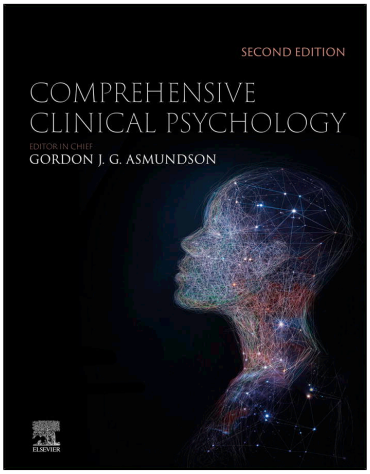




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# 5.24 Understanding and Treatment of Eating Disorders in Children and Adolescents

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## 5.24.1 Introduction

Although eating disorders have been recognized as part of psychiatric nomenclature for many years, it has only been in since the mid-1980s that they have commanded interest in mainstream psychology. Eating disorders are common, chronic, and potentially life-threatening conditions primarily affecting young women. Anorexia Nervosa (AN) is estimated to be the third most common chronic medical illness in girls aged 15–19 years (Lucas et al., 1991) and bulimia nervosa is even more common (Smink et al., 2012). Whereas there is some evidence that the incidence of bulimia nervosa has decreased significantly over the past three decades, the overall incidence of AN has been remarkably stable (Smink et al., 2016). The mortality rates for AN are twice as high as seen in any other psychiatric disorder and more than 12-fold the number of deaths expected from all causes among women 15–24 years of age; mortality rates for bulimia nervosa are also significant (Arcelus et al., 2011). While most of the deaths attributed to AN are related to starvation or medical complications of the disorder, it is alarming that 20% of deaths are due to suicide (Smink et al., 2012). Medical complications are typical during the acute phase of an eating disorder (Mehler and Brown, 2015; Sharp and Freeman, 1993), and persist among those not successfully treated (Keel et al., 2002), leading to a wide range of physical and emotional disorders into early adulthood (Johnson et al., 2002).

Advancements in the understanding and treatment of eating disorders have provided support for a high level of family involvement in treatment of younger patients. There have been significant advancements in treatment outcomes; however, many long-term follow-up studies indicate these disorders can have a sustained and devastating impact on the lives of sufferers. This article will review diagnostic features, epidemiology, comorbidity, etiology, assessment, and treatment options for children and adolescents with eating disorders.

## 5.24.2 Diagnosis and Defining Features

### 5.24.2.1 Phenomenology

A key feature of anorexia nervosa (AN) and bulimia nervosa (BN) is a persistent overconcern with body size and shape indicated by behavior such as prolonged fasting, strenuous exercise, and self-induced vomiting aimed at decreasing body weight and fat. In AN, the overconcern has been described variously as a relentless pursuit of thinness (Bruch, 1973), a morbid fear of fatness (Russell, 1997) and a weight phobia (Crisp, 2006). The term "BN" was proposed by Russell (1979) to define a syndrome in which the patient suffers from powerful and intractable urges to overeat leading to bouts of binge-eating followed by extreme efforts to control weight through self-induced vomiting, laxative abuse, fasting, vigorous exercise, and other behaviors with similar intent. BN shares many features in common with AN, however, the patient is not emaciated.

There is general agreement that eating disorder symptoms have psychological and developmental significance. Both individual and family theorists have emphasized that eating disorders often represent a developmental struggle for autonomy, independence, and individuality. These normal development hurdles become flashpoints in adolescence, when the vulnerable individual, parents, or entire family are forced to deal with emergent developmental realities. However, the phenomenology of eating disorders cannot be fully appreciated outside the context of cultural values. There has been intense pressure on women to diet in order to conform to ultra-slender role models for feminine beauty (Garner and Garfinkel, 1980). Unfortunately, very few women will ever achieve the admired physical form through restrictive dieting, largely owing to biological limits to achieving permanent weight loss. Nevertheless, constructs such as competence, control, attractiveness, self-worth, and self-discipline have continued to be associated with dieting and weight control in our culture. The consequence of the conflict between cultural imperatives and biological realities has been widespread dissatisfaction with body shape and weight that has even affected young girls yet to cross the pubertal threshold (Bruch, 1973; Harrison and Hefner, 2006). Another aspect of the phenomenology of AN is the "ego syntonic" nature of certain symptoms such as pathological dieting and other extreme weight controlling behaviors. In contrast to patients with other psychological disorders such as depression or anxiety, most AN patients actively embrace their eating disorder symptoms. It is not uncommon for patients to strive for and then cling to an "anorexic identity" due to the disorder's associations with celebrity status and socially desirable traits. The resistance to change seen in AN has obvious implications for treatment and has been a major focus of therapeutic strategies recommended for this disorder (Garner et al., 1997).

### 5.24.2.2 Diagnosis

According to the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5) (APA, 2013), eating disorders can be classified as *Anorexia Nervosa, Bulimia Nervosa, Binge-Eating Disorder, Other Specified Feeding and Eating Disorder, Avoidant/Restrictive*

**Table 1** Eating disorder diagnoses

**Anorexia nervosa (AN)**
- Restriction of needed energy intake leading to significantly low body weight in the context of age, sex, developmental trajectory, and physical health
- Intense fear of gaining weight or persistent behavior that interferes with weight gain
- Undue influence of body weight or shape on self-evaluation or persistent lack of recognition of the seriousness of low weight
- Two subtypes
  - Restricting type: absence of recurrent binge-eating or purging behaviors
  - Binge-eating/purging subtype: presence of recurrent binge-eating or purging behaviors

**Bulimia nervosa (BN)**
- Recurrent binge-eating and inappropriate compensatory behaviors at least once a week for 3 months
- Binge-eating is defined as eating an objectively larger amount of food than most people would eat in a similar setting with an associated sense of loss of control overeating
- Compensatory behaviors to prevent weight gain include self–induced vomiting, misuse of laxatives, diuretics, enemas, other medications, fasting, or excessive exercise
- Self-evaluation is unduly influenced by body weight or shape

**Binge-eating disorder (BED)**
- Recurrent binge-eating episodes without associated compensatory weight control behaviors
- Binge-eating is associated with three or more of the following: eating rapidly, eating until uncomfortably full, eating large amounts when not hungry, eating alone due to embarrassment, and feeling disgusted, depressed, or very guilty after eating
- Distress regarding binge-eating episodes

**Avoidant-restrictive food intake disorder (ARFID)**
- Avoidance of foods or restriction of intake due to lack of interest, sensory characteristics of food, or the adverse consequences of eating
- Includes one or more of the following factors: significant weight loss (or failure to gain), significant nutritional deficiency, dependence on enteral feeding or oral nutritional supplements, marked interference with psychosocial functioning
- The behavior does not occur during AN or BN or there is no evidence of body image disturbance characteristic of these two eating disorders

**Other specified feeding or eating disorders (OSFED)**
- Atypical AN: features of AN except that despite significant weight loss, the individual's weight is within or above the normal range
- BN (of low frequency or limited duration): binge-eating and compensatory behaviors occur less than once a week or for less than 3 months
- Binge-eating disorder (of low frequency or limited duration): binge-eating occurs less than once a week or for less than 3 months
- Purging disorder: recurrent weight control behavior to influence weight or shape in the absence of binge-eating
- Night eating syndrome: recurrent episodes of night eating (after the evening meal or waking to eat) causing significant distress or impairment in functioning

**Unspecified feeding or eating disorder (UFED)**
- Symptoms of a feeding or eating disorder without meeting all the characteristics of another eating disorder

*Food Intake Disorder, and Unspecified Feeding and Eating Disorder*. The main characteristics of each of these disorders is summarized in **Table 1**. The DSM-5 retains some features of the earlier DSM-IV-TR (APA, 2000) criteria but contains important changes and updates. The DSM-5 retains the distinction between two subtypes of AN: (i) restricting type and (ii) binge-eating/purging type. The restricting type is defined by rigid restriction of food intake without bingeing or purging, whereas the binge-eating/purging type is defined by stringent attempts to limit intake punctuated by episodes of binge-eating as well as compensatory behaviors such as self-induced vomiting and/or laxative abuse. The need for amenorrhea is eliminated for AN. The DSM-5 no longer specifies two subtypes of BN and binge-eating disorder (BED) is made a full-fledged eating disorder. Although there is merit in adopting BED into the diagnostic nomenclature, it must be remembered that binge-eating and associated psychological symptoms, particularly in the obese, may be most parsimoniously attributed to standard weight loss treatments (Garner and Wooley, 1991).

Importantly, the DSM-5 adds diagnostic categories to account for many patients who do not fit the full criteria for the other eating disorders. The earlier DSM-IV-R did not allow a specific diagnostic classification for those who had subthreshold symptoms required for an eating disorder diagnosis. They were given the ignominious designation of *Eating Disorders Not Otherwise Specified (EDNOS)*. In many instances, these "subthreshold" cases were every bit as complicated and serious as the two main eating disorders; however, the fact that they did not meet full eating disorder diagnostic criteria provided a barrier to reimbursement for services. The DSM-5 addresses this problem by adding new diagnostic categories including: *Other Specified Feeding and Eating Disorder (OSFED)* and *Avoidant/Restrictive Food Intake Disorder (ARFID)*. According to the DSM-5, to be diagnosed with OSFED, a person must present with eating disorder behaviors that cause clinically significant distress and impairment in areas of functioning, but do not meet the full criteria for and of the other feeding and eating disorders noted in **Table 1**. To be diagnosed with ARFID, a person must display an eating or feeding disturbance manifested by persistent failure to meet appropriate nutritional and/or energy needs associated with one or more of the symptoms or conditions described in **Table 1**. These changes allow more patients to be classified than the earlier DSM-IV-TR (Call et al., 2013; Keel et al., 2011).

#### 5.24.2.3 Relationship Between Different Eating Disorders

Even though distinctions between diagnostic subgroups have been emphasized in the research literature, it is important to recognize that the different diagnostic subgroups tend to share many features in common. For example, even though AN patients are

differentiated into "restricting and" binge-eating/purging subtypes, it must be remembered that most eating disorder patients "restrict their food intake," and they unduly evaluate their self-worth in terms of weight or shape. Mean differences between diagnostic groups on psychological variables are generally less remarkable than the extraordinary heterogeneity within each of the diagnostic subgroups in terms of demographic, clinical, and psychological variables (Duffy et al., 2019; Garner, 2004; Welch et al., 1990). Diagnostic boundaries are fluid since patients have been observed to move between diagnostic categories at different points in time (Eddy et al., 2008; Fichter and Quadflieg, 2007; Russell, 1979; Wonderlich et al., 2007). For example, patients move between the two subtypes of AN (restricting and binge-eating/purging types); however, the tendency is for those with the restricting type to move toward bulimia (and purging) more often than bulimic anorexics move to an exclusively abstaining mode (Eddy et al., 2008; Garner et al., 1993; Keel et al., 1999). Therefore, for clinical purposes, there is far greater heuristic value in directly assessing the psychological domains that are conceptually relevant across all eating-disorder subgroups rather than simply drawing inferences from the DSM-5 diagnostic categories (Garner, 2004).

#### 5.24.2.4 Differential Diagnosis

Patients without AN, BN, or some variant can superficially resemble patients with an eating disorder diagnosis. Patients with a severe affective disorder can display marked weight loss (due to loss of appetite) or hyperphagia. Schizophrenia can present with an aversion to eating and occasionally binge-eating or purging. Vomiting and weight loss also can be associated with what has been described as a conversion disorder (Garfinkel et al., 1983). A range of physical illnesses producing weight loss (e.g., inflammatory bowel disease, chronic hepatitis, Addison's disease, Crohn's disease, un-diagnosed cystic fibrosis, diabetes mellitus, hyperthyroidism, tuberculosis, malignancies, malabsorption diseases, or other wasting diseases) should be ruled out as the primary diagnosis (Garfinkel and Garner, 1982). Izydorczyk and Wojciechowski (2016) have reported that it is possible to make an accurate differential diagnosis of eating disorders using a decision tree employing six variables including BMI and psychological traits (Izydorczyk and Wojciechowski, 2016). AN is associated significantly with fibromyalgia, cancer, anemia, and osteoporosis, and binge-eating disorder with diabetes, hypertension, high cholesterol, and high triglycerides (Udo and Grilo, 2019).

### 5.24.3 Epidemiology

#### 5.24.3.1 Incidence and Prevalence

Incidence rates are defined as the number of new cases in the population per year, whereas prevalence rates refer to the actual number of cases in the population at a certain point in time. Prevalence studies have been the most common and have often been conducted on high-risk populations such as college students and athletes. There are serious limitations to estimates of the incidence and prevalence of eating disorders, because many estimates have been derived exclusively from self-report instruments and on samples that may not reflect important demographic differences in base rates. In general, estimates based exclusively on questionnaires yield much higher rates of eating disorders (Fairburn and Beglin, 1994).

The most sophisticated prevalence studies using strict diagnostic criteria report rates of about 0.3% for AN and about 1% for BN among young females in the community (Hoek, 2006). Estimates of incidence of AN based on detected cases in primary care practices in the Netherlands has remained relatively stable for two time-periods 1985–89 and 1995–99, with rates of 7.4 and 7.7 per 100,000 persons per year respectively (Smink et al., 2012). Incidence rates are highest for females aged 15–19 years. They constitute approximately 40% of all cases, resulting in an incidence rate of 109.2 per 100,000 15–19-year-old girls per year in 1995–99 (van Son et al., 2006). The incidence of AN among males was less than 1 per 100,000 person-years in general practices in the Netherlands and the UK (van Son et al., 2006). While the overall incidence of AN was stable around 7 per 100,000 person-years, the incidence in 15–19-year-old girls increased significantly from 56.4 per 100,000 person-years in 1985–89 to 109.2 per 100,000 person-years in 1995–99 (van Son et al., 2006).

According to the study in the Netherlands, the incidence of BN tended to decrease from 8.6 per 100,000 person-years in 1985–89 to 6.1 per 100,000 person-years in 1995–99 (van Son et al., 2006). When a broad definition of BN was used, specifying binge-eating once a week, the peak incidence has been reported to be 300 per 100,000 person-years in 16–20-year-old females (Keski-Rahkonen et al., 2009). This compares to surveys using questionnaires that find that as many as 19% of female students report bulimic symptoms. Prevalence studies of higher risk samples indicate that serious eating disorders occur in as many as 4% of female high school and college students (Fairburn and Beglin, 1994). Suspected cases of clinical eating disorders or subclinical variants are even more common among groups exposed to heightened pressures to diet or to maintain a thin shape. Research has confirmed a high incidence of actual or suspected cases among samples of ballet students and professional dancers, wrestlers, swimmers, skaters, and gymnasts (Garner and Garfinkel, 1980).

Prevalence rates refer to the actual number of cases in the population at a certain point in time and can be expressed as point prevalence, 1-year prevalence rate and lifetime prevalence which is the proportion of people that had the disorder at any point in their life. Prevalence is useful for health care planning since it indicates the demand for treatment. Typically, prevalence case-detection is determined using a two-stage approach where the first stage is a self-report screening instrument followed by a clinical interview of those who meet a cutoff score criterion on the screening test. Estimates of 1-year prevalence rates per 100,000 for young females has been reported to be 370 for AN and 1000 for BN (Hoek and van Hoeken, 2003). In a large representative sample of US

adolescents, the lifetime prevalence of AN was 0.3% in 13–18-year-old females as well as males (Swanson et al., 2011). This same study found a lifetime prevalence of BN of 1.3% in 13–18-year-old females and 0.5% among males in the same age range.

The lifetime prevalence of BED in the US from the National Comorbidity Survey has been estimated to be 3.5% among adult women and 2.0% among men (Swanson et al., 2011). There is little information of the incidence and prevalence of the other DSM-5 eating disorders as what little information that is available is difficult to interpret because of the different operational definitions used to define cases. In general, sub-threshold eating disorder cases are more common than those meeting full criteria; however, they are often clinically significant (Swanson et al., 2011).

#### 5.24.3.2 Have Eating Disorders Changed Over Time?

AN was once believed to be restricted to the higher socioeconomic classes; however, there is evidence that it has become more common in middle and lower socioeconomic groups (Gowers and McMahon, 1989). According to Russell (1997), the most dramatic evidence for a transformation in the psychopathology of AN is the increased appearance of binge-eating, both in AN and eating disorder patients who are not emaciated. However, the actual extent to which binge-eating has become more common in AN is unclear because the symptom may have been identified less reliably in earlier reports (Garner, 1993).

Casper (1983) suggested another shift in the psychopathology of eating disorders over the decades whereby "ascetic motives" for weight loss have become less prominent, replaced by the "drive for thinness" as the most common motivational theme. The theme of asceticism was common in early writings on AN (Bell, 1987; Rampling, 1985) and is expressed in the conceptions of dieting as purification, thinness as virtue, and fasting as an act of penitence. Nevertheless, there is a subgroup of eating disordered patients who seem to be motivated by belief in the virtue of oral self-restraint (Garner and Bemis, 1982; Garner et al., 1997). Evidence suggests that "oral self-restraint" may be part of a more general theme of renunciation of physical gratification (Haimes and Katz, 1988). This is supported by findings that AN patients have elevated scores on the Asceticism subscale of the Eating Disorder Inventory (Garner, 2004), a subscale designed to identify the tendency to seek virtue through the pursuit of spiritual ideals, such as self-discipline, self-denial, self-restraint, self-sacrifice, and control of bodily urges. Nevertheless, a recent study reported few changes on standardized psychometric measures comparing eating disorder cohorts over a 20-year period (i.e., 1990, 2000, 2010) (Probst et al., 2018).

### 5.24.4 Risk Factors

Research has identified a range of risk factors for the development of eating disorders. The most well-recognized are gender, age, ethnicity, genetic predisposition, weight concerns, restrictive dieting, and body dissatisfaction. Psychological disorders and traits include depression, anxiety, OCD, low self-esteem, perfectionism, and a harm avoidance temperament style (Bulik, 2008; Jacobi et al., 2004; Stice et al., 2017). Adverse childhood experiences such as sexual abuse, early feeding problems, prenatal and perinatal complications, bullying/teasing, maternal eating disorder, critical comments about eating, weight and shape have also been identified as important risk factors (Jacobi et al., 2011; Klein et al., 2017; Lie et al., 2019). Finally, participation in certain activities such as high intensity exercise, and participation in sports emphasizing low weight such as gymnastics, wrestling, swimming, and ballet confer risk (Garner and Garfinkel, 1980; Sundgot-Borgen and Torstveit, 2004). Those with AN tend to have childhood temperament and personality traits, such as anxiety, obsessions, and perfectionism, which may reflect neurobiological risk factors for developing the disorder (Kaye et al., 2004). Further research is needed to determine the precise nature and the significance of the observed personality traits. An important direction for future research is the understanding of genetic vulnerability as well as potential neurobiological mechanisms that are expressed through behavior and personality contributing to eating disorder symptomatology (Kaye et al., 2015).

### 5.24.5 Comorbidity

Since the earliest descriptions of AN there has been considerable controversy as to whether eating disorders represent discrete psychological entities or are simply manifestations of other illnesses (Beumont, 1988). AN, BN and BED have been considered variants of affective disorder, obsessive-compulsive disorder, or borderline personality disorder. Traits such as hostility, somatization, social maladjustment, physical anhedonia, affective rigidity, interpersonal sensitivity, anxiety, poor self-esteem, external locus of control, and confused sex-role identity have been observed repeatedly in eating disorder patients (Beumont et al., 1976; Garfinkel and Garner, 1982; Rastam et al., 1996; Udo and Grilo, 2019). Although there is general acceptance that eating disorders are best considered as discrete clinical entities there is growing interest in psychological typologies that may define meaningful subgroups of eating disordered patients (Eddy et al., 2009; Garner, 2004). The timing and the appearance of comorbid conditions means that there is considerable overlap with risk factors described in the above section.

#### 5.24.5.1 Depression

Depression has been described as a common theme in eating disorders, but its precise role is controversial (Monteleone et al., 2019; Pope et al., 1988). Hudson et al. (1987) originally argued that BN is a variant of depression based on evidence that eating disorder

patients exhibit: (i) a high prevalence of depression, (ii) a family history of depression, (iii) biological markers of depression, and (iv) a positive response to antidepressant medications. Detractors from this view provide alternative interpretations for these associations and contend that the nature of BN as a variant of depression is overly simplistic and theoretically limiting (Strober and Katz, 1987). Although depression may play an important predisposing role in eating disorders, current evidence fails to support the proposition that eating disorders are simply depressive equivalents (Laessle et al., 1987). This said, the evidence is overwhelming that depression is one of the most common experiences of those with eating disorders, and to minimize the significance of this experience would be misleading. Moreover, BN patients with a history of affective disorder or substance abuse disorder report significantly more suicide attempts, social impairment, and previous treatment, both before and after the onset of the eating disorder (Hatsukami et al., 1986). No suicide attempts were found among the group of patients with bulimia alone; however, 26.5% of those with concurrent affective disorder and 32.4% with substance abuse had attempted suicide. In a cross-sectional study of college students, Nascimento et al. (2020) reported that students at risk for developing eating disorders or those suggestive of eating disorders were at a higher risk of committing suicide. Of interest, studies show that patients with bipolar disorder, especially women, have a high prevalence of eating disorders, and this comorbidity is associated with an earlier age of onset and a more severe course of bipolar disorder illness (McElroy et al., 2011).

In a prospective study of major depressive disorder in an eating disorder, one study found that 59% of the 246 patients recruited had one or more episodes of depression, a prevalence much greater than the 15% or so that would be expected in the general population (Mischoulon et al., 2011). Patients who fared the worst had more severe baseline depressive symptoms, and better psychological functioning suggested a higher chance of recovery. A study by Monteleone et al. (2019) used network analysis to study symptom clusters in 405 adolescent inpatients with AN. Patients completed the Eating Disorder Inventory-3, the Multidimensional Anxiety Scale for Children, the Children's Depression Inventory, and the Youth Self Report. A network analysis was conducted, including eating psychopathology measures, anxiety and depressive symptoms, and obsessive-compulsive and post-traumatic stress problems. Depression symptoms and personal alienation were the nodes with the highest centrality in the network.

Some studies indicate that depressive states of varying intensities foreshadow the development of AN with lifetime prevalence rates of major depressive illness ranging between 25% and 80% across different samples (Herzog et al., 1992b) They found a lifetime prevalence of 68% for major depression in a sample of severely ill AN patients. Depression can be secondary to starvation and coexisting complications since improved mood often follows nutritional rehabilitation (Garner, 1998). One population study found that depression typically did not precede the eating disorder, although it did correlate with onset (Rastam, 1992). In a 6-year follow-up, affective disorders were found to be common throughout the follow-up period but tended to follow the course of the disorder rather than to precede or postdate it (Rastam et al., 1996). Thus, a history of affective disorder may be a foreboding complication for a subgroup of eating disordered patients who may be particularly resistant to treatment efforts. Unfortunately, this subgroup of patients does not seem to respond more favorably to antidepressant therapy than those without a history of mood disorder (Walsh et al., 1997). There is some evidence that eating disorder risk reduction programs may not only reduce eating disorder behavior but also may reduce the likelihood of depression, use of alcohol and recreational drugs (Wilksch et al., 2019b).

There is strong evidence indicating a familial association between eating disorders and suicide risk. In one study, a lifetime suicide attempt by any family member was 10.8% for an eating disorder sample and ranged from 7.0% of those with eating disorder not otherwise specified to 16.1% of those with purging disorder (Pisetsky et al., 2017). Controlling for age and gender, individuals with BN had a higher prevalence of any familial suicide attempt as well as attempts by mothers compared to individuals with atypical eating disorders. No other differences were observed across eating disorder diagnoses. In a meta-review of risks of all-cause and suicide mortality across mental disorders, Chesney et al. (2014) found that all disorders had an increased risk of all-cause mortality compared with the general population, and those with the highest all-cause mortality ratios were substance use disorders and anorexia nervosa. These higher mortality risks translate into substantial (10–20 years) reductions in life expectancy with borderline personality disorder, anorexia nervosa, depression and bipolar disorder having the highest suicide risks.

Although psychotherapy has been shown to be effective in reducing symptoms of BN in the short- and long-term, it is of interest whether psychotherapy for BN is also effective in reducing depressive symptoms. In a meta-analysis of randomized controlled trials, Linardon et al. (2017a) found that the magnitude of the improvement in depressive symptoms was predicted by the degree of the improvement in BN symptoms. Their findings suggest that psychotherapy is effective for reducing depressive symptoms in BN in the short-term and that CBT might also be the most effective treatment for improving the depressive symptoms that commonly occur in BN.

The relationship between binge-eating disorder (BED) and suicidality (i.e., suicide ideation, plan, and/or attempt) has recently been studied adjusting for comorbid psychopathology (Forrest et al., 2017). Forrest et al. (2017) administered diagnostic interviews assessing psychopathology and suicidality to 10,123 adolescents and 2980 adults from two nationally representative surveys and found that BED was associated with elevated odds of suicidal ideation, plan, and attempt at a univariate level, but BED was not associated with elevated odds of suicidality when adjusting for comorbid psychopathology. They found that comorbid disorders and suicidality share common factors and interrelations. Individuals with BED and comorbid disorders may be at particularly high risk for suicidal outcomes. It was concluded that the presence of BED in adolescence may serve as a marker for more severe symptomatology that precedes the occurrence of suicidality.

#### 5.24.5.2 Anxiety and Obsessive-Compulsive Disorder

The most common anxiety symptoms documented in AN are obsessive-compulsive (OC) in nature and social phobia, specific phobia, and general anxiety disorder and these are very often evident in childhood before the onset of the eating disorder and persist

after recovery (Kaye et al., 2004). Overanxious disorder of childhood often precedes the onset of AN and those with this trait report more extreme personality traits as well as engage in more compensatory behaviors (Raney et al., 2008). Those with AN tend to have childhood temperament and personality traits, such as anxiety, obsessions, and perfectionism, which may reflect neurobiological risk factors for developing the disorder. According to Kaye et al. (2013), restricted eating may be a means of reducing anxiety, sensitivity to criticism, and fear of making mistakes reflecting fundamental neurobiological underpinnings that modulate reward processing.

Swinbourne et al. (2012) found that, of women presenting for treatment of an eating disorder, 65% met the threshold for at least one anxiety disorder, with 69% of these reporting the onset of the anxiety disorder preceding the onset of the eating disorder. The most common comorbid anxiety disorder to be diagnosed was social phobia (42%), followed by posttraumatic stress disorders (26%), generalized anxiety disorder (23%), OCD (5%), panic/agoraphobia (3%), and specific phobia (2%). This study also found that 13.5% of women presenting for anxiety treatment also met criteria for a comorbid eating disorder. Furthermore, 71% (n = 5) reported the onset of the anxiety disorder to precede the onset of the eating disorder.

In a sample of 93 women with either AN or BN, Thiel et al. (1995) found that 37% met diagnostic criteria for OC disorder. These patients with concomitant OC disorder also had higher mean scores on five of eight Eating Disorder Inventory subscale scores. Rastam et al. (1996) followed a sample of AN patients 6 years after onset and found that a high rate of OC disorder and underlying personality disorders tended to predict poor outcome. A common diathesis between eating disorders and OC disorder is suggested by the finding that 11% of 151 women presenting with OC disorder had a history of AN (Kasvikis et al., 1986).

In a large study, AN-R, AN-B and BN patients were given the Structured Clinical Interview for DSM-IV Axis I Disorders as well as standardized measures of anxiety, perfectionism, and obsessionality and their ratings on these measures were compared with those of a nonclinical group of women in the community (Kaye et al., 2004). The rates of most anxiety disorders were similar in all three subtypes of eating disorders. About two-thirds of the individuals with eating disorders had one or more lifetime anxiety disorder; the most common were obsessive-compulsive disorder (OCD) (N = 277 [41%]) and social phobia (N = 134 [20%]). Most of the participants reported the onset of OCD, social phobia, specific phobia, and generalized anxiety disorder in childhood, before they developed an eating disorder. People with a history of an eating disorder who were not currently ill and never had a lifetime anxiety disorder diagnosis still tended to be anxious, perfectionistic, and harm avoidant. Even with recovery from AN, perfectionism may persist. A study of AN restricting patients studied at 8 and 16 years after a first hospital admission and levels of perfectionism measured by the EDI stayed the same while eating disorder and psychiatric symptoms decreased during recovery (Nilsson et al., 2008). Individuals with AN have exaggerated anxiety related to food, reward insensitivity, intolerance of uncertainty, and exaggerated harm avoidance which may be linked to observed neurobiological vulnerability (Kaye et al., 2015).

#### 5.24.5.3 Borderline Personality Disorder

Since the mid 1980s, there has been intense interest in the relationship between eating disorders and personality disorders. Several reports have indicated that almost two-thirds of eating disordered patients receive a concurrent diagnosis of a personality disorder, with borderline personality disorder being reported as particularly common (Bulik et al., 1995; Gillberg et al., 1995; Sullivan, 1995). Levin and Hyler (1986) assessed 24 BN patients and found that 15 (63%) met diagnostic criteria for a personality disorder, with six (25%) fulfilling the diagnosis for borderline personality disorder. Similarly, Bulik et al. (1995) found at least one personality disorder in 63% of a sample of 76 women with BN. Fifty-one percent of the personality disorders were in cluster C (specifically, avoidant, obsessive-compulsive, or dependent personality disorders), 41% in cluster B (particularly, borderline, or histrionic), and 33% in cluster A (paranoid, schizoid, or schizotypal). In an earlier evaluation of 35 patients with eating disorders, Gartner et al. (1989), found that 57% met the DSM-5 diagnostic criteria for at least one form of personality disorder, with borderline, self-defeating, and avoidant being the most common. Two or more Axis II diagnostic criteria were met by 40% of the patients, and 17% fulfilled all the criteria for 5–7 personality disorder diagnoses. Wonderlich et al., (1990), interviewed 46 eating disordered patients and reported that 72% met criteria for at least one personality disorder. Obsessive-compulsive personality disorder was common among restricting anorexic patients. Histrionic and borderline personality disorder diagnoses were common among bulimic groups. A study of the prevalence of personality disorders among 100 adolescents with eating disorders found that 33% of the sample had at least one personality disorder and those with BN had the highest dimensional scores for borderline and histrionic personality disorders (Magallon-Neri et al., 2014). Overall, adolescent female patients with eating disorders had higher cluster B personality pathology scores, especially those patients with bulimia and purging type eating disorders.

Arguing that borderline assessment measures are confounded by certain eating symptoms, Pope and Hudson (1989) challenged the interpretation that borderline personality disorder is overrepresented among eating disorders. For example, bulimic eating patterns may be used to satisfy the DSM-5 poor impulse control criterion for borderline personality disorder, making the association between disorders tautological. Nevertheless, the tendency toward poor impulse regulation has been identified as a negative prognostic sign in eating disorders (Hatsukami et al., 1986; Sohlberg et al., 1989). Results from research on the incidence and prevalence of personality disorders in AN are inconsistent. Some studies indicate remarkably high rates, with avoidant personality disorder occurring in as many as 33% of those with the restricting AN type and borderline personality disorder occurring in almost 40% of AN binge-eating patients (Piran et al., 1988). Other studies suggest that personality disorders are relatively uncommon in AN (Herzog et al., 1992a; Pope and Hudson, 1989). Impulse control problems, such as self-mutilation, suicide attempts, and stealing, are reported in a subgroup of AN patients, particularly those with purging and/or bulimic symptoms (Fahy and Eisler, 1993; Garner

et al., 1993). While personality disturbances are not uniform in eating disorders, their presence suggests meaningful subtypes that may be relevant to treatment planning and prognosis.

Although there is good evidence that personality disorders are more common in those who develop eating disorders, it is important to emphasize that many of the symptoms manifest during the acute phase of the disorder may be secondary to starvation rather than primary features of the eating disorder (Garner, 1998). In a 5-year follow-up of eating disorder patients, personality disorders, diagnosed by a structured interview, were evident in 78% of the patient sample at admission and in 42% after 5 years (Vrabel et al., 2010). Most of the reduction occurred after the first year suggesting that the symptom picture leading to the personality disorder diagnosis may be secondary to starvation or the eating disorder symptom picture since personality disorders tend to be enduring. Nevertheless, while screening positive for borderline personality disorder at admission to residential treatment is associated with more severe eating symptom pathology at admission, the rate of improvement with treatment was similar to those who screened negatively for the personality disorder (Weigel et al., 2019).

#### 5.24.5.4 Sexual Abuse

There has been considerable interest and controversy regarding the role of sexual abuse as a risk factor for the development of eating disorders. Clinical accounts and the observation in some studies of a high incidence of sexual abuse in eating disorder patient samples (Oppenheimer et al., 1985) were followed by further clinical reports and numerous empirical studies yielding conflicting findings (Fallon and Wonderlich, 1997). A recent systematic review of the literature and meta-analysis reported an association between childhood sexual abuse and BN and BED; however, this association was not found for AN (Caslini et al., 2016). In an earlier summary of the literature (Fallon and Wonderlich, 1997), concluded that: (i) childhood sexual abuse appears to be positively associated with BN; (ii) there is less evidence for this association in AN; (iii) childhood sexual abuse does not appear to be a specific risk factor for eating disorders (i.e., it is no higher for eating disorders than in psychiatric controls); (iv) childhood sexual abuse does appear to be associated with greater levels of comorbidity among those with eating disorders, however, there is not strong evidence that it predicts a more severe eating disorder; and (v) a more complex approach to the definition of sexual abuse has led to better prediction of later disturbances in eating. It is indisputable that a significant subgroup of women from some clinical eating disorder samples have a history of sexual abuse and that careful assessment and treatment is important in the process of dealing with resulting feelings of shame, distrust, and anger (Fallon and Wonderlich, 1997).

### 5.24.6 Etiology

A complete understanding of AN and BN must account for factors that predispose individuals to each of the eating disorders. Theory should be able to delineate the variety of developmental experiences that interact with these factors to initiate symptom expression as well as account for the maintaining variables (biological, psychological, and interpersonal) and the key variations in the symptom picture. Although current models are unable to specify all elements in precise detail, research and clinical observations have improved the understanding of eating disorders, which in turn, has led to more sophisticated treatment recommendations.

In the latter half of the 20th century, single factor causal theories have been replaced by the view that eating disorders are "multidetermined" (Garfinkel and Garner, 1982; Garner, 1993; Garner and Garfinkel, 1980) where the symptom patterns represent final common pathways resulting from the interplay of three broad classes of predisposing factors which are cultural, individual, and familial (see **Fig. 1**). The role of cultural, individual (psychological and biological), and familial causal factors are presumed to

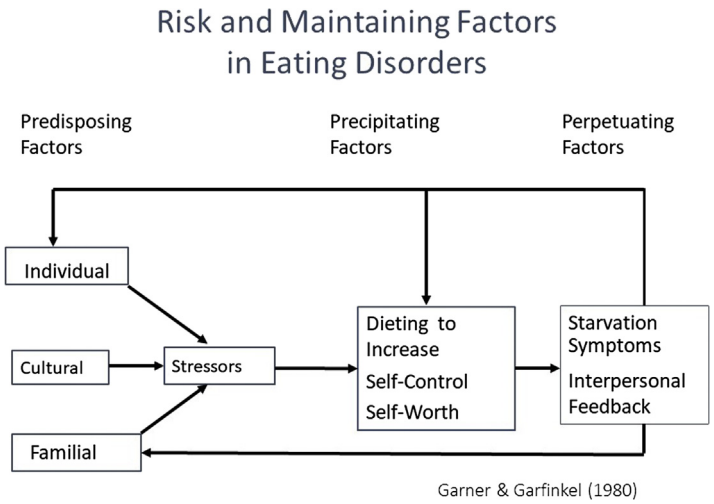


**Fig. 1** Risk and maintaining factors in eating disorders.

combine with each other in different ways leading to the development of eating disorders. The precipitants are less clearly understood except that dieting is invariably an early element. Perhaps the most practical advancements in treatment have come from increased awareness of the perpetuating effects of starvation with its psychological, emotional, and physical consequences (Garner, 1998). **Table 2** provides a list of risk factors with estimates of the potency of these putative risks based on the reviews by several notable researchers (Jacobi et al., 2004; Stice et al., 2017; Stice et al., 2011).

#### 5.24.6.1 Genetic Contributions

The evidence for genetic vulnerability to AN came from early reviews of approximately 100 twin pairs culled from selected twin case report summaries and from twin studies (Garfinkel and Garner, 1982; Holland et al., 1988). These reports indicate concordance rates of more than 50% for monozygotic twin pairs compared to less than 10% for dizygotic twins. This contrasts with one study of 11 twin pairs (5 monozygotic) where none of the cotwins was found to be concordant for AN (Waters et al., 1990). Nevertheless, the concordance data on twins reared together does not conclusively distinguish between genetic and environmental transmission (Holland et al., 1988; Kaye et al., 2015).

There is evidence that first degree relatives of eating disorder patients have a greater risk of having AN (Strober et al., 1990). The Swedish Twin Registry is the largest population-based registry of twins in the world, yielded a heritability estimate for narrowly defined AN of 0.56 with the remaining variance attributable to unique (0.38) and shared (0.05) environment (Bulik et al., 2006). Narrowly defined AN involved a BMI $<$17.55 and the loss of menstrual periods. Of interest, this study found that neuroticism, measured three decades earlier, was significantly associated with the development of AN. Using this same twin registry, Bulik et al. (2010) estimated the heritability of narrowly defined AN to be 0.57 and 0.62 for narrowly defined BN, with the remaining variance attributable to shared and unique environmental factors. Of note, the heritability for the broadly defined AN was considerably lower at 0.29 suggesting a stronger genetic influence on the more narrowly defined cases which is consistent with molecular genetic studies in which stronger linkage peaks were reported in more homogeneously defined AN.

Bachner-Melman et al. (2007) identified polymorphic genes that were shown to be associated with dysfunctional eating and AN also appear to be linked to the perfectionism personality trait. Moreover, they discovered that the same allele found to be associated with disordered eating in female controls is the same allele associated with high perfectionism scores in this group. Their findings strengthen the notion that one of the several pathways to serious behavioral disorders is mediated by the impact of variations in DNA sequences on personality traits. In sum, these studies suggest that there may be a genetic component in the transmission of AN; however, in addition to a direct inherited risk for eating disorders, it is likely that the risk is transmitted through personality traits associated with the development and maintenance of eating disorders.

#### 5.24.6.2 Developmental Factors

Defined in broad terms, many theories have offered developmental explanations of eating disorders. Some formulations have emphasized intrapsychic mediation and others have highlighted interactional factors. Together they have provided a rich understanding of a range of psychological themes that may account for both AN and BN.

Many of the early psychodynamic writings on eating disorders emphasized AN as a rejection of adult femininity. This theme was refined and extended by Crisp (2006) who contends that the central psychopathology of both AN and BN is related to fears of the psychological and biological experiences associated with adult weight. According to this view, starvation becomes the mechanism for avoiding psychobiological maturity because it results in a return to prepubertal appearance and hormonal status. This regression is thought to provide relief from adolescent turmoil and conflicts within the family. Moreover, patients report experiencing themselves as younger following extreme weight loss, and this may be due to the reversal of mature adolescent hormonal profiles that form the biological substrata for psychological experience (Crisp, 1980).

Other developmental theorists have attributed eating disorders to various types of parenting failure. Bruch (1973) and Selvini-Palazzoli (1974) provided a developmental paradigm in which the mother superimposes her own inaccurate perceptions of the child's needs on the child. Such invalidation of the child's experiences results in an arrest of cognitive development and is manifest in debilitating feelings of ineffectiveness that are later evident in adolescent struggles for autonomy and control of the body. Bruch postulated that these early parenting failures lead to fundamental deficits in self-awareness, including the way that the body is perceived and experienced.

A similar view is expressed by theorists working from an object relations model to account for eating disorders (Masterson, 1977; Stern, 1986; Sugarman et al., 1982). According to this view, normal development is characterized by the process of separation-individuation, a state achieved by consistent interactions with a primary caretaker who is highly responsive to the needs of the child. Success is reflected by the child's progressive internalization of the ability to accurately recognize, respond, and regulate internal needs and impulses without contact with the immediate caregiver. Accordingly, the different personality structures of eating disordered patients reflect developmental arrest at specific phases of the process of separation-individuation. The eating disorder symptoms are an attempt to cope with needs stemming from incomplete self-development or an interruption of the separation-individuation process.

The self-psychology perspective of Kohut (1977) has also been used to account for eating disorders as a reflection of developmental arrest in the separation-individuation process (Casper, 1983; Goodsitt, 1983; Swift and Letven, 1984). According to this conceptual scheme, the eating disordered patient's lack of a cohesive sense of self is the direct result of the primary caregiver's failure

**Table 2** Major risk factors identified for eating disorders

| *Risk factors for eating disorders* | *Potency*[a] |
|---|---|
| **Socio-cultural** | |
| Living in western society | √√√ |
| Sports emphasizing slimness | √√√ |
| **Individual: fixed & behavioral** | |
| Female gender | √√√ |
| Ethnicity | √√ |
| Adolescence | √√√ |
| Higher premorbid weight | ✓ |
| Pubertal status and timing | ✓ |
| Restrictive dieting | √√√ |
| High levels of exercise | √√ |
| Alcohol/drug abuse | ✓ |
| **Individual: traits/core beliefs/schemas** | |
| Drive for thinness | √√√ |
| Body dissatisfaction & weight concerns | √√√ |
| Body misperception | ✓ |
| Low self-esteem or ineffectiveness | √√√ |
| Depression | √√ |
| Perfectionism | √√√ |
| Asceticism/self-sacrifice | ✓ |
| Obsessive compulsive traits | √√√ |
| Anxiety/worry | √√ |
| Interpersonal insecurity/alienation/attachment deficits | √√√ |
| Fears of psychobiological maturity | ✓ |
| Harm-avoidant temperament | ✓ |
| Low interoceptive awareness | √√ |
| Emotional regulation problems (over or under-control) | √√ |
| Anger | √√ |
| **Individual: cognitive processing** | |
| Reasoning errors | √√√ |
| Information processing/attentional bias | √√ |
| Neuropsychological deficits | ✓ |
| **Genetic factors** | √√√ |
| **Individual developmental** | |
| Early childhood feeding problems | ✓ |
| Pregnancy complications/premature birth | ✓ |
| Childhood anxiety problems | ✓ |
| Childhood obesity | ✓ |
| Early puberty | ✓ |
| Age: adolescence | √√√ |
| **Adverse life events** | |
| Physical abuse or neglect | √√ |
| Sexual abuse | √√ |
| Bullying and teasing | √√ |
| Physical illness | ✓ |
| Weight loss in adolescence | √√ |
| **Parental risk factors** | |
| Obesity | ✓ |
| Dieting | √√ |
| Mother with an eating disorder | √√√ |
| Critical comments about weight | √√ |
| High levels of exercise | ✓ |
| High performance expectations | ✓ |
| Over-concern/hypervigilance | ✓ |
| Depression | ✓ |
| Low contact/neglect/conflict | ✓ |
| Substance misuse | ✓ |

[a]Estimate based on summary data from: Jacobi et al. (2004); Stice et al. (2017); Stice et al. (2011).

to provide essential functions during development. These include mirroring, tension regulation, and integration. The obsessive concern about eating and repeated bouts of bingeing and vomiting serve organizing and tension regulation functions in the attempt to modulate basic deficits in self-structures. These symptoms become an organizing event in one's life and provide intense stimulation that numb the anguish and emptiness that pervade the eating disordered patient's experience. There is growing empirical evidence to support the clinical view that intense separation distress is common among eating disorders and that many patients demonstrate marked separation anxiety in response to severely as well as mildly stressful situations (Armstrong and Roth, 1989). Others have emphasized the motivation for binge-eating as an attempt to escape negative aspects of self-awareness (Heatherton and Baumeister, 1991). According to this view, the binge eater experiences negative self-evaluations and concerns about perceived negative evaluations from others that are accompanied by anxiety and depression. Binge-eating provides a means of avoiding this unpleasant state of negative self-awareness through the narrowing of attention to one facet of the immediate environment. Strober et al., (2014) have drawn together developmental theory, psychobiology, and personality genetics in offering a valuable understanding of the adaptive mechanisms behind the range of symptoms seen in eating disorder patients. They integrate modern psychoanalytic concepts of development with constructs indicating that: (i) individual differences may be expected in the internal regulators of arousability or temperament that organize self-experiences, and (ii) heritable personality traits, and their presumed biological substrata, set limits within which behavior patterns are expressed. They account for the differences in traits seen in subgroups of eating disorder patients by incorporating primarily genetically determined, dimensions of personality that appear to account for remarkable consistency over time in both normal and psychopathological behavior.

#### 5.24.6.3 Familial Factors

Some of the earliest descriptions of AN emphasized the role of the family in the development of the disorder (Garfinkel and Garner, 1982; Garner et al., 1982a). The possible role of the family in the development of AN and BN has been described by writers from a range of theoretical orientations (Bruch, 1973; Dare, 1997; Garner et al., 1982b; Minuchin et al., 1978; Selvini-Palazzoli, 1974; Vandereycken, 1987). A major advancement in family therapy with eating disorders was the formulation of the structural approach of Minuchin and colleagues who identified characteristics of the interactions encountered in eating disordered families, including enmeshment, overprotectiveness, rigidity, and poor conflict resolution (Minuchin et al., 1978). The systemic model was applied to eating disorders by Selvini-Palazzoli (1974) and overlaps considerably with the structural model. The systemic approach holds that the identified patient serves an essential homeostatic or stabilizing role within the family. Second and third generation of family theorists have integrated and greatly elaborated earlier approaches providing specific advice regarding the treatment of eating disorders (Lock and Le Grange, 2019; Murray et al., 2017; Schwartz, 1987; Vandereycken, 1987; Wallis et al., 2013). Regardless of their orientation, most individual and family theorists have emphasized that AN often represents a developmental struggle for autonomy, independence, and individuality. These issues are likely to surface in adolescence, when the vulnerable individual, parents, or entire family are forced to deal with emergent developmental realities.

#### 5.24.6.4 The Addiction Model

The suggestion that binge-eating is compulsive behavior, and a form of substance abuse has intuitive appeal on several grounds. Studies have shown both that substance abuse and poor impulse regulation are common features in AN (binge-eating/purging subtype) and BN (Garner et al., 1985a; Hatsukami et al., 1986; Krug et al., 2009). Moreover, BN shares several features with addictive disorders that have been summarized by Bemis (1985) as: (i) loss of control, (ii) preoccupation with the abused substance, (iii) use of the abused substance to cope with stress and negative feelings, (iv) secrecy about the behavior, and maintenance of the addictive behavior despite the aversive consequences. The addiction model is the framework for Overeaters Anonymous (OA), one of the most popular self-help programs for BN and for other commercial eating disorder programs patterned after the OA or "12-step approach" to chemical dependency. Malenbaum et al., (1988) have described many of the benefits of OA, including group support, sponsorship by someone who has achieved some measure of success, and the clear guiding philosophy originally applied to alcoholism in Alcoholics Anonymous. OA programs are aimed at achieving abstinence from compulsive over-eating, which is achieved, in part, by adhering to several behavioral axioms. Participants are usually advised to eat nothing beyond three meals a day, based on the premise that certain foods are "addicting and will trigger bouts of compulsive overeating" (Malenbaum et al., 1988). Although there are parallels between eating disorders and chemical dependency, there are serious theoretical and practical limitations to the comparison that have been described in some detail elsewhere (Bemis, 1985; Garner, 1985; Wilson, 1991). The most obvious flaw in the application of the addiction model to overeating is that abstinence from food (unlike abstinence from alcohol) is obviously unrealistic and recommending "controlled eating" is analogous to recommending controlled drinking, which is antithetical to the abstinence model applied to substance use. The parallel breaks down further in trying to understand the nature of the compulsive overeater's addiction. There is extremely limited empirical evidence for the assertion that specific foods are addicting; however, those who have been operationally defined as being "food addicted" by questionnaire did show stronger food cravings and appetite ratings following a taste of a favorite food and, unlike controls, there was no appetite-suppression effect in response to a methylphenidate challenge (Davis et al., 2014).

Nevertheless, the OA explanation of compulsive overeating is completely inconsistent with the far more parsimonious understanding of binge-eating, food preoccupations and food cravings as biological adaptations to chronic undernutrition (Garner, 1997, 1998). Thus, to the degree that OA programs encourage "control" by avoiding certain foods while not deviating from three small

meals a day, they may inadvertently collude with the BN patient's restrictive eating patterns. Unfortunately, these programs also reinforce the fear that normal eating will result in inordinate weight gain. Moreover, encouraging participants to avoid "forbidden foods" is inconsistent with the evidence from the treatment literature on the effectiveness of incorporating these foods into a daily eating plan (Garner et al., 2017). While strongly encouraging abstinence from bingeing and vomiting is consistent with recommendations of other treatment approaches, the relative intolerance for "slips" in some abstinence oriented eating disorder programs may exacerbate the harsh, self-critical, and dichotomous thinking patterns that are already prominent among these patients. The OA model also has been criticized for presenting compulsive overeating as an "incurable illness," a characterization that contradicts the growing literature on treatment success. Finally, whereas some patients find the spiritual orientation of the OA approach appealing, others may find it incompatible with their religious or moral beliefs. In Wilson's review of the addiction model of eating disorders (Wilson, 1991), he concludes that: (i) it does not address the core clinical features of eating disorders, (ii) it fails to account for the effects of dieting on behavior, and (iii) it may seriously undermine the effectiveness of treatment. Despite these criticisms, it is important to acknowledge that many find the OA model useful and effective.

While there are limitations to the translation of the addiction model into treatment, there still is compelling evidence that there is an "addictive" component to some aspects of eating disorders, particularly the connection between compulsive exercise and extreme dietary restriction. Hyperactivity is a salient feature of anorexia nervosa. Research has shown that a period of high intensity aerobic exercise precedes the onset of any eating disorder symptoms in about 60% of anorexia nervosa patients. Traditionally, hyperactivity in anorexia has been viewed as a method of expending unwanted calories. However, some have argued that it occupies a more central role in the pathogenesis of the disorder. In a series of studies, Epling and Pierce at the University of Alberta originally described an animal model of self-starvation triggered by excessive physical activity which is maintained by the release of endogenous opiates (Epling and Pierce, 1996; Pierce and Epling, 1994). They found when food was restricted to 60–90 minutes per day and the animals were given free access to a running wheel, they began to increase their running. Typically, they exhibited inadequate compensation in eating behavior within one week and with exponentially increasing activity and decreasing food intake, these animals literally ran themselves to death.

High levels of exercise precede dieting in many patients who develop AN (Davis et al., 2005; Davis et al., 1994) and it is one of the strongest predictors of subsequent eating disorder symptoms in a prospective study of adolescent girls (Wichstrom, 1995). Moreover, it is one of the strongest predictors of poor outcome in a follow-up study of adolescents with AN (Strober et al., 1997). Results from studies comparing AN patients with women who exercise at either moderate or high levels have indicated that obsessive compulsive tendencies, weight preoccupation, and pathological aspects of exercise are significantly related to the level of physical activity (Davis et al., 1995). The findings can be understood in terms of a model in which physical activity, starvation, and obsessive compulsive tendencies each contribute to a destructive bi-directional feedback loop that is difficult to break. This self-perpetuating loop may be a significant influence in the development and maintenance of eating disorders. The combination of excessive weight preoccupation and obsessive-compulsive tendencies is likely, in women, to increase the frequency and duration of physical activity and to exacerbate the obligatory nature of their commitment to this behavior. In turn, increased physical activity itself may foster greater food restriction by virtue of its appetite suppressing effects and by encouraging a heightened focus on appearance, weight and performance.

The idea that activity induces AN is a controversial subject, and much research is still needed in this area. In any case, as indicated earlier, excessive physical activity often precedes the onset of an eating disorder. Young women who are over-achievers and athletic are particularly prone to developing an eating disorder, and coaches, physical education teachers, and athletes must be aware that excessive exercise *combined with* excessive dieting can be harmful. This combination may be normalized in the sports environment. However, coaches and athletes need to know that while dieting may seem to go together with training, the resulting feeling of success due to weight loss can become very addictive (Garner et al., 1998; Thompson and Sherman, 2014). This over-exertion results in even more fatigue; while athletes may be able to continue to train, the quality of their performance declines. Initially, these athletes may feel elated because, with some weight loss, their times may temporarily decrease, and they may experience a "runner's high" since serotonin levels are temporarily increased after exercise. Furthermore, they may apply similar cognitive strategies used to keep themselves on track in training toward keeping their weight in check. Coaches need to know that students who are high-achieving, perfectionistic, and persistent are highly likely to apply the same kinds of demands on themselves toward eating recommendations as they do toward their running and academics. In other words, they will do their absolute best in this area as well; unfortunately, the absolute best performance in dieting often leads directly to an eating disorder, which eventually leads to poor or no performance in athletics.

#### 5.24.6.5 Cultural Factors

A complete understanding of eating disorders requires attention to the cultural forces selectively impinging upon on young girls and women in modern times. One of the most pernicious has been the intense pressure to diet and to engage in strict weight control to meet unrealistic standards for thinness (Garner and Garfinkel, 1980; Garner et al., 1980; Stice et al., 2017; Thompson et al., 1999; Vandereycken and Hartley, 1996). Young women today are totally immersed in the cultural admiration of a physical form for women that has little to do with the actual shape of most women in our society. The disconcerting result is a norm in which women report being dissatisfied with their shapes and to feeling guilty about eating even reasonable amounts of food. It has been increasingly recognized that dieting can play a direct role in causing a range of symptoms such as binge-eating and mood. The values surrounding slenderness have become sufficiently embedded in our cultural value system so that many of the symptoms required

for eating disorders are not viewed as unusual or abnormal by members of the general public (Huon et al., 1988). There is even some evidence that eating disorders may have developed a positive social stereotype and, in some instances, may be spread by social contagion (Vandereycken, 2011). Recognition of the impact of cultural factors on norms related to dieting and weight control has led to the conclusion that eating disorders may develop in those without underlying personality disturbances or family dysfunction, although secondary disruption in both areas may be present by the time the person presents for an assessment (Garner, 1997). However, much of the current conceptualization of the etiology of the thin-ideal internalization suggests a significant effect of the shared environment since most women are exposed to high levels of thin idealization in the media and many women also are exposed to parallel values from parents and peers. In a longitudinal study of early adolescent girls from fifth through eighth grade, one study reported that mothers, fathers, and peers each played an important role in the development of bulimic symptoms by affecting their body dissatisfaction, which was related to later dieting behaviors, depressive symptoms, and bulimic symptoms (Salafia and Gondoli, 2011). Moreover, results from this study suggested that peers were a stronger influence than mothers and fathers. In addition to considering exposure to risk factors, it is also important to understand the role of protective factors in the expression of eating disorders. One study found that women who had a high level of self-determination, where behaviors are experienced as reflective of autonomous choice, were less influenced by "thin ideal" media exposure than those with low self-determination (Mask and Blanchard, 2011).

It is also possible that genetic factors contribute to the internalization of "thin ideals" with some being more affected and others relatively immune to the cultural messages. In an attempt tease out the genetic and environmental influences, Suisman et al. (2012) examined "thin ideal internalization" in participants from a twin registry. They reported significant genetic and nonshared environmental influences suggesting a strong genetic predisposition to thin-ideal internalization that parallels heritability of disordered eating and eating disorders (Bulik et al., 2010; Sullivan et al., 1998).

Cultural factors directly contribute to eating disorders and/or the influence may be mediated by psychological vulnerability. Nevertheless, it is important to emphasize that psychological theorizing related to eating disorders must account for cultural factors as well as the susceptibility of some to the influence of these factors in the development of eating disorders.

## 5.24.7 Screening and Assessment

Descriptive refinements, along with advances in the areas of diagnosis, pathogenesis, and treatment have resulted in tremendous improvements in the technology of assessment (Bauer and Goldschmidt, 2019; Garner, 2002b, 2004; Solmi et al., 2018). While there is no universally accepted assessment protocol for eating disorders, there is a consensus on the value of a multimodal assessment approach based on the conceptualization of eating disorders as multidetermined and heterogeneous in nature. The targets for assessment of the eating disorder patient can be divided into two main areas. First is specific psychopathology and behavioral patterns that define the core features of the disorders. Symptoms such as binge-eating, extreme weight control behaviors, and stereotypic attitudes toward weight or shape fall into this category. Second is psychopathology not necessarily specific to eating disorder patients, but that has theoretical or clinical relevance. Examples include psychological features such as low self-esteem, perfectionism, fears of psychobiological maturity, poor impulse control, and reactions to sexual abuse. There are also more general associated features such as depression, anxiety, and poor social functioning, which are important aspects of the psychopathology.

### 5.24.7.1 Screening Versus Case-Finding

Screening and case finding assume that early identification of a disorder can lead to earlier treatment thereby reducing morbidity and mortality. Screening for a variety of medical disorders has become routine in a range of different settings and involves testing presumably healthy volunteers from the general population for the purpose of separating them into groups that have either a high or a low probability of having a particular disorder. An example of screening would be a national program aimed at identifying those who are HIV positive, or who have breast cancer in a population. In screening, the initiative is taken by the health professional rather than volunteered by the patient.

In contrast, case finding involves testing patients who have voluntarily sought health care or information as part of a comprehensive assessment of health. Health care workers may screen for certain disorders during routine physical examinations in patients who are at risk or in community-based voluntary settings. An example of case finding would be blood pressure assessment in a shopping mall or mammography offered at community centers. The routine practice of a primary care physician closely resembles this definition of case finding since it is common for a complaint-related or non-complaint-related illness to be identified during the patient seeking care.

Screening and case finding are not appropriate for every condition or disorder. Key indications for employing a screening for a disorder or condition are that it constitutes an important health problem, it is treatable, and that early identification leads to a favorable outcome. The decision to screen always depends on weighing factors including potential beneficial and harmful effects of testing for the individual as well as the population surveyed. In addition, the screening test employed should have desirable psychometric characteristics (including sensitivity, specificity, and positive predictive value) as well as be relatively simple, economical, and acceptable to those asked to complete it. The efficiency of screening depends on the validity or accuracy of the testing as well as on the prevalence of the disorder. Again, the main difference between screening and case finding is who initiates the initial

contact. In both case finding and screening, the health professional must carefully evaluate the risks and the benefits of the procedures used as well as the practicability, effectiveness and the efficiency of the measures employed.

Screening and case finding carry different ethical obligations. If the practitioner initiates the screening, there needs to be conclusive evidence that the procedure can positively affect the natural history of the disorder. Moreover, the risks of screening on those who are unaffected must be carefully considered since the target individual has not asked the health professional for assistance. This situation is somewhat different from case finding where the patient has asked for some level of assistance. While the patient should always be assured of the highest standard of care available, case identification occurs in the context of a patient asking for assistance. In this situation, there is no guarantee of benefit and, it could be argued, that there is at least some implied exposure to risk. In other words, the implications of an uninvited intrusion on a person with the suggestion that they could have a health concern or that they indeed manifest an illness requires a higher burden of proof that the potential benefits far outweigh the risks.

In the eating disorder field, both screening and case finding studies have been conducted with little discussion of the relative risks of these procedures. It is not uncommon for eating disorder patients to reveal in an initial consultation that they learned about self-induced vomiting or laxative abuse from a well-meaning research survey or "educational" program. Thus, case finding must be conducted in a general practice setting with caution and careful consideration of the potential benefits and risks to the individual.

#### 5.24.7.2 Format of the Assessment

When assessments are being performed on young patients who are living at home, it is advisable for all members of the family to participate in the evaluation. Sometimes it is impractical or clinically unnecessary for the siblings to be part of an initial assessment; however, in some instances, they may be especially important members in subsequent meetings. When the eating disorder occurs in a patient who is older, it is preferable to see the individual alone for all or at least part of the initial assessment. Many times, patients are reluctant to share information regarding their eating symptoms in the presence of their parents or spouses, but they will reveal details in an individual meeting. The decisions regarding whether to perform the assessment and subsequent treatment with the individual alone or to include the spouse, current family members or the members of the family of origin must depend on the specific clinical issues that are pertinent to the given case.

#### 5.24.7.3 Assessing Body Weight History and Body Weight History

Determining the patient's current body weight and weight history provide essential diagnostic information. It is important to measure body weight and height directly since there is evidence that self-reported weight and height may not be accurate in non-clinical samples (Doll and Fairburn, 1998; Meyer et al., 2009b). There is a tendency for women to under-report weight and over-report height and this is more pronounced in those with high levels of eating concerns (Meyer et al., 2009b). Patients with AN tend to be more accurate in self-reporting weight (Ciarapica et al., 2010) or overestimate somewhat (Meyer et al., 2009a); however, given the clinical significance of body weight, objective assessment of body weight should be determined in both clinical and research settings.

A thorough weight history provides important information regarding the nature and temporal sequence of events in the development of the eating disorder. It also is a relatively non-threatening area for discussion that allows for the development of rapport. In most cases, it is preferable for the weight history to be elicited in an individual interview since details related to weight may have highly personal significance to the patient. With younger patients, it may be desirable to obtain this information in an interview involving both the parents and the child. Within this context, it is important to be mindful of the fact that weight has likely become a highly emotionally charged topic within the family.

Beginning with when the patient first reached current height and weight, a detailed account of significant weight changes should be elicited using gentle questioning. Information should be gathered in the following areas as part of the weight history:

(1) Current weight
(2) Highest and lowest premorbid weights
(3) Weight below the highest weight that seemed to be a stable weight
(4) Details of weight fluctuations during period between onset of eating disorder and the present
(5) Weight at which regular menstrual periods ceased if the patient has secondary amenorrhea
(6) Desired or preferred weight
(7) Weight the patient believes would be attained in the absence of conscious control of weight.

Preliminary information derived from the weight history serves as a base from which to initiate questions about the meaning of weight and shape to the patient. Because self-worth is functionally dependent on the attainment and maintenance of a low body weight, the patient may be unclear about the nature of her dysfunctional beliefs and attitudes in relation to weight and dieting behaviors and may withdraw if it is perceived that her core beliefs about her self-worth are being confronted and challenged (Garner and Bemis, 1982; Garner et al., 1997).

#### 5.24.7.4 Binge-Eating

Binge-eating is defined by the DSM-5 as recurrent and involving large amounts of food as well as the experience of loss of control (APA, 2013). However, it is important to stress that patients may purge even after eating a small amount of food (i.e., do not meet

the technical definition of "a binge") and these patients have a similar presentation to those who engage in binge-eating (Garner et al., 1993). Since medical risks, chronicity, emotional disturbance, impulsivity, suicidal risk, and poor outcome are more closely tied to vomiting and laxative abuse rather than to the amount of food eaten, it has been argued that diagnostic formulations should be based on these potentially dangerous compensatory behaviors, not on binge-eating (Garner et al., 1992). Nevertheless, binge-eating is very distressing to patients and should be one of the targets of cognitive behavioral interventions.

Binge-eating is a key symptom in BN and BED; it occurs in about 50% of cases presenting with AN. There is evidence that eating disorder symptoms evolve over time with a high proportion of restricting AN patients developing binge-eating during the follow-up period. Eddy et al. (2002) followed 216 women with a diagnosis of AN or BN for a minimum of 7 years and found that nearly three-quarters of those with restricting AN experienced diagnostic crossover to the AN binge-eating/purging type and only 12% of women with AN never reported binge/purge behaviors. Women with BN were unlikely to develop AN.

Children and adolescents seeking eating disorder treatment have symptom profiles that mirror those found in adult samples. Eddy et al. (2010) collected eating disorder symptom data on a sample of 401 children and adolescents (ages 7–19) seeking eating disorder treatment and used latent profile analysis to empirically derive meaningful symptom clusters. They identified three groups of children and adolescents whose symptom patterns resembled diagnostic criteria reported for adults. The largest group was identified as "binge/purge" and included all youth with BN, subthreshold BN and BED. The two other groups included low weight AN individuals who were distinguished by severity of eating disorder cognitions and excessive exercise.

It has been argued that the most clinically relevant issue in determining whether eating qualifies as a "binge episode" relates to the patient's experience of loss of control of eating regardless of the actual number of calories consumed (Garner et al., 1992). Loss of control symptoms reported for adult BED samples do not differ from those found in children and adolescents attending weight loss programs. In a multi-site study of overweight children and adolescents who engaged in loss of control eating episodes, Tanofsky-Kraff et al. (2007) found that a subset symptom clusters mirrored those reported for adult BED samples. Nevertheless, there is a subset of patients who do not perceive their binge episodes as "out of their control" but rather describe them as carefully preplanned or calculated behaviors. The sense of control over bingeing may be causally related to an awareness that vomiting of the unwanted calories will quickly follow the binge episode. In some cases, bingeing and vomiting may be associated with secondary gain in that it may serve a specific function in certain interpersonal relationships.

Inquiries regarding the frequency and the duration of the symptoms of bingeing and vomiting are essential in determining the severity of the disorder and assessing the need for medical consultation. In gathering information pertaining to the history, frequency and duration of the bingeing and vomiting episodes, it is important to begin to look for repetitive themes within a functional analytic framework. Questions should be directed toward identifying the degree of dietary restriction or weight suppression that might account for the symptoms as well as antecedent and consequent mood states, interpersonal situations, other important events or cognitions that directly precede or follow bingeing and/or vomiting. For children and adolescents, it is crucial to involve the parents in the assessment process. The evaluation of eating disorders in children and adolescents is complicated by the tendency to minimize and deny the symptoms by the identified patient and sometimes by the parents. In a study of parent-youth concordance in reporting of eating disorder pathology in a pediatric sample, Mariano et al. (2013) found that parent-youth inter-rater agreement was poor to moderate. Younger children identified less severe eating disorder cognitions than parents and the opposite occurred for adolescents. Results support the utility of assessing eating disorder pathology in both parents and youth, and this is particularly important for younger children. These findings are similar to a recent study examining the correlations of adolescent-parent scores on the EAT-40 and other self-report measures (Laporta-Herrero and Latorre, 2020). Parent-adolescent correlations were non-significant; however, there were significant differences between parents, with mothers reporting higher scores than fathers. Therefore, while valuable information is gleaned from interviewing patients and parents together, the best assessment practice is to separately question both the identified patient and the parents about eating disorder symptoms. With this caveat in mind, the assessment of binge-eating should attempt to answer the questions outlined in **Table 4**:

#### 5.24.7.5 Attitudes Toward Weight and Shape

The psychopathology related to weight or shape has been described in various ways over the years including a drive for thinness, fear of fatness, shape and weight dissatisfaction, body size misperception, body image disturbance and fears associated with physical maturity (Garner, 2002a; Sharpe et al., 2018; Thompson, 1996). Dissatisfaction with overall body shape and disparagement directed toward specific bodily regions, are common in eating disorders and should be a focus of assessment. Some patients may overestimate their body size.

Although research has shown that this is neither uniform nor unique to eating disorder patients, it may have clinical importance, particularly for emaciated patients. A critical psychopathological feature in anorexia and bulimia nervosa is that patients must be more than merely dissatisfied with their body; they rely on weight or shape as the predominant or even the sole criterion for judging their self-worth (Garner and Bemis, 1982). It is the magnitude of the overconcern about weight and shape and the lengths that the individual is willing to go in the interests of weight control that distinguish the individual who is merely dissatisfied with weight and shape from those who meet the criteria for a clinical eating disorder. It is vital that the assessment be performed with a clear appreciation of the general imperatives for thinness and abhorrence for fatness that confront women in our culture. The suggestion that the patient suffers from "overconcern" regarding weight and shape may at times seem insensitive to the enormous daily pressures for thinness that challenge women. The fashion industry, movies, magazines, television and social media persistently bombard the public with role models for women whose gaunt shape is idealized. Acknowledging the tremendous magnitude of these cultural

**Table 3** Differences in the Eating Disorder Inventory-2 (EDI-2) and the EDI-3

| *EDI-2* | *EDI-3* |
|---|---|
| **Eating disorder risk scales** | **Eating disorder risk scales** |
| Drive for thinness (DT) | Drive for thinness (DT) |
| Bulimia (B) | Bulimia (B) |
| Body dissatisfaction (BD) | Body dissatisfaction (BD) |
| **Psychological scales** | **Psychological scales** |
| Ineffectiveness (I) | Low self-esteem (LSE) |
| | Personal alienation (PA) |
| Social insecurity (SI)[a] | Interpersonal insecurity (II) |
| Interpersonal distrust (ID) | Interpersonal alienation (IA) |
| Interoceptive awareness (IA) | Interoceptive deficits (ID) |
| Impulse regulation (IR)[a] | Emotional dysregulation (ED) |
| Perfectionism (P) | Perfectionism (P) |
| Asceticism (A)[a] | Asceticism (A) |
| Maturity fears (MF) | Maturity fears (MF) |
| | **Composite scales**[b] |
| | Eating disorder risk composite (EDRC) |
| | Ineffectiveness composite (IC) |
| | Interpersonal problems composite (IPC) |
| | Affective problems composite (APC) |
| | Overcontrol composite (OC) |
| | General psychological maladjustment (GPMC) |
| | **Response style indicators**[b] |
| | Inconsistency (IN) |
| | Infrequency (IF) |
| | Negative impression (NI) |

[a]These scales were not on the original EDI.
[b]Composite scales and response style indicators are new to the EDI-3.
Table from: Garner (2004).

**Table 4** Questions in the assessment of binge-eating

(1) Is binge-eating a current problem?
(2) At what age did binge-eating begin and when did it begin occurring on a regular basis?
(3) Did it begin following a period of strict dieting?
(4) What is the frequency and the duration of binge episodes in the past three months?
(5) What is the longest period without binge-eating once it began on a regular basis and what were the circumstances surrounding this respite?
(6) How much food is eaten on a typical binge? What is consumed during a binge?
(7) Is binge-eating accompanied by feeling out of control? Do you feel that you can stop once a binge has started? Do you feel that you could prevent a binge from starting in the first place? Do you plan binges ahead of time?
(8) How much distress does bingeing create? Do you ever find bingeing pleasurable?
(9) Does bingeing become worse with mood changes, particularly depression? What is mood like before, during and after a binge?
(10) Does bingeing become worse on premenstrual days?
(11) What are typical "binge foods" or "forbidden foods" that lead to a binge and what foods can be eaten without leading to a binge?
(12) Would you continue to binge if you could not purge?
(13) Are there particular settings, times of the day, or social interactions that are associated with a binge?
(14) What feelings and behaviors result from bingeing (e.g., anxiety, guilt, shame, fatigue, and social withdrawal)?

pressures and how they undoubtedly impact most women may be helpful in diminishing defensiveness on the part of some patients. At the same time, an overly zealous attack on the mistaken assumption that thinness is a valid framework for evaluation of self-worth may be interpreted by the patient as a direct assault on her current value system and this may sabotage further assessment and treatment efforts. Specific questions regarding weight and shape not only provide valuable information on this topic but also reveal the more general belief structure and conceptual style of the patient. Specific probes include:

(1) If you could change your weight, what would your desired weight be?
(2) How important is it for you to achieve this weight?
(3) How would your life change if you achieved it?
(4) If you could recover from your eating disorder by gaining 5 pounds, would you gain the weight?
(5) How does your assessment of value or self-worth change as your weight goes up?

(6) How do you think others view your self-worth at different weights?
(7) Would you be able to stop weighing yourself for a week?

Through this type of questioning, the meaning of weight and shape and the intensity of the child or adolescent patient's convictions can be explored; however, it is also useful to determine the parents' understanding of the views of the possible meaning that weight and shape has for their child. Standardized and systematic structured interview methods for gathering information related to weight, shape and body image will be described later.

#### 5.24.7.6 Extreme Weight-Losing Behaviors

The intensity of the dieting efforts and the types of weight controlling behaviors employed should be assessed in an initial interview. A dieting history should pinpoint when dieting first began and the different methods that have been used to reduce or control weight. Many patients have followed a wide range of commercial diets and some have developed their eating disorder following participation in commercial or hospital weight loss programs. Some patients report that their intense dieting efforts began following weight loss due to illness. The child or adolescent patient and parents should be asked the specific questions about self-induced vomiting described in Table 5.

Similar questions should be asked regarding other weight controlling behaviors such as laxative and diuretic abuse, diet pills or other drugs to control appetite, use of emetics, chewing and spitting food out before swallowing, prolonged fasting, and vigorous exercise for the explicit purpose of controlling body weight. Some diabetic patients manipulate their insulin levels to control weight (Pinhas-Hamiel and Levy-Shraga, 2013). Occasionally patients on thyroxin will alter their dosage to control their weight (Garfinkel and Garner, 1982; Kornhuber et al., 1996). Careful evaluation of the presence, duration, and severity of these symptoms is important in the assessment protocol in determining severity and treatment planning. As will be described later, the serious physical health consequences associated with vomiting and laxative abuse require a detailed medical evaluation in patients who engage in these behaviors. This is critical for emaciated patients; since about 40% of patients who fall into the "AN restricting subtype" engage in self-induced vomiting, and 45% abuse laxatives (Garner et al., 1993).

#### 5.24.7.7 General Psychopathology Relevant to Eating Disorders

Although many women diet, relatively few develop the extreme weight loss and the clinical symptoms of AN. An underlying biological diathesis and temperament may place someone at risk for developing anorexia nervosa. Certain traits, such as negative affect, behavioral inhibition, compliance, high harm avoidance, and an obsessive concern with symmetry, exactness, and perfectionism persist after recovery from anorexia nervosa. These persistent symptoms raise the possibility that such traits exist premorbidly and contribute to the pathogenesis of this disorder (Kaye and Bailer, 2011).

Research has identified three personality subtypes in patients with eating disorders: emotionally dysregulated, constricted and high-functioning/perfectionistic (Thompson-Brenner and Westen, 2005). In addition, eating disorder patients have been described as suffering from ineffectiveness feelings, low self-esteem, lack of autonomy, obsessionality, interpersonal sensitivity, introversion, poor relationship skills, social anxiety, dependence, perfectionism, fears of psychobiological maturity, poor impulse control, external locus of control, conflict avoidance, developmental pathology, failure in separation-individuation, vulnerability to substance abuse, interoceptive deficits, and idiosyncratic or dysfunctional thinking patterns. Complete psychological assessment should include these areas as well as evaluation of stable personality features, overall psychological distress, depression, anxiety, family functioning, history of sexual abuse, as well as social and vocational adaptation, all of which may be relevant to the development and maintenance of these syndromes.

**Table 5** Questions in the assessment of self-induced vomiting

| | |
|---|---|
| (1) | Has self-induced vomiting ever been used to control weight? |
| (2) | If so, when did it begin? Why was it discontinued? How is vomiting induced? |
| (3) | What was the monthly, weekly, or daily frequency at its worst? When was this, what was the patient's body weight at the time and had it been ascending or descending at the time? What were the psychosocial circumstances surrounding this period? |
| (4) | Has the course been fluctuating or rather consistent? If fluctuating, what are highest and lowest points like in terms of frequency and associated affective state and interpersonal circumstances? |
| (5) | Is the patient currently engaging in self-induced vomiting and what is the average weekly frequency during the past three months? |
| (6) | What is the longest period since the eating disorder began that the patient has been able to avoid self-induced vomiting? What were the circumstances? |
| (7) | How has self-induced vomiting interfered with interpersonal relationships, employment, or school? |
| (8) | Is self-induced vomiting ever experienced as pleasurable? |
| (9) | Are any other affective states or changes in consciousness consistently associated with vomiting (i.e., anger, sadness, clouded sensorium)? |
| (10) | What does the patient think would happen if vomiting were inhibited for a week? |

#### 5.24.7.8 Medical Assessment

Medical complications are common in those with eating disorders; therefore, patients should be assessed by a physician familiar with physical byproducts of starvation and eating disorder symptoms such as binge-eating and vomiting. A complete medical examination should include a medical history, a review of presenting physical symptoms, laboratory tests, and careful consideration of medical conditions other than an eating disorder that could account for the patient's current state. In a large study of eating disorder patients admitted to an adult inpatient and residential care facility, the prevalence of abnormal laboratory values varied by eating disorder subtype (Mehler et al., 2018). For the anorexia nervosa restricting subtype group, 51.4% had low prealbumin, 36.1% had leukopenia, 34.3% had osteoporosis, 30.0% vitamin D deficiency, 16.8% metabolic alkalosis, 16.0% had hyponatremia, 14.2% hypokalemia, and 7.1% hypoglycemia. These patients had normal average QTc intervals. In patients with anorexia nervosa binge-eating/purging subtype, 42.4% had hypokalemia, 33.3% metabolic alkalosis, osteoporosis in 21.1%, and they had longer QTc intervals. Only 6.0% of patients with anorexia nervosa had hypophosphatemia. Patients with bulimia nervosa demonstrated hypokalemia in 26.2%, and metabolic alkalosis in 23.4%; the QTc interval was longer than in AN-R patients ($p < 0.001$), but still in the normal range. Choosing a physician with experience in evaluating those with eating disorders cannot be overemphasized in the light of the complex interplay between the physical and psychological symptoms' presentation. **Table 6** provides a summary of medical complications common in those with eating disorders and practitioners must be mindful of these physical symptoms considering the well-documented high case mortalities.

#### 5.24.7.9 Psychopathology Secondary to Starvation

As has been mentioned earlier, many of the symptoms apparent at an initial assessment, including general psychological distress, cognitive impairment, and behavioral symptoms signal fundamental emotional disturbance or are secondary elaborations resulting from weight loss and chaotic dietary patterns. Symptoms such as poor concentration, lability of mood, depressive features, obsessional thinking, irritability, difficulties with decision making, impulsivity, and social withdrawal have been identified in normal subjects undergoing semistarvation (Garner, 1998). Thus, the assessing clinician must remain mindful of the fact that these symptoms may reflect secondary effects of weight suppression rather than primary psychopathology in eating disorder patients.

### 5.24.8 Assessment Methods

Various approaches to information gathering have been developed for eating disorders including clinical interviews, self-report measures, self-monitoring, direct behavioral observation, symptom checklists, clinical rating scales, and standardized test meals. The most used methods are semi-structured clinical interviews and self-report measures.

#### 5.24.8.1 Semi-Structured Interview

Various semi-structured clinical interviews have been proposed and the most used and validated is the Eating Disorder Examination (EDE) (Cooper and Fairburn, 1987). The EDE is an investigator based semi-structured interview for assessing psychopathology specific to eating disorders. Responses are organized on four subscales (Restraint, Eating Concern, Shape Concern, and Weight Concern). The EDE can be used to arrive at a diagnosis, it has proven sensitive to treatment effects, and it defines different forms of overeating based upon amount of food eaten (large vs. small) and presence or absence of loss of control. The EDE has the advantages of allowing a more fine-grained appraisal of the specific psychopathology of eating disorders and permitting investigator probes to clarify the meaning behind responses to questions. Disadvantages of the interview include the fact that it takes an hour or more to administer, it requires a trained interviewer, and it is not suitable when anonymity or group administration are required. Even though the questionnaire is organized into four scales, confirmatory factor analysis of the EDE provides more support for a one-factor model than for a multi-factor solution (Byrne et al., 2010). Therefore, global EDE scores may be more appropriate than individual subscale scores for clinical and research applications.

Passi et al. (2003) compared the interview-based EDE with the self-report version (EDE-Q) in a sample of adolescents with AN to determine the agreement between assessment methods. High correlations were found for each of the four subscales (Dietary Restraint, Eating Concern, Shape Concern, and Weight Concern); however, the EDE-Q consistently overestimated the EDE. Significant differences between the two measures were found on all subscales except Dietary Restraint. Van Durme et al., (2015) evaluated the convergence between the children's version of the clinical interview (ChEDE) and self-report version of the measure (ChEDE-Q) and reported strong correlations between the interview and the questionnaire. This contrasts with an earlier study in which the ChEDE was compared to the ChEDE-Q in a group of children and adolescents (aged 10–16 years) seeking inpatient treatment for obesity (Decaluwe and Braet, 2004). The authors found that the ChEDE-Q generated consistently higher levels of eating disorder psychopathology than the interview. There was a significant discrepancy for the assessment of a more complex feature such as binge-eating. They concluded that a clinical interview is necessary to identify eating disorders in obese children and that the self-report questionnaire should only be used as a screening tool.

**Table 6** Medical symptoms and complications

| |
|---|
| **Starvation and weight loss** |
| • Amenorrhea (primary or secondary) |
| • Delayed pubertal development |
| • Reduced growth curve trajectory measured on growth charts |
| • Reduced metabolic rate |
| • Inability to maintain body temperature |
| • Cardiomyopathy and myositis |
| • Cardiac arrhythmia |
| • Prolonged QT interval |
| • Sinus bradycardia |
| • Cardiac muscle wasting |
| • Mitral valve prolapse |
| • Orthostatic changes (pulse, hypothermia, hypotension) |
| • Reduced ventricular mass |
| • Cerebral atrophy |
| • Constipation |
| • Renal failure |
| • Lanugo |
| • Delayed gastric emptying, slowed gastric mobility |
| • Bloating |
| • Decreased bone density (osteopenia) |
| • Hair loss |
| **Binge-eating** |
| • Esophageal rupture |
| • Acute gastric dilation and rupture |
| **Self-induced vomiting** |
| **General fatigue** |
| • Muscle weakness and cramping |
| • Fluid retention |
| • Cardiac arrhythmia |
| • Renal failure |
| • Dental enamel erosion |
| • Postural edema |
| • Parotid gland swelling |
| • Gastric reflux and irritation |
| • Chronic metabolic alkalosis |
| • Chronic metabolic acidosis (with laxative abuse) |
| • Calluses on the knuckles or stomach from induced vomiting |
| **Abnormal lab values** |
| Hypercholesterolemia[a] |
| Hypercortisolemia[a] |
| Hypophosphatemia[a] |
| Hyponatremia[a] |
| Increased growth hormone[a] |
| Leukopenia[a] |
| Hypokalemia[b] |
| Hypocalcemia[b] |
| Hypomagnesemia[b] |
| Hypophosphatemia[b] |
| Hyperamylasemia[b] |

[a]Attributed to weight loss.

[b]Attributed to vomiting/laxative abuse.

Adapted from: Garner (2004) with updates based on reviews by: Campbell and Peebles (2014); Hornberger and Lane (2021); Rosen and Comm (2010).

#### 5.24.8.2 Self-Report Measures

The three most widely used measures of eating disorder symptoms in clinical and research settings are the Eating Attitudes Test (EAT), the Eating Disorder Examination Questionnaire (EDE-Q) described earlier, and the Eating Disorder Inventory (EDI). These measures have different aims, strengths, and limitations.

#### 5.24.8.2.1 Eating Disorder Examination Questionnaire

The EDE-Q is an adaptation of the EDE structured interview described above and is primarily a diagnostic tool focused on eating disorder symptoms and attitudes over a 28-day history. The EDE-Q contains four subscales: Dietary Restraint, Eating Concern, Shape Concern, and Weight Concern (Barnes et al., 2012; Peterson et al., 2007) and has good validity in making *DSM-5* diagnoses (Grilo et al., 2015). Reports indicating higher levels of disturbance on the EDE-Q than its EDE-interview counterpart have led to suggestions that it may be a more accurate indicator of severity of symptoms (Wolk et al., 2005).

Norms have been provided for a children's version of the EDE and uses simplified language more suitable for younger individuals (Carter et al., 2001). An important problem with the ChEDE is that there is little information on the validity of the underlying constructs of the measure for adolescent girls and boys. Forsén Mantilla et al. (2017) investigated the factor structure of the ChEDE in samples of girls and boys from the general population, along with clinical cases of eating disorders in girls and failed to confirm the four-factor solution previously reported for adults. Instead, they found that the factor structure of the adolescent version of ChEDE in younger girls consists of a single underlying dimension of dissatisfaction with shape and weight. This appears to be the case in both clinical and general population samples. They speculate that over time, this general factor may become increasingly differentiated, evolving into more complex patterns found in older girls and women. Thus, while the ChEDE has value as a screening and assessment tool, the validity of the constructs underlying the scales may have limited clinical utility.

#### 5.24.8.2.2 Eating Attitudes Test

The EAT-26 (Garner et al., 1982a) is probably the most widely used, standardized, self-report measure of eating disorder symptomatic attitudes and behaviors. In contrast to the EDE-Q, the EAT-26 is not intended as a diagnostic instrument but rather is used as a screening, case-finding, and symptom severity measure in both clinical and non-clinical samples.

A factor analysis of the original 40-item version (Garner and Garfinkel, 1979) resulted in the brief, 26-item measure of global eating disorder symptoms shown to have good reliability and validity (Garner et al., 1982). The EAT-26 has been used as an outcome measure and tool for exploring eating disorder psychopathology in a variety of demographic, ethnic, cultural, and subcultural populations. Despite these uses, the EAT alone does *not* yield a specific diagnosis of an eating disorder. Neither the EAT, nor any other screening instrument, has been established as highly efficient as the sole means for identifying eating disorders. This is attributable in large part to the relatively low prevalence of eating disorders in most populations of interest. A disorder must have a prevalence approaching 20% for the test to be efficient in detection. Thus, it is difficult to achieve high efficiency in detecting eating disorders that have a prevalence between 2% and 4% in populations of adolescent or young women. Nevertheless, the EAT has been used to estimate the prevalence of eating disorders in different countries, cultures, and high-risk groups. The most efficient use of the EAT is as part of a two-stage screening process in which those who score above a cut-off score are referred for a diagnostic interview (Garner and Garfinkel, 1980; Garner et al., 1987; King, 1990, 1991). There is evidence that very few of those who scored at or *below* the cut-off on the EAT have eating disorders or serious eating concerns on interview (i.e., few false negatives) (King, 1990). King (1990) also reported that a third of those who score above the cut-off on the EAT had clinically significant eating concerns or weight preoccupations. In a follow-up of high scorers 12–18 months later, 20% of those who initially had a "partial syndrome" now met diagnostic criteria for an eating disorder (King, 1991). Also, more than 30% of the initial "normal dieters" became "obsessive dieters." The EAT-26 website (www.EAT-26.com) provides detailed information on scoring and interpretation of the test.

#### 5.24.8.2.3 The Eating Disorder Inventory

The EDI is a standardized, multiscale instrument designed to measure *psychological traits or symptom clusters* relevant to the development and maintenance of eating disorders. The EDI generates psychological profiles useful for case conceptualization and treatment planning for those with confirmed or suspected eating disorder diagnoses (Garner et al., 1983; Garner, 2004) in contrast to the EDE-Q and the EAT-26 that are limited to measuring specific eating disorder symptoms. Over time, the EDI has gained popularity among eating disorder clinicians and researchers and has been revised twice. The original EDI was comprised of 64 self-report items requiring responses on a six-point scale ranging from "Never" to "Always." Item scores were then collapsed to a four-point scale (0–3) and the items assigned to eight non-overlapping scales that assessed individual differences in eating disorder risk (three scales) and psychological features (five scales). The first revision, the EDI-2 (Garner, 1991a), added 27 items and increased the number of scales to 11. A subsequent revision (EDI-3) was guided by the evolution of theoretical models in the field since the original measure was introduced (Garner, 2004). The EDI-3 validation retained the 91 EDI-2 items and examined the relationships among items by applying exploratory factor analysis (EFA) to normative and eating disorder samples. The analysis yielded item clusters largely conforming to the EDI-2 scale structure but changed the scale assignment for some items, included a 12th scale, and expanded the item scores from four to five points (now 0–4). Six composite scales and three response style indicators were also added (**Table 3**).

Like its predecessors, the EDI-3 has received generally favorable reviews. One reviewer (Cumella, 2006) has praized its "… superior section on test interpretation" (p. 117) but notes that questions remain about the EDI-3 factor structure. An item confirmatory factor analysis of the EDI-3 for adult Danish patients and non-patient controls was supportive of its purported factor structure. Specifically, the best-fitting models were: (a) a first-order model with correlated factors corresponding to the 12 scales; and (b) a second-order model with two global factors: Eating Disorder Risk and Psychological Disturbance (Clausen et al., 2011). A recent investigation of the EDI-3 at the item, scale, and composite levels with an American clinical sample (Brookings et al., 2020) provided confirmatory factor analyses that supported the 12 content scales described in the 2004 manual (Garner, 2004). It also

provided support for a bifactor model corresponding to the risk and psychological scales identified by Clausen and colleagues (Clausen et al., 2011).

Studies of the EDI have generally shown age and gender differences according to age with lower scores for both preadolescent boys and girls compared to adolescent girls (Edlund et al., 1999; Rosen et al., 1988; Shore and Porter, 1990). The children's version of the Eating Disorder Inventory (EDI-C) was developed to simplify some items and to frame items to be more suitable for children and adolescents (Garner, 1991b). A factor analytic study on clinical and non-clinical Swedish samples indicated that the psychometric properties of the EDI-C were comparable to the EDI-2. Results provided 5 factors rather than the original 11 factors described for the EDI-2; however, factor analytic studies with non-clinical samples are expected to yield fewer factors because items reflecting psychopathology are less relevant than for the clinical samples on which the EDI was developed (Garner, 2004). A preliminary version of the EDI-C, based on the original 64-item version of the EDI, was used in a factor analytic study of nonclinical white and black young adolescent girls 10–11 years-of-age (Franko et al., 2004). The factor analysis resulted in an eight-factor solution for each group and the factor structure was generally similar for black and white girls. However, a separate body dissatisfaction factor and the lack of shared variance for the perfection factor suggest that data obtained from ethnic minorities need to be shared cautiously.

In sum, self-report measures have the advantages of being relatively economical, brief, easily administered and objectively scored. They are not susceptible to bias from interviewer-subject interactions and can be administered anonymously. The major disadvantage of self-report measures is that they are less accurate than interview methods, when assessing ambiguous behaviors such as binge-eating. They need to be supplemented by symptom frequency data derived by interview or a symptom checklist. Under some circumstances, symptom data gathered using a self-report symptom checklist can provide information pertinent to a diagnostic formulation. Self-report data from children and adolescents must always be evaluated based on input from parents. The different methods for assessing psychopathology in eating disorders have different aims, strengths, and weaknesses. The strategy adopted should be guided by the goals of the assessment and, whenever possible, convergent methods should be employed.

### 5.24.9 Levels of Care

The number of psychotherapeutic options available in treating eating disorders has expanded remarkably since the mid-1980s. The major approaches to psychotherapy have been well articulated along with a growing list of alternative forms of treatment (Crow et al., 2013; Garner and Garfinkel, 1997). In determining a patient's initial level of care or whether a change to a different level of care is warranted, it is important to consider the patient's body weight, overall physical condition, eating disorder behaviors and social circumstances. The aim of the following section is to briefly review the major treatment options for eating disorders within the context of a decision-making paradigm for integration and sequencing of these treatments. The notion of matching different treatments to distinct eating disorder patient subgroups is not new and has formed the basis for multidimensional approaches to psychotherapy (Garner et al., 1982b). The wisdom of considering sequencing and integrating different psychotherapeutic procedures is increasingly evident with the demonstrated effectiveness of different forms of treatment presented in a stepped-care model of service delivery (Buchman et al., 2019; Crow et al., 2013; Garner and Needleman, 1997; Mitchell et al., 2011). However, there has been more recent interest in "stepped-care," or integration models which rely on set rules for the delivery of the various treatment options (Kass et al., 2017; Wilson et al., 2000). These overlapping concepts of treatment delivery are different levels of care sharing the value system of non-allegiance to a single theoretical orientation.

#### 5.24.9.1 Inpatient Hospitalization

Hospitalization is recommended for patients who are at a low body weight that is life-threatening or for those who have other serious medical or psychiatric complications (APA, 2006) It is highly desirable for the hospitalization to be voluntary and patients who participate in self-admission are usually highly motivated and respond well to treatment (Strand et al., 2017); however, when the patient presents with life-threatening symptoms, inpatient can be imperative even in the absence of self-motivation. Although there is some controversy regarding involuntary hospitalization, studies have shown that the short-term outcomes of legally committed patients are just as good as those who voluntarily seek treatment (Watson et al., 2000). Patients who perceive their hospitalization as resulting from pressure or coercion by parents or professionals acknowledge the need to be admitted within two weeks of hospitalization (Guarda et al., 2007) and the majority of those legally committed later affirm that their treatment was necessary and express goodwill toward their caretakers (Ayton et al., 2009; Watson et al., 2000). It is important that the perception of coercion in treatment is influenced less by restrictions of freedom of choice and more by the relationships that patients have with parents and mental health professionals (Tan et al., 2010).

There are several general guidelines for hospitalization including: (i) weight restoration or interruption of steady weight loss in patients who are emaciated, (ii) interruption of bingeing, vomiting, and/or laxative abuse that pose medical risks or complications, (iii) evaluation and treatment of other potentially serious physical complications, and (iv) management of associated conditions such as severe depression, risk of self-harm, or substance abuse. On rare occasions, hospitalization may be required to "disengage" a patient from a social system that both contributes to the maintenance of the disorder and disrupts outpatient treatment. The first major treatment consideration is whether the eating disorder patient is in enough medical danger to require hospitalization. If a careful evaluation of the patient's prior treatment and current motivation for treatment leads to the conclusion that they are clearly

unresponsive to a lower level of care, then it is appropriate to consider hospitalization for medical stabilization and then referral to outpatient medical maintenance for follow-up as discussed below. More typically there is reason for optimism about recovery from the eating disorder, particularly with child and adolescent patients. In these cases, hospitalization can usually be brief, again aimed at medical stabilization, but with the addition of psychological counseling and followed by referral to outpatient psychotherapy. Pediatricians often play a central role in the multidisciplinary team managing the treatment of children and adolescents (Hornberger and Lane, 2021).

The most common exception to brief hospitalization is the emaciated AN patient for whom longer hospitalization is usually required to make steady headway in the re-nourishment process. Another situation in which hospitalization may be necessary is when a patient has had a protracted period of outpatient treatment and is simply unable to make improvement without the structure and containment offered by the inpatient environment. Indefinite outpatient treatment may be fruitless or even deleterious in the sense that it inadvertently colludes with the patient's ambivalence about recovery. It is like years of insight-oriented psychotherapy with an elevator phobic without ever requiring a ride on an elevator. Without some exposure, the therapist cannot ever assist the patient in confronting fears associated with weight restoration. The patient may perceive the recommendation for hospitalization as a threat or as abandonment, but they should be reassured that it is a humane alternative to the tremendous emotional and financial expense of prolonged and unproductive outpatient therapy. Psychotherapy can only achieve modest goals in the presence of the severe limits imposed by dietary chaos or chronic starvation.

The duration of inpatient treatment or partial hospitalization required to achieve a healthy body weight is relatively straightforward and easy to calculate; however, convincing insurance companies to authorize the time required is more challenging (Garner et al., 2016b). It is the number of weeks or months required to achieve a healthy body by gaining at a rate of about three pounds a week and assuming optimal compliance with the treatment program. Even though this is a time-consuming and expensive process, it is an economical alternative if it leads to recovery since a chronic eating disorder inflicts a heavy price, both in monetary and emotional terms. At the same time, it is legitimate to question the validity or timing of a lengthy hospitalization aimed at re-nutrition if steady weight gain does not occur.

#### 5.24.9.1.1 Nutritional Rehabilitation

Restoration of weight and nutritional rehabilitation are recognized as fundamental steps in the therapeutic treatment of children and adolescent inpatients with AN (Mehler et al., 2010). Different systems for addressing meals and weight restoration have been advocated and it is recommended that the clinician be familiar with one of the prevailing approaches rather than simply ignoring the topic or deferring all matters related to food intake to another member of the treatment team (Garber et al., 2016; Garner et al., 2017; Peebles et al., 2017). Despite the central role of nutritional rehabilitation in the treatment of eating disorders, and the varied plans recommended, it is noteworthy that the details of this aspect of treatment are rarely specified and there is even less written on the theoretical principles behind the different approaches. Hart et al., (2013) reviewed 26 papers describing the feeding methods used in the inpatient treatment of anorexia nervosa (AN) and conclude that there are no evidence-based guidelines for the best and safest method for nutritional rehabilitation comparing four different feeding methods: (1) food only, (2) high energy food supplements plus food, (3) nasogastric feeding and (4) total parenteral nutrition (TPN). Most papers reviewed describe two or more of these methods applied during treatment. Similar findings are reported by Garber et al. (2016) in another recent review of inpatient programs indicating that the most popular approaches to re-nutrition use either meals only or combine meals with nasogastric feeding. Both reviews recommend that all reports on refeeding should include, at a minimum, admission and discharge BMI, weight change during treatment and length of stay. The lack of detail regarding the feeding plans employed as well as the limited evidence on efficacy led to the view that no conclusion could be offered regarding the most effective method of achieving nutritional rehabilitation in AN.

Most authorities agree that planning meals in advance and eating according to a schedule are useful strategies in the management of eating disorders. However, descriptions of meal planning differ markedly in the details of the approach. Recommendations diverge in the degree to which structure and rigidity are applied to meal planning. Some programs are highly structured and insist on adherence to a specific plan for eating with clear rules pertaining to the amounts and types of food to be eaten. Others are more flexible and encourage patients to eat what is comfortable with gradual progression toward improved eating patterns. In some cases, advice is inconsistent. Sometimes there is a mix of planning meals in advance alongside strategies that encourage flexibility or spontaneity in eating with little attention to the potential impact of inconsistencies and contradictions in methods.

Garner et al. (2017) have described a highly structured approach to meal planning where meals and snacks are specifically designed to provide a high level of exposure to feared foods in an adult partial hospitalization program and an adolescent residential program. A structured, calorie-based system incorporating real foods are used rather than supplements or the more typical exchange system. The level of precision of this approach is effective with more obsessional patients and can achieve a rate of weight gain in AN that is similar to the best inpatient programs (Garner et al., 2016b). Mehler et al., (2010) provide an excellent overview of different approaches to nutritional management as well as the complications that can occur in the most emaciated patients.

#### 5.24.9.1.2 Rate of Weight Gain in an and Discharge Weights

It is well established that low discharge weights are associated with poor outcomes in studies of adolescent and adult AN patients (Baran et al., 1995; Bean et al., 2004; Castro-Fornieles et al., 2007; Commerford et al., 1997; Steinhausen, 2002; Steinhausen et al., 2009). In a multi-site study, Steinhausen et al. (2009) present convincing data indicating the "strong effect of insufficient weight gain during first admission and lower BMI at the first discharge emphasizes the importance of adequate interventions" (p. 29).

Traditionally, objectively low body weight, usually measured as BMI, has been the target for measuring outcome; however, recent studies have identified the magnitude of weight suppression as an important predictive variable in AN (Wildes and Marcus, 2012; Witt et al., 2014). Determining the goal weight range for an eating disorder patient entering treatment is not a precise science since there are genetic and environmental factors responsible for significant individual differences in expected body weight. In setting goal weights, it is best to be informed by past highest weights as well as growth chart trajectories, particularly for adolescents (Garner et al., 2017; Marion et al., 2020). **Fig. 2** illustrates the growth chart data for a 19-year-old female AN patient. This chart was useful in understanding the course of the eating disorder as well as providing a clear rationale in establishing a realistic treatment goal weight. Parents sought treatment for this adolescent following dramatic weight loss when she was 16 years old. As can be seen in **Fig. 2**, it is apparent that she experienced an earlier marked decline in her weight trajectory along with an associated decline in her expected height when she was 9 years old. Review of this growth chart with her parents led to a discussion of the earlier episode of weight loss and the associated struggles around eating which were useful in reconstructing the eating disorder history. This graphic provided a tangible marker of the profound biological impact of weight suppression on growth and development. Setting a treatment goal weight can often be perceived as arbitrary. This patient was adamant that she would only agree to returning to her highest weight at the age of 16 and the weight chart graphic was helpful in providing the rational for a higher treatment goal weight. It was relatively easy to infer from the growth chart the precise weight necessary to place this adolescent back on the growth curve associated with her current age. At first the patient resisted this higher goal weight, but over time, she was able to see that the higher weight was more developmentally appropriate.

Patients begin treatment with the knowledge that they are on a weight gain or a weight maintenance protocol, but we generally do not share an exact target weight range at the beginning of treatment. It is explained that with enough information, we can usually arrive at a good estimate of a healthy body weight; however, it is first necessary to collect detailed information on their weight history, growth charts and metabolic response to Calories prescribed during treatment (Konrad et al., 2007). Most patients initially disagree with goal weight ranges and it is important to gently convey the notion that we really do not determine body weight in the strict sense since it is their biology that establishes and regulates body weight. Obviously, goal weight is a sensitive topic for patients and discussions must be sensitive to the patient's level of insight and tolerance for change. As patients receive more education on the biology of weight regulation and its implications regarding their personal weight history, preliminary weight goals are established and shared with the patient along with the knowledge that the goal weight range may need to be adjusted over time. Again, it is important to convey the concept of treatment as "an experiment" designed to restore health, eliminate food preoccupations, and reduce vulnerability to binge-eating that can result in marked increases in body weight.

In a recent review of feeding methods used in the treatment of AN, Hart et al. (2013) identified 26 papers describing a total of 37 samples, the majority reporting the amount of weight gain during inpatient treatment, discharge weights and days of service (DOS). Nasogastric tube feeding or parenteral nutrition was used in 13 samples. In 24 samples, both the amount of weight gained during treatment and DOS were reported. For these samples, the mean amount of weight gain was 5.7 kg over an average of 53.9 DOS for an mean daily weight gain of 0.12 kg per day (0.05 lbs.) or 0.84 kg (1.8 lbs.) per week; however, the rate of weight gain varied widely across treatment programs. The three slowest rates averaged 0.04 kg (0.09 lbs.) per week compared to the three highest at 0.28 kg (0.62 lbs.) per week. In the 24 samples that reported discharge BMI, the average was a BMI of 17.2 with only three programs achieving a discharge BMI above 19.0. Goddard et al. (2013) reviewed 14 hospital treatment programs in the UK (12 adult and 2 adolescent) and reported that the average duration of treatment for adults (n = 150) was 26.4 weeks and mean weekly weight gain was 0.4 kg (0.2 lbs.); the small number of adolescents received an average of 29.0 weeks of treatment with weekly weight gain of 0.5 kg (0.2 lbs.). The adults (n = 137) and adolescents (n = 7) for whom discharge data were available had discharge BMIs of 17.3 and 18.5 respectively. Most adults remained in the AN BMI range at discharge (58%) and only 22% of patients were discharged at a BMI of greater than 19.0. In a recent report of adolescent inpatient treatment of AN, Weiss et al. (2014) reported the average weight gain for 17.3 days of treatment was 2.0 kg with 71% of patients experiencing initial weight loss after admission. These studies indicate that despite the imperatives for weight gain in treatment, the published rate of weight gain and discharge weights in many inpatient treatment settings is modest.

Despite cautions regarding the risk of refeeding syndrome (Mehler et al., 2010), there are published reports that a greater rate of refeeding can be accomplished safely and without medical complications. Garber et al. (2016) reviewed 27 refeeding programs for AN and found that the rate of weight gain varied from 0.62 kg/wk (0.3 lbs.) to 1.98 kg/wk (4.4 lbs.). Among the studies reviewed, Redgrave et al. (2015) reported the highest average weekly rate of weight gain of 2 kg/wk. during inpatient treatment for an average of 26.3 days; the rate of weight gain was 1.36 kg/wk (3.0 lbs.) for the subsequent step-down into a partial hospitalization program. Dalle Grave et al., (2013a) reported a post treatment BMI of 19.2 in a controlled inpatient study with 90% of patients completing treatment. In a comparison of adult partial hospitalization and adolescent residential treatment for AN, Garner et al. (2016b) reported average rates of weight gain of 2.1 and 2.4 pounds per week, respectively. The discharge BMIs for these two programs were 19.5 for the adult and 19.4 for the adolescent program patients. Other recent studies have shown promise particularly with adolescents (Carter et al., 2011; Zipfel et al., 2015), with superior outcomes from specialist services with greater expertise in treating AN. Previous cautions about the dangers of more aggressive weight restoration in treatment appear to be largely unfounded (Garber et al., 2013).

#### *5.24.9.1.3 Pharmacotherapy*

Medications are commonly prescribed in the treatment of eating disorders; however, current evidence suggests that they should not be the primary mode of treatment. Summarizing the evidence on pharmacotherapy for AN, Bulik and colleagues (Bulik et al., 2007)

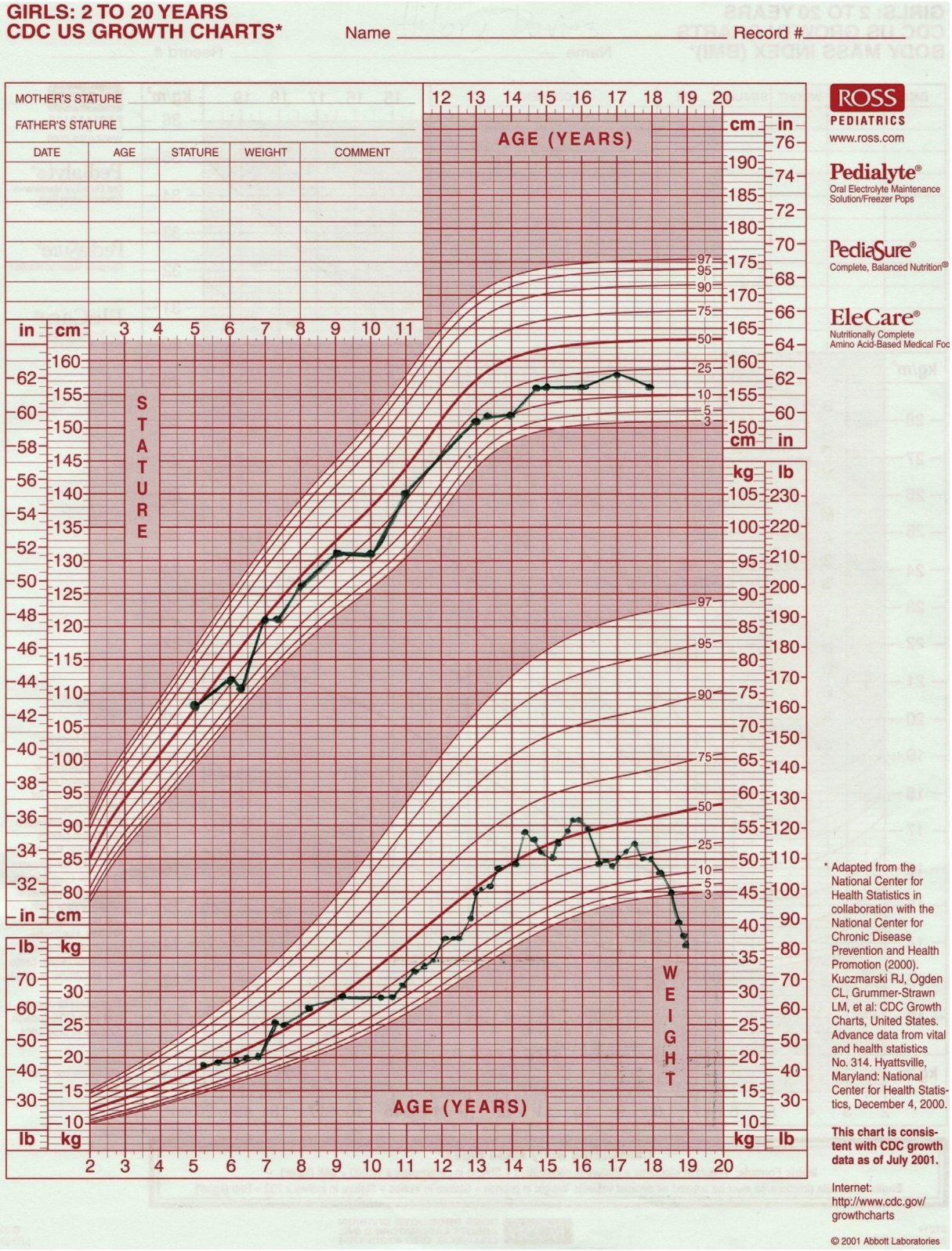


**Fig. 2** Growth chart for a 19-year-old woman with anorexia nervosa.

conclude that "no pharmacological intervention for anorexia nervosa has a significant impact on weight gain or the psychological features of AN" (p. 317). Crow et al., (2009b) came to the same conclusion, indicating "at present, there is no convincing evidence of efficacy for any drug treatment for AN in either the acute or chronic phase of the illness … " (p.1). This caution is echoed by Reinblatt et al. (2008) who state, "no medication induces weight gain or reduced body image concerns sufficiently in the underweight phase of AN nor has been shown to prevent relapse in weight restored patients enough to support recommending its use in children" (p. 185).

Flament et al. (2012) conducted a meta-analysis on the efficacy of pharmacotherapy for BN and BED and concluded that antidepressant medication has a significant, albeit moderate effect on symptoms, but low recovery rates. Controlled studies of drug treatment of BN have used selective serotonin reuptake inhibitors (SSRIs), other antidepressants, and mood stabilizers. In most studies, pharmacotherapy yielded a statistically significant although moderate reduction in binge/purge frequency, and some additional benefits.

While the evidence for the efficacy, safety, and acceptability of psychotropic medications in adults with eating disorders is marginal at best, there is even less evidence to support using these medications with children and adolescents. In a retrospective review of 308 child and adolescent cases seen in eating disorder specialist services, Gowers et al. (2010) found that 27% of the sample was prescribed psychotropic medications either before assessment or while in treatment (12% before assessment and 24% in treatment). No drugs were prescribed in those below the age of 12. In this child and adolescent sample, the proportion receiving psychotropic medications was considerably lower than the adult samples described earlier, but the amount of medication is still a concern given the lack of evidence for safety and efficacy of medications in younger patients.

These findings were extended for a large sample of adolescent and adult eating disorder patients referred to a partial hospitalization program (Garner et al., 2016a). This study found that, compared with adult patients, fewer adolescents were prescribed psychotropic medication before referral to partial hospitalization or residential treatment. Nevertheless, despite the overwhelming cautionary advice from the research literature, most adolescent patients were prescribed at least one medication (78.7%) and more than a quarter were on two or more medications (Garner et al., 2016a). Of those receiving medication, most were prescribed antidepressants (91%); however, antipsychotics (25.7%), mood stabilizers (9.7%), anxiolytic/sleep (16%) and stimulants (7.6%) were also common. Importantly, this study found that AN patients were receiving the same high frequency of psychotropic prescriptions, despite the lack of empirical support, as BN patients where there is at least some evidence for effectiveness.

In sum, in terms of prescribing of psychotropic medications for eating disorders, the magnitude of disparity between the research literature and clinical practice is striking. Despite the years of research on psychotropic medications for eating disorders, there is still little evidence for change in the early recommendations that pharmacotherapy has very limited, if any, value with emaciated AN patients and should not be the sole treatment modality for BN (Garfinkel and Garner, 1982). Patients occasionally may benefit from medication to deal with overwhelming anxiety, severe depression, or intolerable gastric discomfort after meals, but this only applies to a small minority of patients.

#### 5.24.9.2 Residential Treatment

For patients who are medically stable but who require 24-h-a-day monitoring, residential treatment is the preferred treatment modality (APA, 2006). Residential treatment programs vary in theoretical orientation but have been shown to be highly effective in treating both male (Bean et al., 2004; Strobel et al., 2019) and female patients (Brewerton and Costin, 2011). A review of residential treatment found that most programs primarily used a multidimensional approach relying on cognitive-behavioral, dialectical behavior therapy and other theoretical approaches such as interpersonal and psychodynamic therapy (Friedman et al., 2016). Individual, group and family therapy were utilized along with nutritional counseling and medication management. Even though medical complications are common among patients admitted to residential treatment (Mehler et al., 2018), outcomes tend to be positive at this level of care (Friedman et al., 2016).

#### 5.24.9.3 Partial Hospitalization Programs (PHP)

The PHP level of care is recommended for AN patients who may be underweight but whose physical status does not put them in acute medical danger (Yager et al., 2006) or for other eating disorder patients whose symptoms do not require 24-h-a-day monitoring. Patients who are suicidal, have serious co-existing psychiatric conditions or have poor motivation for change may not be appropriate for PHP and may require the inpatient level of care. Descriptions of number of days and number of hours a week for PHP vary but it is usually 5 to 7 days-a-week and between 7 and 10 h a day. This level of care allows sufficient supervision of meals so that most severely ill eating disorder patients can gain weight at a rate comparable to inpatient programs (Garner et al., 2016b). There is a growing body of evidence that severely ill patients can be safely managed at the PHP level of care if there is an effective nutritional rehabilitation program as well as careful medical management. This level of care can provide structure around mealtimes plus the possibility for intensive therapy, without requiring the patient to become totally disengaged from the supports and the therapeutic challenges outside of the hospital. Day treatment programs offer the distinct advantage of being more economical than full hospitalization. They can also provide a useful bridge between inpatient and outpatient care. There are various models for day treatment programs which generally share many features with inpatient programs. The major difference is that patients receive the therapeutic services but do not stay overnight. Inpatient treatment is still the preferred modality for patients who are seriously emaciated, require close medical monitoring, fail to progress in partial care, or are at serious risk of self-harm. In

a review of PHP settings, Friedman et al. (2016) conclude that studies show significant improvement in BMI for AN patients and reductions in bingeing and vomiting frequencies in AN and BN patients. On psychological measures, it was concluded there was significant improvement in anxiety and depression as well as specific measures of eating disorder psychopathology. PHP has also been shown to be as effective as inpatient treatment for severely ill BN patents (Zeeck et al., 2009).

Perhaps the most compelling argument for PHP treatment is that it is less costly than higher levels of care and, if it can be safely and effectively applied to many of the patients typically treated in inpatient or residential settings, then the cost-savings for insurers and patients are substantial. A lower cost can allow a longer duration of care for AN which translates into a healthier discharge weight and the opportunity to practice relapse prevention skills. Several studies have reported on the cost-effectiveness of the PHP level of care and have shown that the rate of weight gain is similar to the best inpatient programs (Garner et al., 2016b; Guarda et al., 2017).

#### 5.24.9.4 Intensive Outpatient Programs (IOP)

Intensive Outpatient Treatment is less intensive than PHP programming ranging from 3 to 4 h-a-day and 3–5 days a week and recommended for AN, BN and BED patients who are weight restored or others whose eating disorder symptoms do not require extensive monitoring (Yager et al., 2006). Although IOP level of care is sometimes referred to as "Day Treatment," this later term has a more variable meaning and often fits the PHP level of care in terms of duration and structure (Henderson et al., 2014; Kong, 2005). Typical IOP programs provide some meals, snacks, group therapy and medication management as well as regular meetings with a dietitian and a therapist (Abbate-Daga et al., 2009). Although IOP treatment is common as a step-down option in the continuum of care for those with eating disorders, there has been little systematic research on the effectiveness of IOP treatment alone. This is primarily because the structure and supervision offered by IOP programs is not sufficient to assist most highly symptomatic patients make consistent progress with symptom control. Nevertheless, an IOP does provide more structure and support than outpatient therapy and may be useful for children and adolescents who receive additional support from a family-based treatment model. Simic et al. (2018) report on the effectiveness of Intensive Day Treatment Program embedded within a comprehensive outpatient service and found significant improvements in a range of domains, including weight gain, eating disorder symptomatology, motivation to recover, quality of life and comorbid symptomatology. In sum, IOP treatment can be useful for some eating disorder patients, particularly when it is part of a flexible continuum of care that provides for the option of transitioning to a higher level of care in the absence of treatment progress.

#### 5.24.9.5 Outpatient Treatment

Outpatient treatment is recommended for eating disorder patients who do not require a higher level of care. In general, outpatient treatment is ineffective in promoting weight gain in very underweight patients and is risky for severely ill patients. However, most patients who receive a higher level of care are ultimately discharged to outpatient treatment to address residual symptoms. Outpatient therapy for children and adolescents typically involves the family. As discussed in detail later, Family-Based Therapy (FBT) has received the most empirical support, but adolescent-focused individual therapy (AFT) has also been shown to be effective in a 4-year follow-up study (Le Grange et al., 2014). This study found that there were no differences based on treatment group assignment in relapse from remission and other psychopathology was stable over time.

Even among those who are considered recovered from their eating disorder, a review and meta-analysis by Tomba et al. (2019) reported that most of the remitting and recovered AN and BN patients exhibited improved BMI; however, their weights were significantly lower than healthy controls. Moreover, even those who were weight restored exhibited greater eating disorder psychopathology (drive for thinness, dieting, lower caloric intake, binge-eating and oral control) than healthy controls. Also, in addition to eating disorder specific psychopathology, most studies reported enduring anxiety, depression, and obsessive-compulsive symptoms in most patients. Therefore, following more intensive treatment, most patients require a period of outpatient therapy to address lingering eating disorder symptoms. There are a range of therapeutic approaches that have been recommended for those with eating disorders. Outpatient therapy is delivered by practitioners from vastly different theoretical orientations that are not exclusive to the outpatient level of care. However, the major theoretical perspectives will be covered in the next sections since they are often delivered in an outpatient setting. These theoretical approaches have been applied to children and adolescents as well as adults with eating disorders.

#### 5.24.9.6 Psychoeducational (PE) Groups

Psychoeducation was originally recommended as one key component of CBT for eating disorders based on the premise that certain faulty assumptions held by patients were maintained, at least in part, by misinformation (Connors et al., 1984; Garner and Bemis, 1982; Garner et al., 1985b). The content of psychoeducation varies; however, early psychoeducational manuals emphasize background for challenging harsh societal standards for women to be thin, education regarding the biology of weight regulation, recommendations for establishing regular eating patterns, and methods for interrupting bingeing and purging. PE is a critical component of a comprehensive nutritional management program and it is considered vital to instilling motivation for change (Garner et al., 2017; Garner and Keiper, 2010).

A study comparing a purely psychoeducational (PE) brief group with a longer course of individual CBT therapy found that CBT was generally more effective than the PE intervention; however, on several important outcome indices both treatments appeared to be equally effective for the healthiest 25%–45% of the sample (Olmsted et al., 1991). While the more intensive CBT was associated with greater improvement in patients who were more severely symptomatic, the PE intervention proved significantly more cost-effective suggesting that a sequential treatment program might achieve the superior benefits associated with the longer individual CBT treatment at a reduced cost. Another study compared PE alone (5 sessions) with PE plus CBT group therapy and found that both treatments led to comparable reductions in symptoms and other outcome measures (Davis et al., 1997). Moreover, the two treatments did not differ in rates of premature termination, remission in eating symptoms, normalization of scores on psychometric measures, or consumer evaluation of the treatments.

There is evidence that even minimal PE can have a positive impact. A study examining the effects of a single PE session on waitlist length, attendance and eating disorder symptoms found that this nominal intervention resulted in waitlist length being reduced, greater likelihood that participants entered treatment and that underweight patients gained weight (Fursland et al., 2018). Another study examined the impact of a weekly PE group "journal club" for AN and BN patients receiving inpatient and partial hospitalization treatment. Preliminary findings indicated that participants rated the groups as useful in challenging eating disorder thoughts, improving motivation, completing the prescribed nutritional plan and helping work on treatment goals (Belak et al., 2017).

PE can be useful for those caring for individuals with eating disorders. A study by McEvoy and colleagues (McEvoy et al., 2019) evaluated the efficacy of a very brief, two-session psychoeducation and communication skills-based intervention for those caring for individuals with eating disorders. Carer burden, self-efficacy, skills, knowledge, and one component of expressed emotion (e.g., critical comments) improved significantly more in the treatment group compared to the waitlist controls. It was concluded that substantial improvements can be made from a very brief carers' intervention; however, more intensive interventions may be required to alleviate carers' emotional symptoms and to reduce accommodating and enabling behaviors.

#### 5.24.9.7 Self-Help and Guided Self-Help

The limited availability of clinicians trained in the delivery of CBT along with the need to reach more patients and to overcome barriers to treatment (e.g., time, costs and wish for anonymity) has stimulated the development of scalable and easily disseminated versions of empirically supported self-help (SH) or guided self-help (GSH) treatments (Wilson and Zandberg, 2012). The growing body of research on manualized SH interventions for BN and BED has produced a wide range of outcomes; however, the findings suggest that interventions guided by mental health professionals are more effective than those guided by non-specialists or internet-based programs (Beintner et al., 2014). Research has generally supported the effectiveness of various CBT-GSH methods compared to other credible active treatments and attention comparison groups. There is evidence from randomized controlled trials that CBT delivered by trained mental health professionals is more effective than wait list controls at 3-month and 6-month follow-up (Leung et al., 2013; Traviss et al., 2011). Results showed significant improvements in eating disorder psychopathology, laxative abuse, exercise behaviors, and global distress, with the GSH condition being superior to the waiting list on all outcomes.

Huon (1985) was one of the first to test the effectiveness of a SH program. Binge-eating subjects were recruited from a woman's magazine article and 32% who followed a SH manual were symptom free at 6-month follow-up compared to only 7% of a comparison group. Two other early studies demonstrated short-term benefits of following a SH manual but neither presented follow-up data (Schmidt et al., 1993; Treasure et al., 1994). In contrast to "pure" self-help, Cooper et al. (1996) have shown that GSH, supervised by a professional, can be sufficient for some patients. At follow-up of 82 patients 4–6 months later, 16 (20%) had dropped out of the program, and 22 (33%) of those remaining had not binged or vomited over the past month.

A comparison of guided dialectical behavioral therapy self-help (DBT-GSH), unguided DBT self-help and an unguided self-help condition for BED reported that 65% of participants completed treatment and that all three conditions led to significant reductions in binge-eating with large effect sizes (Carter et al., 2019). A similar pattern emerged for secondary outcome variables including eating disorder psychopathology, general psychological distress, and health-related quality of life.

Hildebrandt and colleagues have contributed two noteworthy randomized controlled trials examining the effectiveness of a smart phone application adapted for delivering CBT-GSH to adults with binge-eating (Hildebrandt et al., 2017, 2020). In the first trial, CBT-GSH delivered by the smart phone app had a similar outcome to standard CBT-GSH but the smart phone had some advantages in meal adherence which mediated binge-eating outcomes at post-treatment and at 6-month follow-up. In the second study, smart phone assisted CBT-GSH delivered by nonexpert health coaches was compared to what is described as standard treatment as usual (TAU) care for those with BN and BED. The smart phone assisted CBT-GSH was shown to have significantly better outcomes in terms of binge-eating, vomiting, laxative use and other eating disorder symptoms than the TAU. Grilo (2020) cautioned that TAU is essentially a no-treatment control in this study since participants were not actually assigned to a treatment condition which constitutes the weakest possible control comparison.

There is some question about the cost-effectiveness of GSH. In a study comparing treatment as usual (TAU) consisting of advising patients to seek several non-specialized treatment options within an HMO and TAU plus CBT-GSH found that the self-help condition greatly improved the clinical outcome and reduced the costs associated with TAU (Lynch et al., 2010). However, a direct comparison of GSH and face-to-face CBT found, after controlling for baseline differences, CBT was more costly but also more effective than GSH (Konig et al., 2018). Still, there is evidence that there are cost-effective alternatives to face-to-face CBT. Crow et al., (2009a) found that CBT was similarly effective when delivered face-to-face and via telemedicine; however, the cost for the latter was substantially less. This finding conforms to studies described earlier suggesting that professional delivery of

CBT, regardless of the delivery system, can be effective. Therefore, the most prudent approach to most clinical cases of binge-eating may be to use GSH as the first level treatment in a stepped-care approach implemented by professionals (Mitchell et al., 2011). There are eating disorder patients with less severe eating disorder symptoms who may experience marked improvement or complete recovery with self-help or education-based interventions. GSH is not recommended for AN because of the high potential for medical complications. However, one study employed SH intervention for AN as a prelude to inpatient treatments which reduced the length of hospitalization (Fichter et al., 2008). The same research team used a SH intervention as part of relapse prevention at the end of inpatient hospitalization (Fichter et al., 2012). While SH and GSH may not be effective for most eating disorder patients, they have a place in the treatment of BN, BED, and subclinical patients, especially if the elements of their delivery and targets are considered carefully. To better determine who benefits most from GSH and the optimal intervention dosage, research is needed using consistent terminology as well as uniform standards for reporting adherence and participation in future trials (Beintner et al., 2014).

## 5.24.10 Major Therapy Approaches

### 5.24.10.1 Cognitive-Behavioral Therapy (CBT)

CBT is the most frequently tested model of individual therapy for eating disorders. CBT for BN was first described by Fairburn (Fairburn, 1981, 1985; Fairburn et al., 1993); however, an alternative perspective has been presented by Garner and colleagues for treating AN (Garner and Bemis, 1982, 1985; Garner et al., 1997). The treatments are largely consonant; however, it is noted that there are important treatment differences according to the diagnostic group to which the patient belongs. These are based on the differing characteristics of the disorders and manifest in areas such as treatment motivation, weight gain, and introducing self-monitoring behaviors.

CBT has also been shown to be effective in the treatment of adolescents with eating disorders. In a meta-analysis of non-randomized studies, Linardon et al., (2017b) found that CBT outperformed all active psychological comparisons and interpersonal psychotherapy specifically. In addition to target symptom improvement, CBT has been shown to lead to improvements in quality-of-life measures relative to comparison conditions (Linardon and Brennan, 2017). Another review by Linardon and colleagues, found that in addition to being the front-running treatment for BN symptoms, CBT might also be the most effective psychotherapy for improving the symptoms of depression that commonly co-occur in BN (Linardon et al., 2017a).

CBT for AN is longer in duration and has a broader focus encompassing a wider range of personal and interpersonal subject domains than typical in early descriptions of CBT for BN. CBT for AN can be divided into three phases (**Table 7**). It is also noted

**Table 7** Major content areas for cognitive therapy

| |
|---|
| **Phase I** |
| Building a positive therapeutic alliance |
| Assessing key features of the eating disorder |
| Providing education about starvation symptoms & other selected topics |
| Evaluating & treating medical complications |
| Explaining the multiple functions of anorexic symptomatology |
| Differentiating the “two tracks” of treatment |
| Presenting the cognitive rationale for treatment |
| Giving rationale and advice for restoring normal nutrition and weight |
| Implementing self-monitoring and meal planning |
| Prescribing normal eating patterns |
| Interrupting bingeing & vomiting |
| Implementing initial cognitive interventions |
| Increasing motivation for change |
| Challenging cultural values regarding weight & shape |
| Determining optimal family involvement |
| **Phase II** |
| Continuing the emphasis on weight gain and normalized eating |
| Reframing relapses |
| Identifying dysfunctional thoughts, schemas & thinking patterns |
| Developing cognitive restructuring skills |
| Modifying self-concept |
| Developing an interpersonal focus in therapy |
| Involving the family in therapy |
| **Phase III** |
| Summarizing progress |
| Reviewing fundamentals of continued progress |
| Summarizing areas of continued vulnerability |
| Reviewing the warning signs of relapse |
| Clarifying when to return to treatment |

From: Garner et al. (1997).

that the framework of the intervention is sufficiently broad to address specific clinical issues by incorporating elements of Psychoeducation, Interpersonal Therapy and Family Therapy into treatment (Garner et al., 1997). A major focus for both disorders is the patient's underlying assumption that "weight, shape, or thinness" can serve as the sole or predominant referent for inferring personal value or self-worth. Although fear of body weight gain is a central theme for both anorexia and BN; most BN patients can be reassured that treatment will probably result in little weight gain. In contrast, in AN, therapeutic strategies must be aimed at actual weight gain in the face of the implacable wish to maintain a low weight. Establishing a sound and collaborative therapeutic relationship is particularly important in AN since it becomes a fulcrum for gradually helping the patient to relinquish the myriad of ego-syntonic symptoms. In the subset of AN patients who do not engage in binge-eating, and those who show no obvious serious physical complications, there may be extraordinary resistance to complying with the therapeutic objectives of weight gain. This often takes the form of apparent psychological insights that invariably fail to translate into symptomatic change.

The essence of the cognitive theory of eating disorders is that the symptoms are maintained by a characteristic set of over-valued ideas about the personal significance of body shape and weight. Early cognitive conceptualizations were derived from clinical observations and adapted to address certain distinctive features of AN (Garner and Bemis, 1982) and BN (Fairburn, 1985) which have been increasingly applied to all eating-disorder diagnostic subgroups (Fairburn et al., 2003). The relevant variables for CBT for AN include: (1) idiosyncratic beliefs related to food and weight; (2) specific reasoning errors and disturbed information processing related to the significance given to weight and shape; (3) the role of cultural ideals for feminine beauty which have placed a premium on dieting and weight control as a marker for self-worth; (4) positive and negative reinforcement contingencies that maintain the symptoms; (5) the operation of underlying assumptions, dysfunctional self-schemas, and core beliefs (e.g., low self-esteem, self-identity, perfectionism, pursuit of asceticism, need for self-control, fears of maturity, "anorexic identity," and interoceptive deficits); and, (6) the physiological consequences of starvation that tend to maintain disordered beliefs and behavior, and aggravate pre-existing emotional disturbance (Garner et al., 1997). More recent descriptions of CBT for both AN and BN, have been characterized as "enhanced" and focus on many of the same themes (Dalle Grave et al., 2013b; Fairburn et al., 2015). These include cognitive interventions aimed at beliefs that maintain extreme dieting and chronic weight suppression but also at fundamental assumptions associated with interpersonal conflicts, feelings of ineffectiveness, struggles with autonomy, and fears associated with psychosocial development.

Components of interpersonal therapy and family therapy are often integrated into the enhanced CBT for both AN and BN. Reviews of enhanced CBT for eating disorders have found robust evidence for effectiveness in some studies; however, there are substantial differences in post-treatment remission rates partly due to differences in the samples and the criteria used to define clinically significant changes (Atwood and Friedman, 2019; de Jong et al., 2018). Moreover, over 60% of BN patients fail to fully abstain from core symptoms even after receiving the most empirically supported CBT treatments (Linardon et al., 2018; Linardon and Wade, 2018). The results are somewhat better for BED where about 50% of patients are abstinent from symptoms at the end of treatment and at follow-up (Linardon, 2018). Nevertheless, CBT remains one of the few empirically supported psychological treatments for eating disorders and is significantly more effective in reducing core behavioral and cognitive symptoms than control conditions, alternative psychological interventions, and pharmacological treatments in patients with BN (Linardon et al., 2017b).

In sum, manual-driven CBT has been rated as the treatment of choice for adults with BN and is superior to other interventions at least in the short-term, eliminating between 30% and 50% of bingeing and purging symptoms in all the cases (Linardon and Wade, 2018; Wilson et al., 2007). Manual-based CBT outcome research on AN is lacking, in part because of the longer duration of treatment required and the need for within treatment deviations based on medical considerations. However, there is increasing evidence that using enhanced versions of CBT results in significant weight gain, symptom improvement and positive psychological change at an inpatient or PHP level of care (Atwood and Friedman, 2019; Dalle Grave et al., 2019; Garner et al., 2016b; Linardon et al., 2017b).

#### 5.24.10.2 Interpersonal Therapy (ITP)

Since the mid-1980s, the prevailing view was that CBT's effectiveness with eating disorders was tied to cognitive and behavioral methods aimed specifically at overconcern about weight and shape which are responsible for restrictive dieting and extreme weight controlling behaviors. Changing these attitudes presumably relaxed restrictive dieting and relieved the biological tension created by chronic attempts to suppress body weight. However, a series of studies using interpersonal psychotherapy (IPT), adapted to BN, has prompted reexamination of speculations regarding the specific mechanisms of action in the treatment of binge-eating (Fairburn et al., 1995). This is because IPT does not directly focus on eating problems. IPT was originally proposed by Klerman et al. (1984) as a short-term treatment for depression. The IPT treatment process is divided into three stages (Fairburn, 1997). The first stage involves the identification of the interpersonal problems that led to the development and maintenance of the eating problems. The second stage consists of a therapeutic contract for working on these interpersonal problems. The final stage addresses issues related to termination. Fairburn et al. (1991) found IPT somewhat less effective than CBT at the end of treatment; however, patients who received IPT gradually improved during the follow-up period so that after 1 year, both treatments were equally effective (Fairburn et al., 1993). These findings are maintained over the longer term with patients receiving CBT or IPT doing significantly better than those receiving behavior therapy (Fairburn et al., 1995). This pattern of improvement during follow-up was not found in a study of another different form of interpersonally oriented therapy, supportive-expressive therapy (Garner et al., 1993). These findings suggest that the IPT used by Fairburn et al. contains specific therapeutic ingredients that facilitate change. Further support for the effectiveness of IPT comes from Wilfley et al. (1993) in a study of non-purging bulimic patients, many of whom presented

with obesity. They found both CBT and IPT equally effective in reducing binge-eating assessed both at the end of treatment and at 1-year follow-up.

The evidence that certain interpersonal therapies are as effective with binge-eating as CBT has implications for the treatment decision-making process. It could be argued that there should be no priority for either IPT or CBT as the initial treatment of choice for BN since both treatments are equally effective in the long-term. Certainly, a therapist well trained in one of the interpersonal therapies described by Fairburn and colleagues should not be encouraged to abandon this form of treatment in favor of CBT. However, we are still inclined to recommend CBT as the preferred initial treatment at this time since it has been shown to have a more rapid effect on symptoms. Moreover, the efficacy of IPT for BN has been demonstrated in just one center compared to many studies in support of CBT. If the findings from the Oxford trials are replicated in other centers, then IPT may become another "standard" initial treatment for BN. At this time, there is no empirical basis for suggesting that IPT should be differentially applied to patients based on premorbid features such as interpersonal conflicts. However, integrating IPT into treatment should be considered for BN patients who fail to respond favorably to an initial course of CBT when interpersonal conflicts predominate. The IPT orientation should also be a leading candidate for integration into longer term psychotherapy for AN patients or for others with persistent eating disorder symptoms.

#### 5.24.10.3 Psychodynamic Therapy

Psychodynamic treatment for eating disorders may be roughly divided into two schools of thought. The first presumes eating disorders do not require fundamental modifications to orthodox dynamic interventions since neither the symptoms nor the disorders represent a unique underlying process. The second conceptualization implies that eating disorders are distinctive in that they require major modifications to traditional dynamic therapy to meet the special psychological needs of the patient. There has been considerable movement among dynamically oriented writers toward integrating psychodynamic therapy with active symptom management principles in the treatment of both AN and BN (Bruch, 1973; Casper, 1982; Crisp, 1980; Goodsitt, 1985; Stern, 1986). However, there are still some who espouse a traditional interpretive framework (Amianto et al., 2016; Schauenburg et al., 2009; Tasca et al., 2011). Even though the research literature remains modest, clinical experience suggests there is a place in the treatment of eating disorders for therapy informed by psychodynamic principles (Dancyger et al., 2013). One of the most important considerations in implementing psychodynamically informed therapy is the need to integrate management of eating disorder symptoms with the interpretive aspects of therapy (Reich, 2007). This integrative approach has been espoused by most of the pioneers in the field of eating disorders and it remains a core principle today.

#### 5.24.10.4 Family Therapy

The rationale for involving the family in the treatment of eating disorders comes from several sources. First, there are ethical, financial, and practical grounds for including the parents in the treatment of younger patients with eating disorders. Second, recovered patients consider resolution of family and interpersonal problems as pivotal to recovery (Rorty et al., 1993). Third, this mode of intervention has received empirical support in controlled trials (Lock and Le Grange, 2019; Russell et al., 1987). Practical factors are sufficiently compelling to justify the family approach with some patients; however, the primary impetus for integrating family and cognitive approaches to eating disorders is the conceptual harmony that can be achieved in integrating these two treatment models (Garner and Bemis, 1982; Garner et al., 1997). At a fundamental level, there is agreement between both of the models for which "meaning" is the primary locus of clinical concern. Also, both models assume that the symptoms are adaptive at one level of meaning and dysfunctional at another. The clinician should not assume the specific meaning behind interactional patterns but should try to assist the patient and the family in identifying dysfunctional assumptions through questioning and the prescription of behavioral change.

Family therapy is the initial treatment choice for children and adolescents. It should also be regarded as a desirable adjunct to individual therapy with older patients living outside of the home, particularly when family conflicts predominate. For young patients, there are practical as well as theoretical reasons for recommending family therapy. From a strictly practical point of view, the patient shares her home with her parents or guardians who are responsible for her well-being. Parents have the potential to provide powerful directives in support of therapeutic goals. Regardless of the theoretical orientation of treatment, family members need assistance in dealing with a young eating disordered patient. Early family theorists argued convincingly that eating disorders may reflect certain conflicts, dysfunctional roles, or problematic interactional patterns within the family (Minuchin et al., 1978; Selvini-Palazzoli, 1974). The following are some of the more common problematic themes. Denial regarding the seriousness of the eating disorder may be manifest by the identified patient and/or the parents. Both the patient and parents may need assistance in accurately labeling the eating disorder which involves neither minimizing nor exaggerating the significance of certain symptomatic behaviors.

Particularly with younger patients, parents may need help in developing an effective parenting style. Guilt and fear may have prohibited them from being firm and effective in establishing guidelines for behavior consistent with recovery. Parents should be encouraged to maintain usual expectations in areas unrelated to food and eating (e.g., bedtime, chores, language, and treatment of siblings) except when unrealistic parental expectations are directly contributing to the problem. Treatment recommendations should be consistent with the family's value system and appropriate to the developmental stage of the child.

Parents may need assistance in accepting the patient's need for autonomy and self-expression through traits, interests, and values that may deviate from expectations within the family. Under certain circumstances, parental attitudes about weight, shape, thinness, or fitness may be inappropriate. Inappropriate family eating patterns, beliefs about food or eating rituals should be identified, and practical interventions need to be designed to address areas of potential conflicts.

An eating disorder can deflect members of the family away from potentially threatening developmental expectations emergent in the transition to puberty. It can function as a maladaptive solution to the adolescent's struggle to achieve autonomy in a family where any move toward independence is perceived as a threat to family unity. It can also become a powerful diversion enabling the parents and the child to avoid major sources of conflict. The identified patient's symptoms may be functional within a disturbed family context and the meaning systems that underlie the resulting interactional patterns need to be identified and corrected. These include patterns such as enmeshment, overprotectiveness, poor conflict resolution, and inappropriate parent-child allegiances that undermine the marital relationship (Minuchin et al., 1978).

The long-term efficacy of different forms of family-based therapy has been well established (Lock and Le Grange, 2019). A 5-year follow-up study comparing a cohort of 40 patients receiving either "conjoint family therapy" (CFT) or "separated family therapy" (SFT) showed that both treatments were effective with more than 75% of subjects having no eating disorder symptoms (Eisler et al., 2007). There were no deaths in the cohort and only 8% of those who had achieved a healthy weight by the end of treatment reported any kind of relapse. The one difference between the treatments was that patients from families with raised levels of maternal criticism did not do as well when they received conjoint family therapy and this difference persisted at follow-up. The Maudsley Model of family-based therapy (FBT) places emphasis on putting parents in charge of weight restoration unlike traditional treatment approaches that promote sustained autonomy around food (Lock and le Grange, 2005). This approach has been described as effective for treating both anorexia nervosa (Loeb et al., 2007) and bulimia nervosa (Shapiro et al., 2007). Although the Maudsley version of FBT has shown promise, it may be no more effective than other forms of FBT. In a comparison of conjoint FBT and parent-focused treatment (PFT) in which the adolescent is not directly involved in treatment, Murray et al. (2017) found that both treatments produced a similar trajectory of symptom remission and affective functioning. Although the Maudsley approach has received considerable attention, it does present certain hurdles in implementation. It requires parents to be highly involved in the treatment process which may be impractical if they are physically or emotionally unavailable or if the identified patient is too ill for outpatient treatment. These obstacles were evident in a large, controlled treatment trial of adolescent AN comparing FBT and fluoxetine (Prozac) in which poor recruitment was linked to concerns regarding patient safety (Lock et al., 2012). While family-based treatment is the leading psychological therapy for adolescents with eating disorders, it is not universally effective or suitable for all patients. In cases in which family-based treatment has not been effective or could not be applied, CBT has been shown to be highly effective (Craig et al., 2019). Therefore, while current empirical research as well as clinical experience, suggests that family therapy should be routinely employed as the treatment of choice for young eating disorder patients, for those for whom it is contraindicated, CBT should be considered the treatment of choice.

#### 5.24.10.5 Outpatient Medical Management

Concluding that a patient is unresponsive to psychological treatment and then referring to an outpatient medical management requires careful analysis and considerable reflection. However, there are some chronic or recalcitrant patients who have participated in various forms of treatment over the course of years and finally reach the point where they no longer want treatment for their eating disorder, or they can agree that further psychotherapy has an extremely low probability of success. In these circumstances, psychotherapy aimed at recovery can be highly frustrating for the therapist and the patient alike, often leading to termination with inadequate follow-up plans. Patients are then reluctant to seek further assistance when their medical or psychological condition deteriorates. The key is determining if there really has been enough exposure to truly adequate treatment since patients can have extensive exposure to poor treatment or therapists who are not knowledgeable about eating disorders. If careful evaluation leads to the conclusion that the patient has had an adequate course of psychotherapy and (i) is not in imminent psychological or medical danger, (ii) is sufficiently symptomatic to suggest ongoing potential medical risk, and (iii) there is no clear rationale for further psychotherapy, then termination from psychotherapy may be very appropriate as long as it is made conditional on the patient agreeing to participate in ongoing medical management with a physician who is familiar with the medical complications in eating disorders (Mehler et al., 2015). The goal of medical management is quite different from psychotherapy. Rather than focusing on overcoming the eating disorder, it is aimed at maintaining medical and psychological stability. It can be conducted in an individual or a group format, meeting weekly with medical supervision. Body weight, electrolytes, and vital signs should be checked with appropriate referral to medical specialists, as needed. Patients derive the added benefits of group support and sharing with similarly afflicted patients. In some cases, these groups set the stage for renewed efforts to actively address the eating disorder symptoms.

### 5.24.11 Future Research Directions

The literature on eating disorders has expanded rapidly in the past 2 decades resulting in valuable advancements in the understanding and the treatment options for youth with eating disorders. Nevertheless, these life-threatening and potentially chronic conditions remain common among children and adolescents and confer substantially elevated risk for a broad range of physical and mental health problems during early adulthood (Johnson et al., 2002). Considerable progress has been made in pinpointing

risk factors for eating disorders; however, their etiology remains elusive. Further research is needed to identify meaningful subgroups, risk factors, prevention strategies, and treatment effectiveness remains a high priority.

The diagnostic nomenclature has been refined in recent years to provide a meaningful system for classifying eating disorders based on presenting symptoms. Even though distinctions between diagnostic subgroups have been emphasized in the research literature, it is important to recognize that the main eating disorder diagnostic groups (AN, BN and BED) tend to share many features in common. Research with children and youth needs to focus on a better understanding of the diagnostic groups that were newly introduced in the DSM-5 such as Avoidant/restrictive food intake disorder (ARFID). ARFID was introduced to capture a cohort of patients who struggle with impaired and distressing eating behaviors and symptoms and who lack body image or weight-related concerns associated with AN and BN. Research comparing ARFID and AN has found that children with ARFID have a longer duration of illness, are more likely to be admitted as inpatients and have a greater likelihood of comorbid medical and/or psychiatric symptoms (Fisher et al., 2014; Lieberman et al., 2019). In terms of treatment outcome, children with ARFID have a similar outcome to those with AN (Lange et al., 2019).

A fruitful area for research is understanding the role of social media use and the development of disordered eating. Wilksch et al. (2019a) have reported a clear pattern of association between social media usage, eating disorder cognitions, and behaviors indicating that these relationships occur at a younger age than previously investigated. Research on prevention has found support for the effectiveness of programs focusing on early identification, targeting media literacy, and promoting *anti*-dieting messages. They can be effective in reducing eating disorder symptoms and risk factors for full-blown eating disorders (Harrer et al., 2020; Rohde et al., 2014; Sundgot-Borgen et al., 2013; Wade et al., 2017; Watson et al., 2016). CBT, media literacy and psychoeducation have been the most successful in reducing risk factors and these effects have been shown to be maintained at follow-up (Watson et al., 2016). Thus, an important research objective is the refinement of prevention programs to improve motivation of high-risk groups to participate in these interventions.

Tremendous strides have been made over the past two decades in treatment effectiveness; however, a high proportion of patients fail to achieve recovery or relapse in follow-up with even most successful treatments. It is now well-established that FBT is quite effective, particularly for adolescent AN. Treatment effects are quite robust, even though remission rates remain elusive for more than half of all cases (Lock and Le Grange, 2019). Moreover, there is wide variability in remission rates depending on what definition of remission is used (Le Grange et al., 2019). In a 4-year follow-up study, adolescent-focused individual therapy (AFT) has been shown to be as effective as FBT in terms of either relapse from full remission, new remission, or other measures of psychopathology (Le Grange et al., 2014). However, research comparing these two forms of therapy have shown that FBT may be more cost-effective than AFT (Le et al., 2017). A comparison of FBT and CBT with adolescents with BN found that FBT achieved greater abstinence rates at the end of treatment but that both forms of treatment were equally effective at a 12-month follow-up (Le Grange et al., 2015).

Research is needed to adapt accepted treatments to make their delivery more cost-effective. For example, FBT has been adapted for telehealth delivery and the results are promising (Anderson et al., 2017). An adaptation of FBT where the therapist meets with parents only, while a nurse practitioner monitors the patient, has also been shown to be effective (Le Grange et al., 2016). Cost-effectiveness of treatment of AN is reflected, in part, by rate of weight gain in achieving a BMI associated with recovery. If daily treatment costs are held constant, treatments that safely help patients restore weight twice as fast are more economical than those which move at a slower pace. Recent studies have introduced the metric of "cost per pound" in describing treatment efficiency (Garner et al., 2016b; Guarda et al., 2017).

There is interest in identifying potentially effective pharmacotherapy for eating disorders. Currently, there is empirical evidence that antidepressants are moderately effective in BN; however, this is in stark contrast to the overwhelming evidence that they are not effective in AN, even in those with comorbid depression (Garner et al., 2016a). Studying the efficacy of psychotropic medications is necessary, but it is vital for controlled trials to precede the clinical application of these treatments for children and adolescents with eating disorders.

Treatment is ineffective if patients do not engage in the treatment process. There are several reasons why patients and parents leave treatment in the first week after admission. These include the inability to obtain ongoing insurance coverage, not being ready for the challenges of needed treatment, requiring a higher level of care or disagreement with treatment goals including the weight needed for recovery. Therefore, patient retention rates need to be studied as an important indicator of treatment effectiveness.

It is evident that certain patients respond relatively quickly to brief interventions, in contrast to others who require more intensive and protracted treatments. Perhaps the most significant goal for investigation moving forward is the identification of traits, personality features, or background factors that predict differential response to treatment. Even better would be a taxonomy yielding an accurate match between patient characteristics and treatment type. Advances in research on psychopathology and treatment efficacy warrant genuine optimism regarding improved outcomes with children and adolescents with eating disorders. In sum, future research is needed to specify the relative contribution of biological, psychological, and interpersonal predisposing features considered relevant to eating disorders.

### 5.24.12 Clinical Recommendations

Excellent clinical skills are fundamental to the success in treating most psychological disorders. However, the skills required to effectively treat children and adolescents with eating disorders may be more demanding than many other psychological disorders because achieving competency requires familiarity with a body of scientific knowledge covering areas that are not generally

a part of clinical training. Information on nutrition, dieting, the biology of weight regulation, physical complications, and cultural factors must be added to an understanding of more general psychological themes pertinent to eating disorders. The diagnosis and treatment of eating disorders in children and adolescents has some commonality but also differs from that of this condition in adults. The understanding of eating disorders has emerged from research data in the fields of epidemiology, genetics, and brain biology, suggesting that there may be underlying neurobiological predisposing factors. What starts as a harmless diet can turn into more prolonged food restriction triggering an eating disorder in those who are genetically or neurobiologically predisposed. The condition may be then perpetuated by the biochemical changes induced by weight loss, and the ensuing impact of malnutrition on the brain (starvation symptoms). The change in paradigm from a strictly psychological understanding to a psychobiological conceptualization calls for an early intervention to assure nutritional rehabilitation as soon as an eating disorder is suspected in children, without the typical protracted approach often followed in traditional psychotherapy.

Family therapy is the initial treatment choice for patients who are young and/or living at home. For children and adolescent patients, there are practical as well as theoretical reasons for recommending family therapy. From a strictly practical point of view, parents or guardians are responsible for the well-being of the child or adolescent. Parents have the potential to provide powerful directives in support of therapeutic goals. Regardless of theoretical orientation of treatment, family members need assistance in dealing with a young eating-disordered patient. Various theoretical approaches have been developed for the treatment of youth with eating disorders; however, empirical research supports that family-based treatment (FBT) is an effective treatment for adolescents with eating disorders. This is agnostic regarding the origins of the eating disorders and questions the classic assumption of "an underlying family pathology". Rather, it focuses on empowering parents to monitor and supervise the nutritional rehabilitation of their children. This approach has proven particularly effective in younger AN patients with a short duration of illness. In the initial phase of therapy, this approach is primarily focused on the eating disorder symptoms and includes a family meal where the therapist can observe family interactional patterns. The parents are encouraged to engage in united action to promote appropriate eating patterns in their symptomatic child. Care is taking to absolve the parents of responsibility for the development of the eating disorder with an emphasis on reinforcing a strong alliance between parents and complimenting them for the positive aspects of their parenting. The second phase of treatment involves negotiating a new pattern of relationships for the patient, in which the patient surrenders to the will of the parents to increase the food intake. In this phase, the parents take the main control of the treatment to return their child to physical health. This approach requires a heavy time commitment on the part of the parents since they are responsible for monitoring meals. This approach has some limitations with older patients or those with chronic symptoms. However, adaptations have been made to the original approach with AN that can be applied to those with BN or ARFID. In treating children and adolescents with eating disorders, regardless of the theoretical approach guiding treatment, it is imperative that the clinician have training and experience in family therapy. Family-based therapy that requires parents to provide continuous monitoring of their child may be impractical in some cases and then hospitalization, partial hospitalization or residential care may be the best option.

CBT provides a framework for addressing eating disorders in adolescents regardless of the therapeutic modality employed (individual, family or group). The essence of the cognitive theory of eating disorders is that the symptoms are maintained by a characteristic set of overvalued ideas about the personal significance of body shape and weight. This approach relies heavily on psychoeducation in which basic scientific information is used to challenge faulty beliefs that drive certain eating disorder symptoms. The clinician should be familiar with cognitive restructuring skills such as articulation of beliefs, decentering, challenging dichotomous reasoning, and de-catastrophizing originally described for depression (Beck et al., 1979), and that have been adapted for eating disorders (Garner et al., 1997). The content of CBT may be divided into "two tracks." The first track pertains to issues related to weight, bingeing, vomiting, strenuous dieting, and other behaviors aimed at weight control. The second relates to psychological themes such as self-esteem, self-concept, self-control, perfectionism, impulse regulation, affective expression, family conflicts and interpersonal functioning. Both tracks are characterized by reasoning errors, dysfunctional thinking, and distorted underlying assumptions. In practice, there is considerable switching back and forth between these content areas in therapy. Greater emphasis is placed on track one early in therapy, emphasizing the interdependence between mental and physical functioning. Treatment gradually shifts to track two issues as progress is made in the areas of eating behavior and weight.

When outpatient management of eating and weight fail, inpatient treatment is necessary to achieve medical stabilization and nutritional rehabilitation. Weight loss or failure to gain can have more ominous health consequences for children and adolescents so it is important to avoid protracted outpatient that is clearly not leading to improvement. Patients should not be threatened with inpatient treatment due to poor compliance. Rather, some patients are incapacitated by their symptoms and simply cannot move forward as outpatients. If inpatient treatment becomes necessary, it is important to consider the wide variation in effectiveness and efficiency of different programs (Garber et al., 2016).

Studies indicate that prescribing medication for eating disorders has become increasingly popular in recent years (Fazeli et al., 2012; Gable and Dopheide, 2005). Medical and non-medical clinicians alike must be aware of the risks and benefits of medications in the treatment of children and adolescents with eating disorders. Although some medications, particularly antidepressants, are moderately effective in adults with BN and BED, there is little evidence of their effectiveness with children and adolescents. In AN, there is overwhelming evidence that psychotropic medications are ineffective, even in those with comorbid depression. Nevertheless, most children and adolescents presenting for treatment have been prescribed at least one psychotropic medication (Garner et al., 2016a). While the evidence for the efficacy, safety, and acceptability of psychotropic medications in adults with EDs is marginal at best, there is even less evidence to support using these medications with children and adolescents.

In sum, there has been enormous growth of the knowledge base on eating disorders in the past 20 years, and mastery of the key content domains and their clinical application is a daunting task, making it challenging to stay abreast of current developments. As has been emphasized throughout this article, many of the educational content areas in therapy with eating disorder patients, such as understanding the effects of starvation on behavior, dieting myths, scientific principles for establishing goal weights, understanding the biology of weight regulation, and methods for interrupting eating disorder symptoms are not part of the standard preparation of the "generalist" therapist. However, achieving competency in these areas and then artfully interweaving pertinent educational topics and core content domains into treatment is the key to achieving positive outcomes. Finally, developing competence in specialized family therapy principles and their limitations is required in the treatment of children and adolescents with eating disorders.

### 5.24.13 Conclusion

Eating disorders are serious, potentially life-threatening illnesses afflicting individuals through the life span, with a particular impact on both the physical and psychological development of children and adolescents. This article has summarized the rapidly expanding scientific literature on understanding and treating eating disorders with a particular emphasis on youth. The past two decades have witnessed remarkable advancements in etiological formulations, identifying predisposing factors, screening and assessment technologies, prevention, and advances in treatment. Historical approaches to treatment often simply applied existing psychological theories with little adaptation to the special needs of those with eating disorders. Hospitalization was the standard and many patients languished without gaining weight or relapsed shortly after discharge. There is now a consensus that weight restoration and symptom containment need to be a priority rather than following those traditional approaches that focused exclusively on underlying psychodynamics falsely assuming that their resolution would translate into remission. Recent advancements, particularly in evidence-based and manual-informed treatments, have greatly improved the standard of care so that full recovery is now the most likely outcome for most children and adolescents with eating disorders. Nevertheless, those who fail treatment and develop a chronic course are a serious concern, underscoring the need for future research aimed at early identification and the development of more effective treatment options.

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