

Sexomnia
Sexual activities during sleep, without conscious awareness

DSM-5 Diagnostic Criteria for Non-Rapid Eye Movement Sleep Arousal Disorders

Non-Rapid Eye Movement Sleep Arousal Disorders

A. Recurrent episodes of incomplete awakening during sleep, usually occurring during the first third of the major sleep episode, accompanied by either one of the following:
   1. **Sleepwalking**: Repeated episodes of rising from bed during sleep and walking about. While sleepwalking, the individual has a blank, staring face; is relatively unresponsive to the efforts of others to communicate with him or her; and can be awakened only with great difficulty.
   2. **Sleep terrors**: Recurrent episodes of abrupt terror arousals from sleep, usually beginning with a panicky scream. There is intense fear and signs of autonomic arousal, such as mydriasis, tachycardia, rapid breathing, and sweating, during each episode. There is relative unresponsiveness to efforts of others to comfort the individual during the episodes.

B. No or little (e.g., only a single visual scene) dream imagery is recalled.

C. Amnesia for the episodes is present.

D. The episodes cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.

E. The disturbance is not attributable to the physiological effects of a substance (e.g., a drug of abuse, a medication).

F. Coexisting mental and medical disorders do not explain the episodes of sleepwalking or sleep terrors.

Coding note: For ICD-9-CM, code 407.46 for all subtypes. For ICD-10-CM, code is based on subtype

Specify whether:

307.46 (F51.3) Sleepwalking type

Specify if

With sleep-related eating

With sleep-related sexual behavior (sexsomnia)

307.46 (F51.4) Sleep terror type

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In sleep terrors, individuals awake from sleep abruptly, usually with a cry or panicky scream. They show intense fear and autonomic arousal—such as rapid heartbeat, rapid breathing, pupil dilation (mydriasis), and sweating—and are generally unresponsive to efforts by others to awaken them. They may actively resist attempts to comfort or hold them by swinging, punching, or rising from the bed and fleeing; these acts can result in physical injury to self or others. In most episodes, individuals do not fully awaken and return to sleep. However, if they fully waken, they do not recall dreaming, apart from fragmented images and a sense of terror. The next morning there is amnesia for the episode, which usually does not occur more than once in a night. Episodes recur after several days or weeks and are made more likely by fatigue, stress, and alcohol or sedative use.

Usually, non-rapid eye movement sleep arousal disorders begin before age 12 and resolve during adolescence and thereafter, declining from an incidence of perhaps 5% among children to less than 1% in adults (American Psychiatric Association, 2013). Much is unknown about the causes or treatments for the condition. In one study involving three boys with histories of recurrent sleep terrors, scheduled awakenings 30 minutes before expected occurrence of sleep terrors were effective in reducing their frequency (Durand & Mindell, 1999). Especially in adults, sleep terror is related to higher incidence general psychopathology, including PTSD, mood and anxiety disorders, and some personality disorders. A family history of sleepwalking or sleep terror is present in up to 80% of cases (American Psychiatric Association, 2013).

14.5b Nightmare Disorder

Those with nightmare disorder repeatedly experience frightening dreams that result in awakening. Individuals rapidly become alert and oriented after waking and can recall the nightmares in detail. Most often, the nightmares involve threats to the person's safety, security, or self-esteem; and these intense dreams (or the sleep disruption they produce) cause significant distress or impairment for the individual.

The dreams in nightmare disorder usually last longer than 10 minutes and happen during REM sleep, which increases in the second half of the night. The nightmares often are lengthy, elaborate, and terrifying, and may recur several times in a night. Themes about attack, injury, pursuit, and personal failure or embarrassment are typical. Upon awakening, the person may be anxious and fearful, and can recall the sequence and imagery of the dream in detail. The most common impact of recurrent nightmares is subjective distress; some individuals may avoid sleeping, and daytime functioning may then be impaired as a result of sleepiness.

Nightmare disorder most often occurs in children who have been exposed to severe psychosocial stressors. The dreams usually begin between 3–6 years of age and increase in prevalence and severity into early adulthood. Females experience nightmare disorder up to 2 times more often than males (American Psychiatric Association, 2013). Depression, substance use disorders, and personality disorders may be associated with the condition; but PTSD is accompanied by nightmares nearly 5 times more often than any other disorder, and some consider PTSD a predisposing factor for nightmare disorder (Plante & Winkelman, 2006). The incidence of nightmare disorder is unknown although 50% of adults experience occasional nightmares, and up to half of children ages 3–5 experience nightmares severe enough to disturb parents (American Psychiatric Association, 2000).

14.5c Rapid Eye Movement Sleep Behavior Disorder

A provisional condition in the *DSM-IV*, rapid eye movement sleep behavior disorder, was elevated to a parasomnia in the *DSM-5*. It consists of complex motor activity or vocalizations that occur during REM sleep and are associated with vivid dreaming. Normally, skeletal muscles are paralyzed during REM sleep; in those with rapid eye movement sleep behavior disorder, that paralysis is absent, allowing people to essentially act out their dreams. Violent activities such as punching and kicking sometimes occur during episodes; emotion-laden,

loud shouting may be present during the episode. The condition may precede or accompany the development of some neurodegenerative conditions, including Parkinson's disease, and it may be more likely in children with autism. Its prevalence about 0.5% of the population (American Psychiatric Association, 2013), but it is more common in the elderly, especially men (Cooke & Ancoli-Isreal, 2006). The disorder appears to have good inter-rater reliability (about 0.65), when assessed among patients with Parkinson's disease (Scaglione, et al., 2004). It can also be induced by a variety of medications, including antidepressants. However, its causes remain uncertain. It is most commonly treated with benzodiazepine medications (Thomas, Bonanni, & Onofrj, 2007)

Do some people act out their dreams?

14.5d Restless Legs Syndrome

Restless legs syndrome was also elevated to a parasomnia from provisional status in the *DSM-IV*. It involves frequent urges to move the legs, especially when resting, in order to relieve unpleasant sensations such as itching, burning, or tingling. The urges are worse in the evening or night and are partly or totally relieved by movement. The urges may interfere with sleep onset or sleep continuity, producing daytime fatigue or sleepiness. Symptoms must occur three times per week for 3 months to qualify for the diagnosis. Between 2% and 7.2% of the population may be affected (American Psychiatric Association, 2013). Other limb movement conditions may occur rhythmically during non-REM sleep, inducing brief arousals that degrade the quality of sleep. Sleep-related limb movement disorders, including restless legs syndrome, increase with age (Cooke & Ancoli-Isreal, 2006). The incidence increases up to about age 60, with the disorder more prevalent in females, especially during pregnancy (American Psychiatric Association, 2013).

Finally, the *DSM* provides the category "substance/medication-induced sleep disorder" to describe the many sleep dysfunctions that can be cause by substance use, intoxication, or withdrawal. A large array of substances, including caffeine, alcohol, tobacco, sedatives, and opioids are associated with sleep dysfunctions; and those with parasomnias and older individuals who take multiple medications may be at greater risk. Women seem more susceptible to substance/medication-induced sleep problems than men, given the same amount and duration of consumption (American Psychiatric Association, 2013).

14.6 Elimination Disorders

Only two elimination disorders are listed within *DSM-5*. Both must be distinguished from developmentally appropriate deficiencies in toileting abilities in the youngest children. Thus, these are not diagnosed until after the normal period for attaining continence.

14.6a Encopresis

Encopresis involves repeated passage of feces by a person over the age of 4 years into inappropriate places, such as into clothing or onto the floor. Events—which are usually but not always involuntary—must occur at least once a month for at least 3 months and are not due to general medical conditions (other than constipation and its mechanisms) or to use of laxatives. Usually the pattern in encopresis consists of constipation (which can develop in response to anxiety or other psychological states), followed by impaction, further retention, and overflow incontinence. The condition is often associated with embarrassment, social ostracism, and avoidance of social situations. Encopresis may affect 1% of 5-year-olds, and it is more common among males. If events are voluntary or intentional, the disorder may be associated with conduct disorder or oppositional defiant disorder (American Psychiatric

Association, 2000). There are no known pharmacological interventions for encopresis at present (American Psychological Association, 2006). Treatment may involve high-fiber diets, use of laxatives, relaxation training, and behavioral interventions that shape and support regular patterns of toileting. Combinations of behavior techniques with diet and education appear to be helpful (Mikkelsen, 2001).

14.6b Enuresis

Enuresis is repeated voiding of urine into bed or clothes, during day or night, in children age 5 years or older (by which age bladder control would ordinarily have been acquired). The condition is not due to a general medical condition and must occur at least twice a week for 3 months. The diagnosis can be subtyped as nocturnal, diurnal, or both.

Although few consider enuresis in itself to represent a serious disorder, for the young child it can be a source of intense psychological discomfort resulting from the jeers and taunts of unsympathetic peers and the obvious irritation of parents and others who have to cope with frequent changes of bedding. Children may avoid certain activities, such as sleeping at a friend's house, because of the potential embarrassment.

Causal Factors

Most children with enuresis become continent by adolescence. The prevalence of the disorder may be 10% among 5-year-olds, but falls to half of that by age 10; about 1% of cases continue into adulthood. The condition has strong familial patterns: offspring of an enuretic parent have 5 to 7 times the risk of the general population for developing enuresis, and 75% of children with the disorder have a first-degree relative who was affected (American Psychiatric Association, 2000). Several contributing factors have been proposed for enuresis, including bladder dysfunction, insufficient bladder capacities, disturbance of biological rhythms, poor toilet training, and psychological stress. Psychodynamic theorists considered the meaning of the symptom in terms of intrapsychic conflicts that have their origins in disturbed family relationships. Wetting the bed may be seen, for example, as an unconscious expression of hostility toward a parent, a stubborn refusal to accommodate the parent's demand for more age-appropriate behavior, or a wish to remain infantile.

Treatment of Enuresis

Oral medications such as antidepressants and desmopressin (a synthetic urine suppressor) are more effective than placebo in reducing enuresis, but relapse is likely when medication is discontinued (Mikkelsen, 2001). Behavioral approaches have involved attempts to condition children to respond to the sensation of a full bladder, and their effectiveness is well validated (Chambless, et al., 1998). The bell and pad method, the best known technique, was developed more than 75 years ago, based on a Pavlovian conditioning model. Urination is an automatic reflex response to a distended bladder. As they grow older, most children learn to inhibit this reflexive response, even while sleeping, and learn to make the response at the right time and place. For the child with nocturnal enuresis, this control is established by conditioning the response of awakening to the stimulus of a full bladder. The procedure itself is quite simple. The child sleeps on a pad that, when moistened by urine, completes an electric circuit, causing a bell to sound, awakening the child. After a few such pairings, the conditioned response (waking up) is triggered by stimuli that predict the bell—that is, by bladder distension. According to Mikkelsen (2001), the bell and pad device is the only treatment that is associated with generalized improvement after the treatment is withdrawn; and although it is the most cost-effective intervention, it remains underused. It is effective in 75% of cases; and compared to medication, it has low risk and high benefit (American Psychological Association, 2006).

What treatments are effective for elimination disorders?

Chapter Review

TO SUM UP ...

- Anorexia nervosa is a form of self-starvation related to strict control of eating, fear of gaining weight, and disturbed body image. It is associated with below normal body weight and serious physical and medical effects, including death.
- Bulimia nervosa is a loss of control over food intake that occurs in binges. The person either purges the food or engages in excessive exercise or fasting to compensate for binge eating.
- Both anorexia nervosa and bulimia nervosa involve self-evaluation that is too strongly connected to body shape and weight. They are much more common among young white females; and when they occur among males, the eating disorders are likely to be associated with homosexuality or with sports that emphasize aesthetic performance or weight limits.
- Binge-eating disorder involves repeated food binges without compensatory activities. It is much more common than the other eating disorders and may affect males and females equally.
- Effective treatments for eating disorders include cognitive-behavioral interventions and (to a lesser extent) antidepressant medications.
- There are two general classes of sleep-wake disorders: dyssomnias (with abnormalities in amount, quality, or timing of sleep) and parasomnias (with abnormal behavioral or physiological events occurring during sleep or in the transition between sleep and wakefulness).
- Insomnia disorder is the most common dyssomnia, indicated by difficulty falling asleep or staying asleep. Its likelihood increases with age. Other dyssomnias include conditions of excessive or unexpected sleep, breathing-related sleep disorders, and circadian rhythm sleep disorder.
- Effective treatments include cognitive-behavioral therapies and melatonin for insomnia, stimulant drugs for hypersomnolence disorder and narcolepsy, and positive airway pressure for breathing-related sleep-wake disorder.
- Among the parasomnias, nightmare disorder and REM sleep behavior disorder occur during REM sleep, whereas sleep terrors and sleepwalking occur during non-REM sleep.
- Enuresis and encopresis are disorders involving inappropriate elimination. Enuresis is often effectively treated with the bell and pad method.

KEY TERMS

Amenorrhea 392
Binge eating 394
Cataplexy 401
Dyssomnias 398
Night eating syndrome 397
Parasomnias 398
Polysomnography 398
Purging 392
REM sleep 401
Sexomnia 405
Sleep apnea 402
Sleep drunkenness 403
Sleep paralysis 401

QUESTIONS FOR STUDY

- Speculate on reasons why anorexia nervosa has a much shorter average duration than other eating disorders.
- Describe binge eating, and describe the disorders in which it occurs.
- Discuss the role of REM sleep in various parasomnias.
- Distinguish nightmares from sleep terrors.
- Describe how the bell and pad method works.

POP QUIZ

1. Which of the following does pica involve?
   A. regurgitating and re-chewing food.
   B. eating of non-nutritive substances.
   C. eating unusually large amounts of food
   D. purging
2. Lifetime prevalence rates of anorexia nervosa currently are about _____ of females.
   A. 15%
   B. 10%
   C. 5%
   D. 1%

3. Which of the following are at highest risk for anorexia nervosa?
   A. Caucasian women aged 15–24
   B. African American women aged 13–18
   C. Hispanic women aged 17–24
   D. Caucasian women aged 11–16

4. Which of the following statements is true about eating disorders?
   A. Bulimics maintain below-average body weight.
   B. Anorexics do not engage in binging/purging eating patterns.
   C. Bulimia nervosa is not related to SES.
   D. Mortality rates are similar for bulimia and anorexia.

5. _____are sleep disorders concerned with abnormal sleep amount, quality, or timing whereas _____ are sleep disorders that are concerned with abnormal events or behaviors involving the sleep cycle or sleep-wake transitions.
   A. Hyposomnias; parasomnias
   B. Endosomnias; dyssomnias
   C. Dyssomnias; parasomnias
   D. Parasomnias; dyssomnias

6. Which could not happen during cataplexy?
   A. sleepwalking
   B. falling
   C. being aware of surroundings
   D. feeling emotional distress

7. Nightmare disorder generally has a(n) _____ onset.
   A. childhood
   B. adolescent
   C. young adulthood
   D. mid-life

8. Jack's repeated, irresistible attacks of unintended sleep started to affect his work and family life. Jack went to his doctor, who ordered a sleep study that diagnosed Jack with _____.
   A. central sleep apnea
   B. narcolepsy
   C. hypersomnolence disorder
   D. circadian rhythm sleep-wake disorder

9. Many people experience the sensation of falling out of bed or falling down the stairs as they are starting to fall asleep. This is known as _____.
   A. hypnapompic hallucinations
   B. cateplexy
   C. sleep drunkenness
   D. hypnagogic hallucinations

10. _____ is unusually slow or shallow breathing and may disturb sleep in breathing-related sleep disorder.
    A. Sleep drunkenness
    B. Dyssomnia
    C. Sleep apnea
    D. Hypopnea

11. Melatonin, secreted by the pineal gland, helps to regulate the sleep-wake cycle and appears beneficial in the treatment of _____.
    A. hypersomnolence disorder
    B. central sleep apnea
    C. nightmare disorder
    D. circadian rhythm sleep-wake disorder

12. Sleepwalking involves repeated episodes of complex motor activities which begin during _____.
    A. the first stages of sleep
    B. the later stages of sleep
    C. slow wave REM sleep
    D. slow wave non-REM sleep

13. Which of the following normally occurs during REM sleep?
    A. Skeletal muscles are paralyzed.
    B. Cataplexy occurs.
    C. The eyes are nearly motionless.
    D. Sleep apnea occurs.

14. Enuresis cannot be diagnosed until age _____.
    A. 1
    B. 3
    C. 5
    D. 7

15. The bell and pad device is used to treat _____.
    A. pica
    B. enuresis
    C. rumination disorder
    D. encopresis

Additional study resources are available at **www.BVTLab.com**

ANSWERS

1. B 2. D 3. A 4. C 5. C 6. A 7. A 8. B 9. D 10. D 11. D 12. A 13. A 14. C 15. B