Position of the American Dietetic Association: Nutrition Intervention in the Treatment of Anorexia Nervosa, Bulimia Nervosa, and Other Eating Disorders

ABSTRACT
It is the position of the American Dietetic Association that nutrition intervention, including nutritional counseling, by a registered dietitian (RD) is an essential component of the team treatment of patients with anorexia nervosa, bulimia nervosa, and other eating disorders during assessment and treatment across the continuum of care. Diagnostic criteria for eating disorders provide important guidelines for identification and treatment. However, it is thought that a continuum of disordered eating may exist that ranges from persistent dieting to subthreshold conditions and then to defined eating disorders, which include anorexia nervosa, bulimia nervosa, and binge eating disorder. Understanding the complexities of eating disorders, such as influencing factors, comorbid illness, medical and psychological complications, and boundary issues, is critical in the effective treatment of eating disorders. The nature of eating disorders requires a collaborative approach by an interdisciplinary team of psychological, nutritional, and medical specialists. The RD is an integral member of the treatment team and is uniquely qualified to provide medical nutrition therapy for the normalization of eating patterns and nutritional status. RDs provide nutritional counseling, recognize clinical signs related to eating disorders, and assist with medical monitoring while cognizant of psychotherapy and pharmacotherapy that are cornerstones of eating disorder treatment. Specialized resources are available for RDs to advance their level of expertise in the field of eating disorders. Further efforts with evidenced-based research must continue for improved treatment outcomes related to eating disorders along with identification of effective primary and secondary interventions.
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POSITION STATEMENT

It is the position of the American Dietetic Association that nutrition intervention, including nutritional counseling, by a registered dietitian is an essential component of the team treatment of patients with anorexia nervosa, bulimia nervosa, and other eating disorders during assessment and treatment across the continuum of care.

Eating disorders are considered medical illnesses with diagnostic criteria based on psychological, behavioral, and physiologic characteristics. Eating disorders considerably impact the health status of affected individuals, potentially in a life-threatening manner. Over the past 2 decades, much progress has been made in the classification and understanding of eating disorders. In general terms, information about the classification, incidence, etiology, and effects of eating disorders encompasses three groups of psychopathologies with associated eating pattern abnormalities: anorexia nervosa; bulimia nervosa; and eating disorders not otherwise specified (EDNOS), including binge eating disorder. Of special interest is the multidisciplinary approach in the clinical care of individuals with eating disorders and the significant role that nutritional care can play in the prevention of eating disorders and related complications.

Diagnostic criteria for the three disorders are identified in the fourth edition text revision of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV-TR) (1). Anorexia nervosa is characterized by an exaggerated drive for thinness (2). Symptoms include refusal to maintain a body weight above the standard minimum (eg, less than 85% of expected weight), intense fear of becoming fat with self-worth based on weight or shape, and evidence of an endocrine disorder (eg, amenorrhea in female subjects and loss of sexual potency in male subjects). In bulimia nervosa, individuals lack a sense of control regarding food consumption with overwhelming urges to overeat and inappropriate compensatory behaviors or purging that follow the binge episodes (eg, vomiting, excessive exercise, alternating periods of starvation, and abuse of laxatives or drugs). Similar to anorexia nervosa, individuals with bulimia nervosa also display psychopathology, including a fear of being overweight.

The EDNOS encompasses disorders of eating that are not entirely consistent with the diagnostic criteria for anorexia nervosa or bulimia nervosa and are associated with greater variability in symptomatology (2). These disorders may be described as subthreshold disorders and/or partial syndromes. The severity or frequency of the symptoms or behaviors can vary among these individuals (eg, anorexia with menses, bulimia with binge eating less than twice per week, or inappropriate compensatory behaviors after eating small amounts of food). Binge eating disorder is an EDNOS condition that has recently become better understood and that often coexists with obesity (3). Binge eating disorder is characterized by recurrent episodes of binge eating, a lack of self-control during binge eating episodes, and marked distress after a binge (1). The research criterion of binge eating without inappropriate compensatory behaviors is a distin-

guishing feature of binge eating disorder (1).

The DSM-IV-TR diagnostic criteria provide important guidelines for identification and treatment of eating disorders; however, there is considerable variability in the severity and the type of eating disorder. Furthermore, it is thought that a continuum of disordered eating may exist that ranges from persistent dieting to subthreshold conditions and then to defined eating disorders. Health professionals are encouraged to expand their views to see an individual as a whole person and be aware of potentially harmful signs and symptoms of disordered eating.

EPIDEMIOLOGIC AND INFLUENCING FACTORS

The number of individuals affected by eating disorders is unknown as the condition may exist for a considerable time period before clinical detection. Because of the sensitive and secretive behaviors associated with eating disorders, many cases go unreported. Although individuals of any background can develop eating disorders, these conditions are most commonly seen in industrialized, developed countries. The greatest frequency of eating disorders is among young adult women, affecting 3.2% of women between 18 and 30 years of age (4). Although eating disorders are less common among men, they have similar effects (5). Gay men are potentially at greater risk than heterosexual men for eating disorders based on a study examining eating practices and body satisfaction (5). The incidence of eating disorders among athletes, both male and female, is estimated at 10% to 20%, with bulimia nervosa the most frequently reported disorder (6). In addition, people who seek treatment for weight control seem to suffer from binge eating disorder at a higher rate than the general population, which may be as high as 50% of those seeking treatment (2).

Risk factors that precede an eating disorder diagnosis include sex, ethnicity, early childhood eating and gastrointestinal problems, elevated weight and shape concerns, negative self-evaluation, sexual abuse and other adverse experiences, and general psychiatric morbidity (7). Biological factors that have implications for early identification and treatment include genetic predisposition and gene–environment interactions (8). Also, alterations of central nervous system serotonin activity may directly affect eating behaviors and play a role in other psychological symptoms (eg, depression, obsessive-compulsive symptomatology). Given the course of eating disorders shown in longitudinal studies, early identification of high-risk groups, from young childhood on, is an important consideration for strategies to prevent development of eating disorders (7,9).

Environmental issues also impact eating disorders, from characteristic features to influences on intervention and treatment. Idealization of slimness in the culture of abundance is a contributing factor attributed to media and family influences (9). Legislators amended Title V of the Elementary and Secondary Act of 1965 with the Eating Disorders Awareness Prevention and Education Act of 2003 (10). This effort recognized the prevalence of dieting behaviors among school-age children and the need for educational programs to prevent the progress to partial or full-blown syndrome eating disorders. Two examples of resources developed to educate girls and women about healthful body and eating issues are Girl Power and BodyWise from the Office on Women's Health of the US Department of Health and Human Services (11).

Health care reimbursement and use are additional environmental issues that affect availability, accessibility, and quality of care (12). Wiseman and colleagues (13) reviewed a sample of eating disorder patients' (n=1,185) annual hospital use records for the period of 1984 to 1998. Length of stay was significantly decreased (from 149.5 days to 23.7 days), body mass index at discharge was lower (19.3 vs 17.7), and readmissions dramatically increased from 0% to 27% of total admissions. The trend was most significant for the period that matched the advancement of managed care insurance. In addition, health care use for individuals may be compromised in the managed care environment, given that the needs of individuals with eating disorders encompass both medical and psychological care (14). Registered dietitians (RDs) need to understand health insurance limitations to maximize the treatment benefits to individuals with eating disorders. Examples of strategies for food and nutrition professionals include educating insurance companies about treatment needs for eating disorders, participating in cost effectiveness analyses and outcome studies, and understanding how to navigate and guide families through the health insurance system (15).

COMORBID ILLNESS AND EATING DISORDERS

Patients with eating disorders often suffer from other psychiatric disorders in addition to their eating disorder, increasing the complexity of treatment. In these cases, it is important to understand the characteristics of the additional psychiatric disorders and the impact these disorders have on the course of treatment. Axis I psychiatric disorders (including depression, anxiety, body dysmorphic disorder, or chemical dependency) and axis II personality disorders (particularly borderline personality disorder) are frequently seen in the eating disorder population (12,16,17).

ROLE OF THE TREATMENT TEAM

The nature of eating disorders, with psychological, behavioral, and physiologic components, requires a collaborative approach by an interdisciplinary team of psychological, nutritional, and medical specialists (12,14,18). Psychiatric management, the foundation of eating disorder treatment, is instituted for patients in combination with other treatment modalities. A thorough medical examination, performed by a physician familiar with eating disorders—either primary care, specialist, or psychiatrist—helps to address medical issues. A dental examination may also be recommended. Medication management and medical monitoring are the responsibilities of the physician(s) on the team. Psychotherapy is the responsibility of the clinician credentialed to provide psychotherapy. This task may be assigned to a psychologist, a social worker, a psychiatric nurse specialist (advanced practice nurse), a licensed professional counselor, or a master's level counselor. The RD contributes to the care process through nutrition assessment,

recommendations, and implementation of therapeutic interventions, plus communicating the results to the other members of the team.

Typically, the medical needs of the individual determine the treatment site, most importantly the physical parameters of weight and cardiac and metabolic status. The decision to hospitalize may be made to prevent or treat medical instability, as seen with anorexia and a persistent decline in oral intake and weight. In this case, development of a plan for nutritional rehabilitation is a priority and requires close monitoring of metabolic status. The majority of patients with bulimia nervosa are treated in an outpatient or partial hospitalization setting pending the severity of symptoms. Other comorbid factors, such as psychiatric disorders, may also indicate the need for hospitalization. In the outpatient setting or residential treatment center, medically stable individuals receive ongoing treatment with psychosocial interventions and nutrition counseling. Ideally, individuals respond to therapeutic interventions and progress to greater levels of independence. Treatments often extend for a 1-year to 5-year period depending on the extent of pathology and need for support (19).

Medical nutrition therapy and psychotherapy are two integral parts of the treatment of eating disorders. The RD working with eating disorder patients relies on a good understanding of professional boundaries, nutrition intervention, and the psychodynamics of eating disorders. Understanding of boundaries refers to recognizing and appreciating the specific tasks of each member of the team. Specifically, the RD addresses food-related problems—as demonstrated in the patient's thought processes, behaviors, and physical status. In addition, the RD demonstrates competence at assessing the physiologic effects associated with malnutrition and assisting the medical team member with monitoring laboratory values, vital signs, and physical symptoms. Psychotherapeutic issues are the focus of the psychotherapist or mental health team member. Maintaining close communication between different team members offers patients the best support for therapeutic success.

The nutrition therapy provided by the RD depends on the individual's needs for care and site of treatment. Key therapies rely on expertise in nutritional requirements for the life stage of the affected individual, nutritional rehabilitation treatments, and modalities to restore normal eating patterns. First, the RD assesses the individual's nutritional status, knowledge base, motivation, and current eating and behavioral status. The RD develops the nutrition section of the treatment plan in collaboration with the team and the patient's goals for recovery. The RD then implements the treatment plan and supports the patient in accomplishing the goals set out in the treatment plan. If possible, the RD establishes a relationship of trust with the patient and has continuous contact with the patient throughout the course of treatment. If this is not feasible, the RD refers the patient to another RD, such as when the patient is transitioning from an inpatient to an outpatient setting. A further resource that outlines the scope of practice for RDs working with eating disorders is the standards of practice and standards of professional performance in behavioral health care (20).

RDs assist in medical monitoring of electrolytes, vital signs, weight, nutritional intake, and eating behaviors. The cornerstones of nutritional treatment are nutrition education, meal planning, establishment of regular eating patterns, and discouragement of dieting. Effective nutrition therapy may use cognitive behavioral therapy techniques. Cognitive behavior therapy is a psychotherapeutic modality to help an individual identify maladaptive cognitions and involves cognitive restructuring. In this process, faulty beliefs and thought patterns are challenged with more accurate perceptions and interpretations regarding dieting, nutrition, and the relationship between eating patterns and physical symptoms. Cognitive behavior therapy is a leading therapy for individuals with bulimia nervosa and is also considered for use with anorexia nervosa and binge eating disorder (12). Cognitive behavior therapy has been effective at lessening the frequency of binge eating behaviors, abnormal compensatory responses, and cognitions in individuals with bulimia nervosa. Cognitive behavior therapy for individuals with anorexia nervosa has improved response with individuals engaging in and persisting with treatment. Other types of psychotherapy include interpersonal therapy, family therapy, and group therapy. Self-esteem enhancement and assertiveness training may also be helpful. Antidepressants and other drugs are often used as an adjunct to psychotherapy. To support the psychotherapy of choice, it is critical that the RD's messages and communication style (verbal and nonverbal) match the individual's treatment plan. Also, the individual's motivation or readiness to change should be addressed. Motivational interviewing can be used by the RD as a client-centered, collaborative approach for enhancing intrinsic motivation to change (21).

MEDICAL CONSEQUENCES AND INTERVENTION IN EATING DISORDERS

The medical complications of eating disorders include nutritional factors related to eating behaviors and weight status. Nutrition-related clinical signs of eating disorders are most distinctive for anorexia nervosa and bulimia nervosa (Figure). However, depending on the food-related behaviors and degree of malnutrition there is overlap among eating disorders. For binge eating disorder, the long-term consequences of chronic diseases should not be minimized. Other important physical findings associated with eating disorders are lanugo, calluses on dorsum of hand, and swollen salivary glands. To reverse the medical effects of food-related problems, medical nutrition therapy provided by an RD, through regular contact, can be an effective source of support and information for individuals in each stage of treatment.

ANOREXIA NERVOSA

Nutrition-related clinical signs of anorexia nervosa are listed in the Figure. Within anorexia nervosa there are two subtypes: restricting and bingeing/purging, based on the presence of bulimic symptoms. Individuals who purge are at greater risk for medical complications (12). The prevalence of anorexia nervosa itself has been reported to be 0.3% (22). Subthreshold anorexia nervosa (missing one definitive criteria of the full-

Clinical signs	Anorexia nervosa	Bulimia nervosa
Electrolyte abnormalities	Hypokalemia with refeeding syndrome; hypomagnesemia; hypophosphatemia	Hypokalemia accompanied by hypochloremic alkalosis; hypomagnesemia
Cardiovascular effects	Hypotension; irregular, slow pulse; orthostasis; sinus bradycardia	Cardiac arrhythmias; palpitations; weakness
Gastrointestinal effects	Abdominal pain; bloating; constipation; delayed gastric emptying; feeling of fullness; vomiting	Constipation; delayed gastric emptying; dysmotility; early satiety; esophagitis; flatulence; gastroesophageal reflux disease; gastrointestinal bleeding
Endocrine imbalances—reproductive, metabolic	Cold sensitivity; diuresis; fatigue; hypercholestrolemia; hypoglycemia; menstrual irregularities	Menstrual irregularities; rebound fluid retention with edema
Nutrient deficiencies	Protein–energy malnutrition; various micronutrient deficiencies	Variable
Skeletal and dental effects	Bone pain with exercise; osteopenia; osteoporosis;	Dental caries; erosion of the surface of the teeth
Muscular effects	Wasting; weakness	Weakness
Weight status	Underweight state	Variable
Cognitive status	Poor concentration	Poor concentration
Growth status	Arrested growth and maturation	Typically not affected

Figure. Nutrition-related clinical signs commonly associated with anorexia nervosa and bulimia nervosa. These signs will vary depending on the weight-losing or purging behaviors and degree of malnutrition. (Data adapted from references 1, 2, 12, and 14.)

blown syndrome) seems to occur more frequently, ranging from 0.37% to 1.3% of the population (23). The peak age, although not exclusive age, for onset is 15 to 19 years (24). A significant level of risk attributable to genetics (56%) indicates the important role that biology plays with anorexia nervosa (25). Certain individuals may be more sensitive to environmental pressures for thinness, and early identification of risk for anorexia nervosa because of family history may prompt important interventions.

Risk factors for anorexia nervosa, as with eating disorders in general, concern issues that directly relate to weight and control issues. In the development of the risk factor taxonomy by Jacobi and colleagues, the following variable risk factors during early adolescence that seem associated with and seemed to precede anorexia nervosa onset include dieting behavior, a high level of exercise, the presence of body dysmorphic disorder, obsessive compulsive disorder, and acculturation (7). In addition to the risk associated with adolescent age, risk with a higher level of perfectionism, negative self-evaluation, and premorbid obsessive compulsive disorder may also occur at any time before onset. These factors are of particular interest to the RD as they may help to understand the relationship between behaviors, illness severity, and anorexia nervosa–related complications. For example, disturbed eating patterns and severe energy restriction emerge during the development of anorexia nervosa and may be complicated by an altered perception of actual meal consumption. Individuals with anorexia nervosa were found to significantly overestimate their kilocalorie intake by an average of 460 kcal per meal as compared with normal-weight participants, who underestimated their meal consumption by about 60 kcal (26). This potential misperception reinforces that there is a difference between subjective and objective measures of intake. Body dysmorphic disorder, as a comorbidity with anorexia nervosa, is of great importance because of the high rate of attempted suicide in affected individuals (17). In a study of 41 patients with anorexia nervosa, 16 (39%) were diagnosed with body dysmorphic disorder. They experienced concerns about their appearance unrelated to their concerns about weight, and several were affected by other axis I disorders (17). This group also differed from the remaining individuals with anorexia nervosa on several markers of disease severity: time spent thinking about appearance, number of psychiatric hospitalizations, and number that attempted suicide. Also, although more commonly associated with bulimic patients, laxative use by individuals with anorexia nervosa, as a weight-control measure, has been associated with more severe illness in these patients (27).

Diagnostic criteria for both the DSM-IV-TR and the *International Statistical Classification of Diseases and Related Health Problems, 10th Revision* (ICD-10) systems identify weight status parameters as critical markers for anorexia nervosa based on weight for height and growth progress (ie, refusal to maintain weight status ≥85% of the expected weight for age and height [and sex] or Quetlet body mass index <17.5) (23). For prepubertal individuals, failure to make expected weight gain during growth periods is significant. At the level of severe underweight status, <75% ideal body weight, medical instability occurs indicating the need

for hospitalization. In all cases, the patient's physical build, weight history, and stage of development are considered.

Anorexia nervosa diagnostic criteria include an intense fear of gaining weight with a disturbance in the way one's body weight and shape are perceived or denial of the seriousness of weight status and hormonal aberrations (eg, amenorrhea in female patients) (1). Physical complications of anorexia nervosa are commonly described in a systems-based approach and related to presenting symptoms (1). Of these anorexia nervosa–related complications, osteoporosis, refeeding syndrome, and cardiac arrhythmia are potentially most serious (28). For female and male patients with anorexia nervosa, the timing and duration of illness may overlap with a critical period for bone mineral deposition and may have lifelong effects. The primary therapeutic goal is to restore body weight and, for women, return of menses. Secondly, calcium (1,500 mg/day) with vitamin D (400 IU/day) supplements have shown some effectiveness, as have selective estrogen receptor modulators in women (29). Aggressive feeding of cachectic patients is associated with multiple risks, and as such the refeeding phase requires gradual advancement of nutrient intake and close monitoring (28). Substantial problems can occur, such as hypophosphatemia, edema, cardiac failure, seizures, and death. Also, cardiovascular complications may occur and contribute to the high mortality rate, such as when ventricular arrhythmia occurs.

Nutrition treatment goals for anorexia nervosa, typically referred to as nutritional rehabilitation, relate to restoration of a healthful weight and normalization of eating patterns. How these goals are achieved varies by treatment site, stage of illness, and progress with nutritional and psychotherapies. Individuals with acute medical needs may have shorter hospitalizations because of economic restraints with health insurance limitations and consequently may leave the hospital without progress toward medical nutrition therapy goals (30). Day hospitals or partial hospitalization arrangements provide less intensive therapeutic interventions and support; the effectiveness of these programs still may be largely affected by the motivation of the individual for changing behaviors (31). Individuals with anorexia nervosa can be resistant to nutritional therapies. Gradual adjustments in nutrient intake and weight progress such as stepping up calorie intake from a baseline level between 30 to 40 kcal/kg/day of actual weight per day (may start at 1,000 to 1,200 kcal per day) and incremental advancement to achieve a weight gain of 0.5 to 1.0 lb per week may be attainable—even for patients with chronic conditions (1,32). Food continues to be the "drug of choice" for anorexia nervosa. As yet, no pharmacotherapy has been identified as effective in controlled trials with anorexia nervosa, as compared with medical regimens that are helpful in bulimia nervosa or binge eating disorder. Of critical importance with anorexia nervosa, as with eating disorders in general, psychotherapy plays an integral role in the treatment plan, although the effectiveness of specific psychotherapies has varied in studies of anorexia nervosa vs other eating disorders (33).

For individuals with anorexia nervosa, a significant proportion of the risk is assigned to genetics (56%), the course of treatment often includes a protracted illness, and recovery rate is suboptimal (23,25). Concerning medical risks of anorexia nervosa, half of those who receive care may be expected to recover, whereas the remainder may experience only a moderate response to treatment (21%), or a poor outcome (26%), with the overall mortality rate of 9.8% (28). In a review of studies of eating disorder treatment and efficacy, the outcomes evidence for treatment of anorexia nervosa continues to be weak and does not reflect significant improvement in the prognosis for anorexia nervosa despite our growing understanding of eating disorders (34). Further research into the therapies and course for individuals with anorexia nervosa is needed to identify how this population may best be served with treatment strategies. As RDs support treatment goals within the guidelines of the nutrition care process (assessment, diagnosis, intervention, monitoring, and evaluation) and the standards of professional practice for eating disorder patients, clearer evidence of the interventions that support improved outcomes in anorexia nervosa may emerge (20,35).

BULIMIA NERVOSA

Bulimia nervosa is best understood in a biopsychosocial model. Individuals at risk for bulimia nervosa who start dieting and/or experimenting with bingeing and purging are more vulnerable to developing the disorder. Potential risk factors include negative self-evaluation, parental influences such as comments about weight, parental obesity, childhood obesity (14), high use of escape-avoidance coping, and low perceived social support (4). Physiological and psychological interplays can distort cognitions about shape, eating, and weight (2,19) and trigger an overwhelming need to gain control in one's life. To the individual, dieting seems to provide a venue for obtaining this control, especially in a society focused on thinness. Dietary restraint and rigid rules of what foods are "good" and "bad" set up a system of dieting that cannot be achieved. Ironically, in the attempt to gain control in one's life, the individual with bulimia nervosa has a sense of lack of control. Binge eating provides an emotional escape perhaps by elevating mood. Although the focus seems to be on food, the binge/purge behavior is often a means for the person to regulate and manage emotions and cope with negative effects (36) such as stress. However, eating induces negative emotions after a binge, and compensatory behaviors are executed as a way to purge both energy and guilt (9).

The cyclic nature of bulimia nervosa is perpetuated by negative affects and core beliefs. Negative affects are considered to be an antecedent to binge bulimic behaviors, including binge eating (36). These individuals tend to have "all or none" cognitions about eating along with possessing characteristic impulsivity. Dietary restriction is surrounded by myriad dieting rules, and when these rules are broken, it can lead to self-destructive binge eating behavior. Any subjective or objective sensation of stomach fullness may trigger the person to purge. Common purging methods consist of self-induced vomiting with or without the use of emetics such as ipecac, laxatives, diuretics, enemas, fasting, and excess exercise.

In the initial assessment of the individual with bulimia nervosa, it is critical to evaluate medical complications resulting from purging (Figure). Nutritional abnormalities for individuals with bulimia nervosa depend on the amount of restriction during the nonbinge episodes. Purging behaviors do not completely inhibit use of calories from the binge; an average retention of 1,200 kcal occurs from binges of various sizes and contents (37), and laxatives are ineffective at minimizing energy absorption but do substantially increase water losses. Chronic ipecac use, to induce vomiting, is an added concern because it has been shown to have severe medical consequences and is especially damaging to the heart muscle.

As with anorexia nervosa, interdisciplinary team management for bulimia nervosa is essential to care. The primary goal of treatment for bulimia nervosa is to reduce or eliminate binge eating and purging behavior. Interpersonal therapy holds promise for bulimia nervosa treatment, but requires a longer course of treatment; thus, cognitive behavior therapy continues to be the most effective treatment to date (19,38). RDs are pivotal in providing nutritional counseling to accompany the cognitive behavior therapy provided by a psychotherapist. Nutrition education encompasses principles of normal eating, psychological and physiological effects of starvation, nutritional requirements, metabolism, misconceptions about body weight regulation, and consequences of purging behavior, while also building knowledge and skills such as media literacy and how to identify nutrition misinformation.

Developing a pattern of normal eating, with three meals and appropriate snacks per day, is crucial in breaking chaotic eating behaviors. This allows the individual to become reacquainted with internal hunger and satiety cues while also changing behaviors to move away from restriction and the binge–purge cycle. Energy intake should initially be based on the maintenance of weight to help limit hunger because this can be a trigger for a binge.

Self-monitoring can be useful in helping the patient to identify antecedents (often called triggers) of binge episodes. The RD is the expert in explaining how to complete the food record, analyzing the contents of the food record, and evaluating why weight fluctuations may be occurring. In addition to which and how much foods and beverages are consumed, food records should include periodic hunger and satiety ratings, time of meal or snack, details of eating environment (eg, eating alone or with others, location), binge/purge episodes, and thoughts, emotions, or stressors associated with eating. Food records provide an objective measurement that can assist the patient in evaluating and drawing conclusions about his or her progress in treatment. Food records also provide the RD with an instrument that guides goal setting. Goal setting may include the gradual incorporation of binge foods or "forbidden or fear foods" into the diet, attempting a difficult food-related task such as grocery shopping, or learning how to effectively cope with situational stressors related to eating. The supportive environment provided with cognitive behavior therapy in conjunction with nutritional counseling can influence the "all or none" cognitions presented with bulimia nervosa and move the patient closer to normalized eating. As patients enter the path to recovery, they need to be informed and prepared to cope with the cessation of binge–purge behavior.

Pharmacotherapy seems to reduce eating disordered behavior and improve mood in patients with bulimia nervosa (2,39). Specifically, antidepressants including selective serotonin reuptake inhibitors seem to augment cognitive behavior therapy and have an acceptable side-effect profile (40). However, for patients who have not been previously treated and are not severely depressed, psychotherapy often is attempted and evaluated before initiating medication management.

The initial weeks in treatment seem to be the most critical because early behavior change can be a predictor of success in individuals with bulimia nervosa (41). The mortality risk associated with bulimia nervosa is much lower than that of anorexia nervosa (42) and is not a usual complication resulting from the disorder. In addition, the crossover to other eating disorders is low. Keel and colleagues (42) reported that approximately 50% of individuals presenting with bulimia nervosa recover and maintain their recovery, whereas 30% maintain partial syndromes. For those who recover, there is generally a resolution of physical symptoms. Perpetuating factors for those who recover may include overconcern with shape and weight, tendency toward restriction of dietary intake, vulnerability to overeating in response to negative mood states, and low self-esteem.

OTHER EATING DISORDERS

EDNOS comprise conditions that meet the definition of an eating disorder, but not the criteria for anorexia nervosa or bulimia nervosa. Although the category is often overshadowed by anorexia nervosa and bulimia nervosa, it is at least as common as the other diagnoses (2). Prevalence rates elude researchers because there is no simple definition of EDNOS. Although reports vary in the number of patients seeking treatment for eating disorders, the important concept is that a large proportion cannot simply be classified as anorexia nervosa or bulimia nervosa and are otherwise neglected in the identification of eating disorder cases.

Binge eating disorder has received significant attention since it has been categorized as an EDNOS and given research criteria for inclusion in the DSM-IV-TR (1). Binge eating is often precipitated by triggers such as negative affect with overeating being identified as a tension-releasing type of coping to deal with emotional distress (43). Individuals with bulimia nervosa or binge eating disorder often engage in various dieting behaviors to attempt to control their weight. However, binge eating disorder is distinguished from bulimia nervosa by the absence of extreme weight-control compensatory practices, such as vomiting, demography, association with obesity, lack of eating control, and developmental risk factors.

In attempts to identify causes of the obesity epidemic, researchers are addressing associations between binge eating disorder and obesity and overweight (3). Differing from anorexia nervosa and bulimia nervosa, bingeing often precedes dieting behaviors (44), binge eating disorder occurrences among men and women are

similar (45), and binge eating disorder occurs across ethnically diverse samples (46). Factors that may contribute to the development of binge eating disorder behaviors include repeated exposure to negative comments about shape, weight, and eating; negative self-evaluation; perfectionism; and childhood obesity (47). Also, low self-esteem, high levels of body concern, high use of escape avoidance coping, and low levels of perceived social support are commonly seen in binge eating disorder (4). Axis I and II disorders are significantly related to general eating psychopathology in individuals with binge eating disorder (48).

Treatment interventions that show the most potential at this time include psychotherapy, behavioral weight-loss treatment, and psychopharmacology. Because binge eating disorder and bulimia nervosa share common psychological and behavioral characteristics, binge eating disorder treatment has been highly influenced by bulimia nervosa treatment literature that encompasses cognitive behavior therapy and interpersonal psychotherapy. Although much newer, dialectical behavior therapy, which is a form of psychotherapy that teaches mindful eating and targets emotion regulation, has shown preliminary efficacy in reducing binge eating (49). Modifications in psychotherapy are necessary in binge eating disorder treatment because these individuals show lower levels of dietary restraint, higher levels of overweight and obesity, and more chaotic eating patterns (2).

Cognitive behavior therapy for binge eating disorder places a primary emphasis on binge eating reduction and a secondary emphasis on weight loss. On the other hand, behavioral weight-loss treatments focus on promoting weight loss as a primary goal with increased exercise, improved nutrition, and decreased energy intake as cornerstones of treatment (49). Short-term results of behavioral weight-loss treatments have shown positive outcomes; however, as with other weight-loss interventions, long-term outcomes are less effective.

Antidepressants, centrally acting appetite suppressants, and anticonvulsants have shown short-term efficacy in the treatment of binge eating disorder by either decreasing frequency of binges and/or enhancing weight loss (50). Specifically, selective serotonin reuptake inhibitors are the best established agent for pharmacologic treatment (50). The benefits of pharmacotherapy do not seem to be sustained beyond the discontinuation of the medication. In addition, combined treatments with pharmacotherapy and cognitive behavior therapy or behavioral weight-loss programs have been mixed. Because binge eating disorder is associated with different forms of psychopathology, the pharmacotherapy and nutritional counseling interventions should be tailored accordingly.

It is critical for RDs to recognize binge eating disorder and subthreshold binge eating disorder for nutrition counseling to be effective in managing chronic diseases. Individuals with binge eating disorder are often overweight or obese, and thus are at increased risk for chronic diseases and associated morbidity and mortality. Herpertz and colleagues found that in a study of 322 patients with type 2 diabetes the incidence of eating disorders was 6.5% to 9%, with the most commonly diagnosed eating disorder as binge eating disorder (51). In addition, a substantial number of individuals presenting for gastric bypass surgery meet the criteria for binge eating disorder (52). Furthermore, studies suggest that the presence of binge eating disorder has a profound effect on postbariatric surgery outcomes, with binge eating disorder patients faring less well than those without binge eating disorder (53). Those with binge eating disorder also report compromised quality of life (54).

Many individuals who pursue other methods of treatment for overweight or obesity may also have binge eating disorder. The RD may be the primary clinician to recognize and address binge eating disorder behaviors. Nutritional assessment should include a detailed account of the onset of binge eating, a weight and diet history, any historical events that may have triggered binge eating episodes such as traumatic events in one's life or weight-related teasing as a child, and history of diet attempts and outcomes.

Many of the nutrition counseling guidelines that apply to bulimia nervosa also can be used with binge eating disorder. Although it is unclear whether weight loss should be an initial goal for individuals with binge eating disorder, when this is a goal, it is critical for individuals to set reasonable goals such as losing up to 10% of their current weight in the first 6 months (54). Binges may contribute substantially to energy intake and, therefore, to overweight or obesity. Normalization of eating behaviors may be necessary to achieve weight loss and should be the primary goal, rather than weight loss, at any cost. Weight maintenance may be a pivotal accomplishment and should be recognized as such by both the RD and the patient, because this can be an indicator of fewer or decreased binge episodes. In addition, appropriate physical activity components and leisure activities may provide stress management and also assist with energy balance.

Another disordered eating pattern is night eating syndrome, which has become clinically significant because of its association with obesity. Night eating syndrome is characterized by >50% of caloric intake consumed after 7 PM; trouble getting to sleep or staying asleep, morning anorexia (55), nighttime awakenings (one or more episodes per night) with full alertness and frequently accompanied by ingestion of snacks; the presence of symptoms for a duration of ≥3 months; and the absence of bulimia nervosa and binge eating disorder (56). Although treatment efficacy has yet to be established for night eating syndrome, potential avenues include those that are also implemented in binge eating disorder, including pharmacotherapy, cognitive behavior therapy, and interventions that reduce the impact of stress.

EMERGING ISSUES

Evidenced-based research must continue to advance for improved treatment outcomes related to eating disorders along with identification of effective prevention and intervention strategies (34). As research continues to evolve, the American Dietetic Association Evidenced Analysis Library (57) will be a convenient and scientifically based tool guiding practitioners in implementing the most up-to-date research into practice. Emerging is-

sues from eating disorder research include prevention models, diagnostic criteria, and outcome studies of treatment strategies.

Thus far, there are no best practice models for primary prevention models of eating disorders (2). Theory-driven, targeted approaches (selective prevention) that address high-risk groups seem to hold the most promise vs universal or primary prevention approaches (2,58). To prevent eating disorders, nutrition messages should be approached from a health-centered rather than a weight-centered perspective and include parents (59). The general research suggests that dieting and unhealthful weight-control methods may be predictors of weight problems and eating disorders (60). Shifts toward a health at every size paradigm, not only with obesity treatments, but also with health promotion, are directions for the future (61).

Notably, binge eating precedes dieting in about half of binge eating disorder individuals and may precede the development of obesity (62). Interventions that target early binge behavior for binge eating disorder individuals who are not yet overweight may prevent inappropriate weight gain while also decreasing the prevalence of more severe obesity (3). In addition, in bulimia nervosa cases, there are treatment implications for the differences between those individuals who diet first or binge first. Secondary prevention, which includes interventions that target individuals already at risk for eating disorders, can focus on both of these groups as an initial mechanism in the development and onset of bulimia nervosa.

Issues surrounding the DSM-IV-TR have implications for current and future practice. Controversy exists regarding whether binge eating disorder should have its distinct psychiatric diagnosis beyond EDNOS. The uncertainty of what constitutes a binge creates discrepancy in research outcomes and does not capture all who may benefit from treatment. In addition, the use of amenorrhea as a diagnostic criteria for anorexia nervosa is much debated. Although diagnostic criteria play a prodigious role in directing research agendas and clinical treatment, they should not restrict clinical judgment.

Relapses, high treatment program attrition rates, and maintenance of behaviors learned in therapy (along with maintaining weight loss with binge eating disorder) are ongoing issues in the eating disorder field. Alternative interventions, such as self-help and guided self-help, are being studied as part of stepped-care treatment for bulimia nervosa and binge eating disorder (63,64). Although behavioral weight-loss programs seem to be somewhat successful in both decreasing binge episodes and stimulating weight loss for individuals, the effects of these interventions are most evident only for the short term.

CONCLUSIONS

Eating disorders are complex medical illnesses and require the expert interaction between professionals in many disciplines. The RD is an integral member of the treatment team and is uniquely qualified to provide care for food-related behaviors and medical problems. To limit progression of eating disorders, RDs strive to send messages derived from the total diet approach as described in the American Dietetic Association position statement (65) and incorporate primary and secondary interventions. Currently, diagnostic criteria provide guidelines more than rigid rules for eating disorders. Working with this population requires advanced-level training, which may come from a combination of self-study, continuing education programs, and supervision by another experienced RD and/or an eating disorder therapist. Specialized resources are offered through practice groups of the American Dietetic Association such as Dietetics in Developmental and Psychiatric Disorders; Pediatric Nutrition; and Sports, Cardiovascular, and Wellness Nutritionists, as well as other eating disorder organizations. These resources are essential for the RD's understanding of the complexities and the long-term commitment necessary for successful and sustainable outcomes for eating disorder intervention and treatment.

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