

EATING DISORDERS

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Introduction

Eating disorders are a significant problem in the United States among children and adolescents of all ethnic groups (Nicholls & Viner, 2005). Anorexia nervosa (AN) has the highest death rate of any mental health disorder (Hoek, 2006). Of the millions of Americans who are diagnosed annually with an eating disorder, an estimated 90% are adolescent females (Ice, as cited by Eating Disorders Coalition, 2005).

The incidence of eating disorders among adolescent females has grown at an alarming rate over the past several decades (American Dietetic Association, 2001). The American Psychiatric Association (APA, 2000a) has reported that eating disorders are now the third most common form of chronic illness in the adolescent female population, with prevalence rates as high as 5%. Males also struggle with disordered eating symptoms, as they account for approximately 10% and 35% of the total population with bulimia nervosa/anorexia nervosa and binge eating disorder, respectively (Anorexia Nervosa and Related Eating Disorders [ANRED], 2004; Spitzer et al., 1993).

Although AN predominantly impacts adolescent and young adult females, there are reports of children as young as six affected by the disorder (ANRED, 2004). Similarly, bulimia nervosa (BN) generally impacts adolescents, although there are cases reported for children much younger (International Eating Disorder Referral Organization, n.d.). A recent assessment of eating disorder trends in London suggests that, among adult females, the number of AN diagnoses has stabilized, while the number of reported BN diagnoses has decreased (Currin, Schmidt, Treasure & Jick, 2005). However, this is not the case for adolescents, as incidence rates for AN continue to rise (Herpertz-Dahlmann, 2008).

Categories

Eating disorders are characterized by abnormal eating habits and cognitive distortions related to food and weight. The primary characteristic of all eating disorders is a preoccupation with weight and excessive self-evaluation (APA, 2000b), which is accompanied by an intense fear of weight gain (ADA, 2001). Three types of eating disorders which may be applied to youth are defined in the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR)*.

The features of these disorders, also outlined in Table 1, are:

- *Anorexia Nervosa (AN)* – AN is marked by resistance to maintaining body weight at or above a minimally normal weight for age and height (under 85% of that expected). The primary characteristic is intense fear of gaining weight or becoming fat, even when the individual is underweight. Other symptoms include disturbance in perceptions of personal body weight, undue influence of body weight and shape in self-evaluation, or denial of the seriousness of the current low body weight (APA, 2000b). The *DSM-IV-TR* recognizes two subtypes of AN:

the restricting subtype in which weight loss is accomplished by dieting, fasting, or excessive exercise and no bingeing or purging occurs; the binge eating/purging subtype is used when the individual has engaged in either binge eating or purging or both.

- *Bulimia Nervosa (BN)* – BN consists of recurrent episodes of binge eating, characterized by consumption of excessive amounts of food within a discrete period of time, and lack of control in overeating during the episode. In order to prevent weight gain, binges are followed by recurrent inappropriate responses, such as self-induced vomiting or misuse of laxatives and other medications (often referred to as purging), fasting, or excessive exercise. The binge eating and compensatory behaviors both occur, on average, at least twice a week for three months. Finally, the individual’s self-evaluation is unduly influenced by body shape and weight (APA, 2000b). There are two subtypes of BN: purging and non-purging (exercise and restrictive food intake). For the most part, individuals with BN are within the normal weight range.
- *Binge Eating Disorder (BED)* – BED includes recurrent episodes of binge eating followed by marked distress. The binge eating occurs, on average, at least two days a week for six months. The binge eating is not associated with regular use of inappropriate compensatory behaviors, such as purging, fasting or excessive exercise (APA, 2000b).

Table 1

Summary of Primary Features of Eating Disorders

Disorder	Description
Anorexia Nervosa (AN)	Distorted body image that causes individuals to severely restrict their food intake, which may lead to significant weight loss and dangerous side-effects (e.g., malnutrition and dehydration).
Bulimia Nervosa (BN)	Pattern of excessive eating followed by purging (e.g., using laxatives, enemas, or diuretics, vomiting, and/or exercising).
Binge Eating Disorder (BED)	Frequent episodes of out-of-control eating. However, unlike those with bulimia, they do not purge their bodies of excess calories.

Source: APA, 2000b.

Over a lifetime, an individual may meet the criteria for more than one eating disorder, which suggests a continuum of disturbed eating habits and body image (ADA, 2001). Although the *DSM-IV-TR* criteria call for the diagnosis of a specific eating disorder, the symptoms typically occur along a continuum between those of AN and BN, with many individuals demonstrating a mixture of both disorders (APA, 2000b). Consequently, as many as 50% of individuals are diagnosed with Eating Disorder Not Otherwise Specified (EDNOS) (ADA, 2001). The diagnosis of EDNOS appears to be particularly prevalent in adolescents. The classification encompasses youth with symptoms of AN and BN who do not meet the threshold for official diagnosis, as well as youth with binge eating disorder (ADA).

Awareness of the consequences of pediatric obesity has increased. Other maladaptive eating patterns and behaviors, such as night eating syndrome (NES) and sleep-related eating disorders (SRED), have also started to receive significant clinical and empirical attention (Howell, Schenck & Crow, 2009). Moreover, because eating disorders occur less often in males, and because males with pathological eating patterns are not characteristically thin or frail, health professionals may underdiagnose them (Weltzin, as quoted by ANRED, 2002).

Causes and Risk Factors

Attempts to identify a single cause of eating disorders have been abandoned and replaced by a more multifaceted etiological theory. According to studies, disordered eating typically develops from a complex interaction of psychological risk factors, sociocultural influences, and biological or genetic predispositions (Striegel-Moore & Bulike, 2007; Mazzeo & Bulik, 2008).

Psychological Risk Factors

Psychological factors include negative affect, low self-esteem, and intense dissatisfaction with appearance (Stice, 2002). In fact, body dissatisfaction is “one of the most consistent and robust risk and

maintenance factors for eating pathology” (Stice). Perfectionist or impulsive traits and rigid cognitive styles have also been identified as risk factors (Herpertz-Dahlmann et al., 2001; Klump et al., 2004). In addition, factors such as dysfunctional families (e.g., conflict avoidance, significant parental enmeshment, and/or rigid/overprotective parenting) and relationships have been highly correlated with disordered eating (APA HealthCenter, 1998; Gonzalez, Kohn & Clarke, 2007).

Individuals diagnosed with eating disorders are also more likely than the general population to have a history of abuse or trauma (ADA, 2001). Specifically, sexual abuse has been reported in 20 to 50% of individuals with AN and BN. Females with eating disorders who have suffered from sexual abuse also demonstrate higher rates of comorbid psychiatric conditions (APA, 2000a). Inadequate coping mechanisms (e.g., poor distress tolerance and emotion regulation difficulties) are also common in those with disordered eating and may explain an individual’s adoption of maladaptive eating patterns in response to trauma (Mazzeo & Bulik, 2008).

Sociocultural Influences

The sociocultural model of eating disorders (Striegel-Moore & Bulik, 2007) asserts that exposure to the Western concept of the ideal body type, often via magazines, television, and the Internet, promotes internalization of the thin ideal. Body dissatisfaction ensues when individuals evaluate their own body size negatively because it is thought to vary from the ideal. Subsequently, elevated body mass index (BMI) and increased awareness of body size have been linked to the onset of dieting and body dissatisfaction, both of which are prominent risk factors for eating disorders (Neumark-Sztainer et al., 2007; Stice, 2002; Striegel-Moore & Bulik). Evidence of the power of sociocultural influences can be seen in females as young as age 9, 40% of whom report a history of dieting (Maier, 2003). Objectification of the female body further reinforces the importance of achieving the thin ideal, particularly among young women (Moradi, Dirks & Matteson, 2005).

Studies have also noted a high prevalence of eating disorders among athletes, models, dancers, and performers (ADA, 2001). One recent study concluded that females participating in aesthetic sports (those which emphasize appearance versus non-aesthetic sports or no sports) experienced higher weight concerns (Davison, Ernest, Birch, as cited by Natenshon, 1999). Males who are jockeys, wrestlers, and runners are also at increased risk of developing an eating disorder (Andersen, as cited by SFWED, *e-Issues for Men with Eating Disorders*, 2005). Thus, the risk of developing disordered eating symptoms increases when dietary restraint and the thin ideal assume great personal importance. This sociocultural theory may explain why adolescent females are more likely to develop AN and BN (Striegel-Moore & Bulik, 2007).

Biological or Genetic Factors

It has been suggested that genetic factors may contribute to the development of maladaptive eating behaviors (APA, 2000a; Mazzeo & Bulik, 2008; Striegel-Moore & Bulik, 2007). Specifically, first-degree female relatives and identical twin siblings of individuals with AN, BN or BED have higher rates of eating disorder diagnoses than the general population, suggesting the existence of a biological predisposition (APA; Striegel-Moore & Bulik). Inheritance patterns, however, remain unclear. Further, little is known about the genetic contribution of eating disorders in racial/ethnic groups other than Europeans (Striegel-Moore & Bulik). Genetic predisposition may interact with sociocultural influences to serve as a catalyst for the development of disordered eating (Mazzeo & Bulik). For example, a young woman with a family history of eating disorder patterns may seek out appearance-related feedback and/or engage in image-focused activities (e.g., swimming, cheerleading, reading weight-loss magazines), thereby interacting in environments in which the importance of her appearance is reinforced. In this way, exposure to image-focused media may serve as an additional factor in the development of weight and shape concerns (Bulik, 2004; Mazzeo & Bulik). Molecular genetic studies found that binge eating and vomiting behaviors are highly heritable, whereas weight and concerns on self-evaluation for BN appears to be a separate environmental factor (Striegel-Moore & Bulik).

Striegel-Moore and Bulik (2007) further propose that various neonatal complications may be implicated in an increased risk for AN. Longitudinal studies have shown that maternal feeding behaviors, such as food restriction and weight control behaviors, may lead to premature births, one predictor which may signal the future onset of AN.

Finally, some researchers have found that abnormal serotonin metabolism may play a greater role in individuals with BN than those with AN, suggesting biological differences in individuals with these two diagnoses (Murphy, Cowan & Sederer, 2001). A London-based study determined that individuals with AN are twice as likely to have variations in serotonin receptors, which in turn impact appetite (BBC News, as cited by SFWED, *Genetics and Biology*, 2005).

Comorbidity

Comorbidities for eating disorders can be medical and/or psychiatric in nature. Both issues are discussed in the paragraphs which follow.

Medical

Adolescents with eating disorders face the risk of potentially irreversible medical complications, including:

- growth retardation when the eating disorder occurs prior to closure of the epiphyses;
- pubertal delay or arrest;
- impaired acquisition of peak bone mass during adolescence; and
- increased risk of osteoporosis in adulthood (ADA, 2001).

Malnutrition and excessive exercise may also contribute to loss of bone mass in those suffering from AN and BN (Herpertz-Dahlmann, 2008).

In chronic eating disordered behaviors, additional physical comorbidities are common. For example, some individuals with eating disorders experience anemia, constipation, skin dryness, hypothermia, dental erosion, liver function abnormalities, metabolic acidosis, permanent dental damage, and/or cardiovascular problems, typically the result of semi-starvation and/or purging (APA, 2000b). Symptoms associated with dehydration, such as the imbalance of electrolytes, require immediate medical attention, including hospitalization, when it is necessary to address the side effects of dehydration and/or to restore weight (APA, 2000b).

While eating disorders are considered to be psychiatric in nature, they are distinct because accompanying nutrition and medical problems may make them life-threatening (ADA, 2001). As noted by the National Institute of Mental Health (NIMH) (2001), of particular concern is the increased mortality rate of individuals with eating disorders, particularly those diagnosed with AN. Recent studies suggest that individuals diagnosed with AN are more likely to suffer premature death (Steinhausen, 2008). The mortality rate attributed to AN in females aged 15 to 24 is approximately 12 times higher than the annual death rate for all causes. According to NIMH, the most common causes of death in those with AN are complications of the disorder, such as starvation, cardiac arrest, electrolyte imbalance, and suicide. Current mortality rates for individuals with BN are lower (2%) (Fichter & Quadflieg, 2004).

Psychiatric

It is common for individuals suffering from eating disorders to experience additional significant distress due to comorbid psychological conditions. Women with AN and BN are at increased risk for manifesting depressive symptoms, such as low self-esteem, sadness, irritability, sleep difficulties and reduced sex drive (APA, 2000b). In fact, mood disorders are diagnosed in 50 to 75% of individuals with AN and BN. Further, anxiety disorders (e.g., obsessive-compulsive disorder) are diagnosed in approximately 25% of individuals with AN. Personality disorders occur in 42 to 75% of individuals diagnosed with eating disorders (e.g., borderline personality disorder). Substance abuse disorders may be present in 30 to 37% of those with BN and 12 to 18% of individuals with AN (ADA, 2001), the latter of which may be employed to suppress appetite (APA, 2000b). Moreover, individuals with the binge eating/purging subtype of AN are more likely to have difficulties in impulse control, demonstrated by increased alcohol and drug abuse problems and suicidality (APA, 2000b). Recent research (Herpertz-Dahlmann, 2008) suggests that female youth who present with attention deficit hyperactivity disorder (ADHD) may also be more likely to develop maladaptive eating patterns and distorted body image.

Researchers have yet to determine the order of onset of psychological comorbidities. It is unclear whether conditions develop because of the isolation, stigma, and physiological changes brought on by eating disorders or whether they existed prior to the development of unhealthy eating habits (APA HealthCenter, 1998). Very young individuals frequently display obsessive behaviors and depression and are far more frequently diagnosed with AN than BN (APA, 2000a).

One recent study of adult females with eating disorders suggests that those with recurring suicidal thoughts usually developed their disorders at younger ages (Ham, 2004). According to researchers conducting a Swiss National Science Foundation's two-year study, a majority of participating individuals had co-existing psychiatric disorders. Individuals with BN report a greater number of suicidal attempts (25 to 35%), compared to those with AN (10 to 20%) (Herpertz-Dahlmann, 2008). Researchers speculate that the link between purging and suicidal attempts may point to a general lack of impulse control, whereas the higher prevalence of suicidal thoughts among individuals with AN suggests chronic self-harming behavior (Ham).

Assessment

When making eating disorder diagnoses, service providers should ensure that the individual meets the appropriate *DSM-IV-TR* diagnostic criteria (APA, 2000b). Comprehensive symptom assessment requires the utilization of multiple cognitive and behavioral measures, as well as a thorough medical examination. This physical examination typically includes assessments of heart rate, blood pressure, body temperature, blood count, biochemical profile (e.g., electrolytes), electrocardiogram (ECG), electroencephalogram (EEG), magnetic resonance imaging (MRI) and computed tomography (CT) (Herpertz-Dahlmann, 2008).

Often one of the first physical signs of an eating disorder is changes in the mouth, including enlarged salivary glands, changed tooth color, tissue loss or lesions, heightened sensitivity to temperature, and tooth decay from induced vomiting (NEDA, 2002). Dental practitioners are typically the first to identify signs of BN. According to the NEDA, tooth erosion is evident in approximately 89% of individuals with BN. Other frequent indicators of BN are an enlarged parotid/salivary gland, scars on the back of the hand from induced vomiting, and dehydration. For AN, individuals may present the following physical symptoms: dry skin that, when pinched and released, stays pinched, dehydration, abdominal pain, constipation, lethargy, dizziness, fatigue, infrequent or absent menstrual periods in females who have reached puberty, intolerance to cold temperatures, emaciation, development of lanugo (fine, downy body hair), and yellowing of the skin (University of Virginia Health System, 2009; NIMH, 2001).

Typically, clinicians use self-report questionnaires and structured/semi-structured clinical interviews to assess cognitive and behavioral eating disorder symptoms, as well as other psychiatric comorbidities. Valid and reliable interview tools are included in Table 2. Further information about their psychometric properties can be accessed in Mitchell & Peterson (2007).

Table 2

Suggested Assessment Tools

Measure Type	Name of Measure	Data Generated
Valid & reliable interview tools; completed by clinician	Interview for the Diagnosis of Eating Disorders (4 th Edition) (IDED-IV), (Kutlesic, Williamson, Gleaves, Barbin & Murphy-Eberenz, 1998); and Eating Disorder Examination (12 th Edition) (EDE), (Fairburn & Cooper, 1993).	Diagnoses of AN, BN, BED and EDNOS based on <i>DSM-IV</i> criteria Symptom severity, including concern with eating, weight and shape, and dietary restraint
Empirically supported, self-rating scales; completed by youth	Eating Disorder Diagnostic Scale (EDDS), (Stice, Telch & Rizvi, 2000); Binge Eating Scale (BES), (Gormally, Black, Daston & Rardin, 1982); Eating Disorder Examination Questionnaire (EDED-Q), (Fairburn & Beglin, 1994); Eating Attitudes Test (EAT), (Garner & Garfinkel, 1979); Eating Disorder Inventory-Revised (EDI-3), (Garner, 2004); Bulimia Test-Revised (BULIT-R), (Thelen, Farmer, Wonderlich & Smith, 1991); Multiaxial Assessment of Eating Disorder Symptoms (MAEDS), (Anderson, Williamson, Duchmann, Gleaves & Barbin, 1999); Stirling Eating Disorder Scale (SEDS), (Williams et al., 1994); and Eating Inventory (EI), (Stunkard & Messick, 1985).	Symptom ratings

Sources: Commission on Youth Graphic of references listed in text.

For assessment purposes, it is important to understand that individuals with disordered eating symptoms tend to self-evaluate their symptoms as compatible with their attitudes, behaviors and beliefs (Keel & Haedt, 2008). Therefore, self-report outcomes may be biased and should be considered in conjunction with findings from the physical examination. Family history of disordered eating behaviors and attitudes should also be explored in order to gain a comprehensive understanding of the individual's predisposition to disordered eating behaviors and cognitions (Mazzeo & Bulik, 2008). Mazzeo and Bulik suggest that assessing parental feeding patterns is also important, as the caregivers themselves will likely be integral components of the treatment program and find themselves encountering difficulties initiating and maintaining a healthy relationship with food and weight.

There are several noteworthy limitations to the assessment of disordered eating symptoms, e.g., a BN diagnosis is characterized by periods of fasting and dieting with intermittent episodes of binge eating (APA, 2000b). In order to meet the diagnostic criteria set forth by the *DSM-IV-TR*, youth with BN must report a minimum of two binges per week. Experts, however, suggest that this cutoff may be arbitrary (Latner & Clyne, 2008). The same may be true for the 2 to 5% of Americans who experience BED (NIMH, 2001). Thus, health professionals should consider formulating treatment plans based on observation and symptom severity, rather than on strict diagnostic satisfaction (Hebebrand, Casper, Treasure & Schweiger, 2004).

Furthermore, the definition of "binge" stipulates that the amount of food consumed must be "more than most people would eat in similar circumstances and similar periods of time" (APA, 2000b). Using this definition makes objective assessment difficult (Keel, Mayer & Harnden-Fischer, 2001), particularly in youth who lack the cognitive skills of adults. Efforts are underway to more accurately assess what may constitute a "binge," as well as to establish a more standardized method for evaluating "loss of control" in youth. Both definitions lack objectivity (Herpertz-Dahlmann, 2008). Moreover, "loss of control" is one component of binge eating that is of particular clinical significance, as it has been associated with decreased affective functioning (Latner & Clyne, 2008).

Clinicians should note that other medical disorders may account for the low body weight observed in adolescents (Murphy, Cowan & Sederer, 2001) and that the established diagnostic criteria for eating disorders in adults may not be entirely applicable to adolescents because of the wide range in the rate, timing, and magnitude of height/weight gain during puberty (ADA, 2001). For example, some healthy youth have been known to meet the weight criteria associated with a diagnosis of AN (Hebebrand, Casper, Treasure & Schweiger, 2004). Furthermore, the absence of menses, one of the diagnostic criteria for females with AN, is difficult to assess during early puberty because menstrual cycles at this age are often unpredictable (ADA). Other factors linked to changes in menstrual cycle are oral contraceptive use (Golden, 2003) and decreased food intake because of other physical conditions (Herpertz-Dahlmann, 2008).

Treatment Considerations

The earlier an eating disorder is identified and treated, the better the chances for recovery (Levine & Maine, 2002; Steinhausen, 2008), although individuals with eating disorders are among the least likely to seek treatment (APA HealthCenter, 1998). A comprehensive treatment plan should include medical care and monitoring, psychosocial interventions, nutritional counseling and, when appropriate, medication management (NIMH, 2001). Treatment providers should also discuss with both the individual and his/her family the role genetics may play in these disorders (Mazzeo & Bulik, 2008); this can minimize the guilt family members may experience and increase their willingness to be active participants in the treatment process.

Treatment locations range from intensive patient settings, in which general medical consultation is readily available, to partial hospital and residential programs, to varying levels of outpatient care. The individual's weight, cardiac, and metabolic status are the most important physical parameters for determining treatment setting. Individuals who weigh under 85% of their estimated healthy weights are likely to require a highly structured program and possibly 24-hour hospitalization. Hospitalization should occur before the onset of medical instability, as manifested by severely abnormal vital signs. Specifically, once an individual begins to display a rapid decline in food intake and dramatic loss of weight, treatment providers should seriously consider hospitalization. Furthermore, the presence of external stressors or comorbid psychiatric problems may have a significant impact on this decision. More important than the treatment setting, however, are the expertise and dedication of the members of the treatment team working with adolescents and their families (ADA, 2001).

Many individuals have a limited response to treatment and require long-term monitoring and intervention (U.S. Department of Health and Human Services, 1999). Because AN, in particular, is chronic in nature, those diagnosed with AN may struggle with the disorder for five to ten years or longer (Medscape Internal Medicine, 2006). Individuals with AN may be particularly difficult to treat because they are highly resistant to

weight gain and are likely to exhibit a fear of losing control (Murphy, Cowan & Sederer, 2001). Thus, ethical considerations may arise during the course of treatment, and involuntary hospitalization may be the necessary course.

To date, no controlled treatment studies have been performed with children having eating disorders (Keel & Haedt, 2008). The majority of studies have been conducted with adolescents over age 15, although evaluation with adolescent males is limited (Keel & Haedt). The limitations of research of eating disorder interventions for males and young children should be acknowledged when considering the course of treatment.

A variety of treatments for AN, BN, and BED are discussed in the paragraphs which follow.

ANOREXIA NERVOSA (AN)

Evidence-based Treatments

According to the APA (2000a), the treatment methods described in Table 3 and in the paragraphs which follow are the most empirically supported for individuals with AN. For this review, evidence-based treatments are categorized as What Works and What Does Not Work. Treatments classified as What Does Not Work may also be classified as Unproven, as explained in these paragraphs.

Table 3

Summary of Treatments for Anorexia Nervosa

What Works	Description
Nutritional Rehabilitation	Entails developing meal plans and monitoring intake of adequate nutrition to promote healthy weight gain.
Family Psychotherapy	Family members are included in the process to assist in reduction of symptoms and modify maladaptive interpersonal patterns.
In-Patient Behavioral Programs	Individuals are rewarded for engaging in healthy eating and weight-related behaviors.
Pharmacological Treatments	Used primarily after weight restoration to minimize symptoms associated with psychiatric comorbidities.
What Does Not Work	Description
Individual Psychotherapy	Controlled trials have not supported this treatment; however, it may be beneficial during the refeeding process (not starvation) and to minimize comorbid symptoms.
Group Psychotherapy	May stimulate the transmission of unhealthy techniques among group members, particularly during acute phase of disorder.
12-Step Programs	Not yet tested for their efficacy; discouraged as a sole treatment.
Somatic Treatments	To date, treatments such as vitamin and hormone treatments and electroconvulsive therapy show no therapeutic value.

Sources: Commission on Youth Graphic of references listed in text.

The treatment of AN generally occurs in three primary phases:

1. restoring the weight lost by severe dieting and purging;
2. treating psychological disturbances, such as distorted self-perception, low self-esteem, and interpersonal issues; and
3. achieving long-term, full recovery (NIMH, 2001).

Evidence-based treatments for AN include:

- ***Nutritional rehabilitation*** – Considerable evidence suggests that nutritional monitoring is effective in helping individuals return to a healthy weight, so long as it is conducted in the proper setting to meet the individual's needs. For severely underweight individuals, individual treatment has been found to be most effective. Clinicians have reported that, as weight is restored, other eating disorder and psychiatric comorbid symptoms diminish; however, they often do not disappear completely. Psychoeducational nutrition groups have also been associated with positive outcomes (Herpertz-Dahlmann & Salbach-Andrae, 2008). Although helpful, it is important that nutrition counseling serve as one component of a multidisciplinary treatment approach.
- ***Family psychotherapy*** – The goal of family therapy is to involve family members in symptom reduction and to deal with family relational problems that may contribute to AN. Some studies

have found that family therapy is associated with greater long-term benefits and better retention rates compared to individual psychotherapy (Bulik, Berkman, Brownley, Sedway & Lohr, 2007; Keel & Haedt, 2008). This seems to be especially true when the family is treated as part of the treatment team rather than the individual. However, these findings are limited to generalizations due to the fact that the individuals in these studies often were not assigned to receive both family and individual treatment, which commonly occurs in practice.

- Individual behavioral programs – These programs commonly provide a combination of nonpunitive reinforcers, such as privileges linked to weight goals and desired behaviors. They have been shown to produce good short-term therapeutic effects. Adolescents with AN may have the best outcomes after structured in-patient or partial hospitalization treatment. For example, one study found that individuals who had received systematic in-patient treatment with close cooperation among parents and the pediatric and child and adolescent psychiatry departments had good outcomes even three to 14 years after treatment (APA, 2000a).
- Pharmacological treatments – No medication is currently approved by the Food and Drug Administration (FDA) to treat AN (Powers & Bruty, 2008). Pharmacotherapy is used most frequently after weight has been restored in order to maintain weight and normal eating behaviors and to treat psychiatric symptoms. The most typical medications prescribed are antidepressants; however, they should not be used in the acute phase of treatment for severely malnourished individuals as they are more sensitive to their side effects.

Psychological symptoms, particularly those related to mood disorders, seem to be exacerbated during periods of semi-starvation and significant weight loss (Keys, 1950). Thus, before prescribing psychopharmaceuticals to relieve symptoms associated with these individuals' comorbidities, it is recommended that clinicians first work towards minimizing the occurrence of purging behaviors and beginning the refeeding process (Herpertz-Dahlmann, 2008). Selective serotonin reuptake inhibitors (SSRIs) are frequently used for individuals whose depressive, obsessive, or compulsive symptoms persist in spite of or in the absence of weight gain. However, studies have not shown SSRIs to be effective for purposes of restoring weight or preventing relapse (Kuo, 2006). Finally, preliminary evidence suggests that some atypical antipsychotics, (e.g., olanzapine) may minimize some AN symptoms, especially for those diagnosed with the binge-purge subtype (Powers & Bruty, 2008). However, typical side-effects include metabolic disorders and weight gain, which may prompt poor treatment adherence in resistant clients.

Unproven Treatments

Unproven treatments for AN cited by the APA (2000a) include:

- Individual psychotherapy – The efficacy of this form of treatment remains uncertain. No controlled studies have reported whether specific psychotherapeutic interventions are effective for nutritional recovery. Clinicians generally agree that psychotherapy is almost always beneficial during acute refeeding; however, in starving individuals, who are often negative, obsessive, or mildly cognitively impaired, this form of treatment may often be ineffective. Psychotherapy may, however, be a useful method in treating co-occurring disorders. Keel and Haedt (2008) present a review of various individual treatment programs that, based on preliminary analyses, may prove to be efficacious in the future (e.g., self psychology, cognitive behavioral therapy, virtual reality).
- Group psychotherapy – Practitioners have found that group psychotherapy programs conducted during an acute phase among individuals with AN may be ineffective and can sometimes have negative therapeutic effects, as individuals in the group may compete to be the thinnest or exchange countertherapeutic techniques on simulating weight gain or hiding food.
- 12-step programs – No data regarding the short- or long-term effectiveness of this form of treatment is available. However, use of addiction-based programs in isolation is discouraged, as individuals will deprive themselves of the benefits of conventional treatments and may also be exposed to misinformation by well-meaning individuals in these groups.
- Somatic treatments – Vitamin and hormone treatments, electroconvulsive therapy, and other somatic treatments have been tried in uncontrolled studies. Both calcium/vitamin D supplements and hormone replacement therapy have been effective in improving bone mass (Golden, 2003). However, hormone injections also initiate the return of females' menses, thereby falsely representing their return to "biological health". Still, none have been shown to have any significant therapeutic value to individuals with AN.

Contraindicated Medications

Tricyclic antidepressants should be avoided in underweight individuals and in individuals who are at risk for suicide (APA, 2000a).

BULIMIA NERVOSA (BN)

Evidence-based Treatments

The treatments most commonly utilized in individuals with BN are listed in Table 4 and described in the paragraphs which follow. These treatments are designated as What Works and What Does Not Work. Treatments classified as What Does Not Work may also be classified as Unproven.

Evidence-based treatments for BN include:

- ***Pharmacological treatments*** – Individuals with BN are typically more responsive to pharmacologic interventions than those with AN (Berkman et al., 2006). Psychotropic medications, primarily antidepressants such as SSRIs, have been found to be helpful in treating BN. In fact, the SSRI fluoxetine is the only medication approved by the FDA for the treatment of BN (Powers & Bruty, 2008). These medications are intended to reduce the frequency of disturbed eating behaviors, as well as to alleviate symptoms of comorbid disorders. Studies have found the use of antidepressants to be effective in reducing binge/purge behavior by a range of 50 to 75%. Most clinicians recommend continuing antidepressant therapy for a minimum of six months, preferably for a year (APA, 2000a). Pharmacological treatments have been found to be especially effective for individuals with symptoms of depression or anxiety and for those who have not responded well to psychotherapy alone. It may also help to prevent relapse. (NIMH, 2001).
- ***Cognitive Behavioral Therapy (CBT)*** – This form of psychotherapy, when specifically directed at the eating disorder symptoms and underlying conditions, is the intervention for which there is the most evidence of efficacy. It has been found to lead to significant reductions in binge eating, vomiting, and laxative abuse (Keel & Haedt, 2008).
- ***Combined treatments*** – There is generally a better response to CBT than pharmacotherapy; however, the combination of these two methods has been found to be superior to either alone (APA, 2000a).

Table 4

Summary of Treatments for Bulimia Nervosa

What Works	Description
Cognitive Behavioral Therapy (CBT)	The most effective independent treatment option; it is used to change underlying eating disorder cognitions and behaviors.
Pharmacological Treatments	Antidepressants, namely SSRIs, have effectively reduced binge/purging behaviors, as well as comorbid psychiatric symptoms.
Combined Treatments	A combination of CBT and pharmacotherapy seems to maximize treatment outcomes.
What Does Not Work	Description
Individual Psychotherapy	Compared to CBT, few individual therapeutic approaches have been effective in reducing symptoms.
Behavioral Therapy	Behavioral techniques, such as exposure, have been less effective than CBT techniques.
12-Step Programs	These have not yet been tested for their efficacy and are discouraged as a sole form of treatment.

Sources: Commission on Youth Graphic of references listed in text.

Unproven Treatments

Unproven treatments for BN include:

- ***Individual psychotherapy*** – While there is support for some individual therapies aside from CBT in case studies and reports, the efficacy of these methods has not been supported by controlled trials. When compared to CBT, most short-term trials have been found it to be less effective (Keel & Haedt, 2008).
- ***Family therapy*** – Recently, literature suggests that family therapy may be more beneficial (i.e., lower rates of remission) than individual supportive psychotherapy for young adolescents with BN and eating disorders not otherwise specified (EDNOS) diagnoses (Keel & Haedt, 2008). However, outcomes should be considered preliminary at this time.

- 12-step programs – Addiction-based programs are not recommended as the sole treatment approach for individuals with BN, as they do not attend to nutritional considerations or behavioral deficits (APA).

Contraindicated Medications

Contraindicated medications include:

- Bupropion has been associated with seizures in purging individuals with BN and should not be used in this population (APA, 2000a).
- Monoamine oxidase inhibitors (MAOIs) are also potentially dangerous in individuals with chaotic bingeing and purging; therefore their use should be limited (APA, 2000a).

The primary goal of treatment with individuals with BN is to reduce or eliminate binge eating and purging behavior. According to NIMH (2001), nutritional rehabilitation, psychosocial intervention, and medication management strategies are therefore often used. Specifically, treatment includes establishing regular, non-binge meals, improving attitudes related to the disorder, encouraging healthy but not excessive exercise, and resolving any co-occurring disorders such as anxiety or mood disorders.

BINGE EATING DISORDER (BED)

Evidence-based Treatments

The treatment goals and strategies for BED are similar to those for BN. The primary difference in the two disorders is that individuals with BED present difficulties associated with being overweight, rather than being malnourished. Thus, they suffer from medical ailments similar to those associated with overweight populations, such as high blood pressure, high blood cholesterol levels, diabetes, and heart disease (APA, 2000a). Consequently, the treatment strategies tend to diverge only in the nature of medical interventions.

Little research on effective treatment strategies for BED exists (NIMH, 2001). The creation of a diagnostic classification will allow for additional study from a clinical research perspective (Brewerton, 1997). Research is being conducted to assess treatments that show both decreases in binge eating and in weight for overweight individuals. Some preliminary data shows that SSRIs, tricyclic antidepressants, and anticonvulsants are efficacious in reducing bingeing episodes in weight (Berkman et al., 2006).

CBT, both individual and group setting, and various forms of self-help have also been effective in reducing binge eating, but less effective at controlling weight (Berkman, et al., 2006). Effective treatments that disrupt the binge-eating cycle and establish a structured pattern of eating allow the individual to experience less hunger, deprivation, and negative feelings about food and eating. Additionally, hunger and negative feelings, which most likely prompt binge eating, must also be reduced, decreasing the frequency of binges (NIMH, 2001). Mindfulness techniques and dialectical behavior therapy (DBT) have also been suggested as future areas of treatment research for BED (Mazzeo & Bulik, 2008). Further, compared to youth in the control group, youth who participated in a yoga-based intervention employing mindfulness and dissonance-based exercises experienced reductions in body dissatisfaction and uncontrolled eating (Scime & Cook-Cottone, 2008).

Unproven Treatments

Unproven treatments for BED, as cited by the APA (2000a) include:

- Nutritional rehabilitation and counseling – Restrictive diets used with group behavioral weight control programs have been associated with substantial initial weight loss, but are often less effective during or following the refeeding stage. Weight is commonly regained during this period.
- Psychotherapy – Behavior therapy, CBT, and interpersonal therapy have all been associated with binge frequency reduction rates. However, deterioration follows during the follow-up period for each of these types of therapy. It has been suggested that dialectical behavior therapy may be beneficial for those with BED, as it has been shown to strengthen individuals' distress tolerance skills (Mazzeo & Bulik, 2008). However, the efficacy of this type of psychotherapy with individuals with BED is currently unknown.
- Addiction-based and self-help organization programs – No systematic outcome studies of these programs are available.
- Pharmacological treatments – Antidepressants are typically used in binge eating disorder and related syndromes. However, there is a very high placebo response rate (around 70%), and individuals tend to relapse after medication is discontinued.

Cultural Considerations

Eating disorder individuals represent a wide range of demographics (ADA, 2001). Disorders appear to be more prevalent among Native Americans and in Latino and Caucasian populations and less common among Asians and African Americans (APA, 2000a). Researchers have also found that African American females are more likely to develop BN than AN and are more likely to purge with laxatives than by vomiting (APA). Moreover, African American male youth engage in BED behaviors more frequently than their female Caucasian counterparts (Johnson, Rohan & Kirk, 2002). However, methods for assessing disordered eating symptoms in culturally diverse populations are limited (Bardone-Cone & Boyd, 2007), as are evidence-based treatment options (Keel & Haedt, 2008).

Because values concerning weight and shape vary among cultures, clinicians must be mindful of varying standards of beauty, acceptance, and what it means to be “perfect” in the modern world (APA, 2000a). It is also important to note that AN is detectable in all socioeconomic classes. Thus, higher socioeconomic status does not appear to be a major factor in the incidence of these disorders, as once was surmised (ADA, 2001).

A 2003 survey of Internet websites indicated that approximately 500 sites offered pro-anorexia and bulimia forums (Pirisi, 2005). An estimated four out of ten teenagers with eating disorders visit these pro-disorder sites (Peebles, as cited by McCook, 2005). These sites are a recent, but disturbing phenomenon.

Males with an eating disorder often go undiagnosed due to their embarrassment about not living up to the image of the ideal male body. In particular, males who binge or overeat compulsively may go undiagnosed, given society’s unwillingness to accept such behavior in a male (Knowlton, 1995). Relatively little is known about males with eating disorders; thus, clinicians should be careful to avoid overlooking eating disorder symptoms in males.

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Organizations/Resources

Academy for Eating Disorders (AED)

6728 Old McLean Village Drive — McLean, VA 22101
<http://www.aedweb.org>

Eating Disorder.com

<http://www.eating-disorder.com>

Eating Disorders Coalition for Research, Policy & Action (EDC)

<http://www.eatingdisorderscoalition.org>

EDReferral.com (Eating Disorder Referral and Information Center)

<http://edreferral.com>

James Madison University

University Health Center
<http://www.jmu.edu/healthctr/eatingdisorder>

Johns Hopkins Eating and Weight Disorders Program

Johns Hopkins Hospital
101 Meyer Building, 600 N. Wolfe Street — Baltimore, MD 21205
http://www.hopkinsmedicine.org/psychiatry/specialty_areas/eating_disorders/index.html

National Association of Anorexia Nervosa and Associated Eating Disorders

<http://www.anad.org>

National Eating Disorders Association (NEDA)

Information & Referral Helpline: 800-931-2237
<http://www.nationaleatingdisorders.org>

Society for Adolescent Medicine (SAM)

<http://www.adolescenthealth.org/virginia.htm>

U.S. Department of Health and Human Services

National Institutes of Health
National Institute of Mental Health (NIMH)
<http://www.nimh.nih.gov>

Substance Abuse and Mental Health Services Administration (SAMHSA)

National Mental Health Information Center
<https://store.samhsa.gov/facet/Issues%2C+Conditions%2C+%26+Disorders/term/Eating%20Disorders?headerForList=>

University of Virginia

Elson Student Health Center
<http://www.virginia.edu/studenthealth/ailments/eatingdis.html>

Virginia Commonwealth University Health System

<http://www.vcuhealth.org>

Virginia Polytechnic Institute and State University (VA Tech)

Cook Counseling Center

<http://www.ucc.vt.edu/eating.html>