Assessing for Eating Disorders: A Primer for Gastroenterologists

Monia E. Werlang, MD1, Leslie A. Sim, LP, PhD2, Jocelyn R. Lebow, LP, PhD2 and Brian E. Lacy, MD, PhD3

Eating disorders involve irregularities in eating behavior that may cause gastrointestinal (GI) symptoms. Consequently, many patients with eating disorders seek gastroenterological healthcare at some point in their illness, with many seeking this care even before they seek treatment for and/or diagnosed with their eating disorder. As such, the gastroenterology provider is in a unique position to identify, manage, and facilitate treatment for an eating disorder early in the course of the illness. Although assessing eating disorders is already a difficult task, the identification of eating disorders in patients with GI disease represents an even greater challenge. In particular, common GI symptoms, such as nausea, vomiting, and bloating, may disguise an eating disorder because these symptoms are often viewed as a sufficient impetus for dietary restriction and subsequent weight loss. In addition, the focus on identifying an organic etiology for the GI symptoms can distract providers from considering an eating disorder. During this prolonged diagnostic evaluation, the eating disorder can progress in severity and become more difficult to treat. Unfortunately, a misconception that hinders eating disorder detection is the notion that the rate or method of weight loss is associated with an eating disorder. Regardless of whether weight loss is slow or rapid, purposeful or accidental, eating disorder behaviors and thought patterns may be present.

Unidentified eating disorders are not only dangerous in their own right but also can interfere with effective management of GI disease and its symptoms. As such, it is imperative for the GI provider to remain well versed in the identification of these conditions.

“One cannot think well, love well, sleep well, if one has not dined well.”
—Virginia Woolf, A Room of One’s Own.

INTRODUCTION
Eating is one of life’s greatest pleasures for many people. Eating is typically not just for nutritional sustenance; it can also be an emotional experience that produces an array of pleasant feelings. The simple act of sharing a meal with family or friends or remembering a favorite food or a special meal can release a flood of positive images, memories, and emotions. However, for many people, eating does not produce pleasant symptoms of satiation, but instead induces consistent symptoms of gastrointestinal (GI) distress, turning eating into a daily battle. Patients with GI disorders frequently develop patterns of disordered eating (restricting meals, skipping meals, and fasting) related to their underlying disease, affecting not only their physical health but also their ability to socialize, engage in important cultural practices, and eat out. These dietary changes, initially used to alleviate GI symptoms, may eventually lead to disordered attitudes and practices toward eating and the development of an eating disorder (ED). At the same time, GI symptoms can also be a consequence of low weight and malnutrition secondary to EDs, exemplifying the bidirectionality of these conditions.

The term “eating disorder” encompasses a number of distinct patterns of maladaptive eating that develop for a variety of reasons. Some of the most common and best described EDs include anorexia nervosa (AN), bulimia nervosa (BN), and binge EDs (BEDs) (1) (Table 1). In recent years, several other EDs have been described, including avoidant/restrictive food intake disorder (ARFID) first defined in 2013 (1). Recognizing both maladaptive disordered eating and ED is important for gastroenterologists and hepatologists for several reasons. One, these disorders are common, with an estimated prevalence in the general population of 10% but as high as 24% in gastroenterology practice (2–7). The prevalence is believed to be even higher in specific populations, such as irritable bowel syndrome (IBS), where prevalence rates of anorexia and bulimia are reported to be as high as 41%–66% (8). Two, EDs affect patient’s quality of life and may lead to the development of anxiety, depression, and somatization disorders (1,9). Three, EDs are associated with a variety of medical complications, some of which include the GI tract. For example, anorexia and bulimia may lead to parotid gland enlargement, dental caries, regurgitation, delayed gastric emptying, constipation, rectal prolapse, and even life-threatening electrolyte disorders (10–15).

This monograph is designed to be a primer on ED identification for the practicing gastroenterologist and hepatologist. Our goals include raising awareness of these common disorders,
educating clinicians on how to recognize maladaptive eating behaviors, and providing clinically useful tools to help clinicians identify and treat these illnesses.

### Table 1. EDs and characteristics by DSM-5

<table>
<thead>
<tr>
<th>ED</th>
<th>Clinical characteristics and recent updates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anorexia nervosa (AN)</td>
<td>Persistent energy intake restriction leading to weight loss or failure to make expected gains in weight (1). Intense fear of gaining weight or becoming fat. Because many patients do not explicitly state this fear, AN can also be diagnosed when the patient demonstrates persistent behavior that interferes with weight gain. Prominent body image disturbance, disproportionate influence of weight or shape on one’s self-image, and/or persistent lack of recognition of the seriousness of the disorder. <em>DSM-5</em> no longer requires that patients meet a specific “low weight” threshold, and instead, weight loss and underweight status is determined based on physical health consequences of low weight and an individual’s own historic weight and growth history. This change reflects research disputing the pervasive myth that those with AN appear underweight and cachectic. In fact, a growing body of literature suggests that AN affects individuals of all weight categories and body types (93). As such, low weight must be assessed in the context of one’s biological weight heritage as opposed to absolute BMI.</td>
</tr>
<tr>
<td>Avoidant/restrictive food intake disorder (ARFID)</td>
<td>A new classification under <em>DSM-5</em> describing patients who restrict their dietary intake due to concerns regarding the aversive consequences of eating (1). Distinct from picky eating: ARFID must interfere with nutrition or sufficient energy intake. For diagnostic criteria to be met, the patient must demonstrate significant weight loss, significant nutritional deficiency, dependence on enteral feeding and/or oral nutritional supplements, or marked interference with psychosocial functioning. Disturbed eating must not be explained by an external factor, such as food being unavailable or in short supply, or another physical or mental illness. The restriction and weight loss must occur in the absence of any weight or shape concerns or distorted body image.</td>
</tr>
<tr>
<td>Bulimia nervosa (BN)</td>
<td>Recurrent episodes of binge eating, defined as eating an objectively large amount of food in a discrete period (1). To qualify as a binge, the individual would need to experience a marked feeling of loss of control during the eating episode. Recurrent compensatory behaviors to prevent weight gain such as self-induced vomiting, laxative/diuretic/medication abuse, and excessive exercise or fasting. Behavior must occur at least once per week for 3 mo. Patients with BN evaluate themselves largely based on body shape or weight. Patients may be prone to underreport or hide the size or frequency of their symptoms due to shame. In addition to binge eating, fasting behavior is common in BN, leading to considerable diagnostic overlap between BN and AN binge/purge subtype.</td>
</tr>
<tr>
<td>Binge eating disorder (BED)</td>
<td>Recurrent episodes of binge eating marked by experiences of lack of control over eating (1). Someone with binge eating disorder may eat too quickly, even when he or she is not hungry. Feelings of guilt, embarrassment, or disgust may exist. Patient may binge eat alone to hide the behavior. Associated with marked distress. Occurs, on average, at least once a week over 3 mo. Many patients with binge eating disorder are overweight or obese, but the condition also affects patients who are normal weight and even underweight (110). A considerable portion of patients with BEDs demonstrates high levels of body dissatisfaction (32). BED is associated with considerable shame and is often underreported or minimized by patients (111).</td>
</tr>
</tbody>
</table>

*ED*, eating disorder; *DSM-5*, Diagnostic and Statistical Manual of Mental Disorders—Fifth Edition; *BMI*, body mass index.
OVERVIEW OF EDs

EDs are serious conditions, marked by rigid thoughts and behavior patterns that lead to disruptions in nutrition and weight. They are associated with serious and often life-threatening physical and psychological comorbidities. Consequently, they have one of the highest mortality rates of any mental illness—an estimated 20% (16). Prevalence studies of Diagnostic and Statistical Manual of Mental Disorders—Fourth Edition (DSM-IV) (17) diagnoses of AN, BN, and BEDs suggest these illnesses affect an estimated 6% of women and 2.8% of men, although these numbers are likely conservative, and fail to account for those who meet the more inclusive DSM–Fifth Edition (DSM-5) criteria (1,18). Despite common perceptions that EDs are the province of young, thin, white affluent women, it is well documented that they span across age, gender, ethnicity/race, and socioeconomic status (19–23). For details on each ED described in DSM-5, please refer to Table 1.

The pathophysiology of EDs is complex and still not well understood. However, there is evidence to suggest that caloric restriction and weight loss may trigger an ED (24,25). In fact, all EDs show some degree of restrictive eating (26), even those more commonly thought of as disorders of overeating (e.g., BEDs). There are profound similarities in both the biology and psychology of those with EDs and those who are underfed and malnourished (27). The physiological changes seen in restrictive EDs are analogous to those seen in other non–inflammation-induced states of malnutrition and starvation. Independent of the cause, restrictive eating and starvation leads individuals to develop many of the cognitions and behaviors characteristic of EDs, including preoccupation with food, irritability, anxiety, loss of appetite, and anhedonia with eating (24,27,28).

In addition to restrictive eating as a catalyst for the development of an ED, there is a large body of literature identifying specific risk factors. Temporal and psychological characteristics such as high levels of anxiety and harm avoidance (29), perfectionism (30), deficits in emotion regulation (31), and body dissatisfaction (32,33) are believed to place individuals at risk. There is also strong evidence to suggest that individuals with EDs share a genetic predisposition (34). Experiences such as weight stigma or weight-related teasing that predispose individuals to restrictive eating also confer risk (35). Finally, there is a large body of literature on neurobiological characteristics of EDs including dysregulation of the hypothalamic-pituitary-adrenal axis, catecholamine disturbances (36,37), as well as brain-based dysfunction in the insular cortex and reward pathways that are associated with EDs (38).

CLINICAL FEATURES OF EDs

Symptoms, physical examination findings and diagnostic clues vary among the different EDs. Clinical features of AN include poor sleep, low libido, hypothermia, bradycardia, hypotension, xerostomia, hypoactive bowel sounds, lanugo hair growth, ankle and periorbital edema, mitral valve prolapse murmur, and yellow palms from hypercarotenemia (39–42). Secondary amenorrhea is a common feature of AN, however no longer part of the diagnostic criteria (43). Laboratory, imaging, and electrocardiogram findings include QTc prolongation, hypoaalbuminemia, hypophosphatemia, metabolic alkalosis, elevated international normalized ratio, low bone density, and elevated liver function tests (40,44–46).

BN can be accompanied by nonsuicidal self-injuries—such as skin cutting or picking, substance abuse, depressive disorders, and posttraumatic stress disorders; tobacco use is more common in BN than in the general population (47). Diabetes, menstrual irregularities, dental enamel erosion and gum disease, and cardiomyopathy induced by Ipepecac syrup can occur in BN; scarring or calluses on the dorsum of the hand are pathognomonic for BN (Russell’s sign) (48–50). Laboratory findings can include hypokalemia, hypochloremia, metabolic alkalosis, and hyponatremia (51). GI symptoms and diagnosis of BN include salivary gland hypertrophy, loss of gag reflex, laryngopharyngeal reflux, gastrosophageal reflux disease and Barrett’s esophagus, Mallory-Weiss syndrome, esophageal dysmotility, hypokalemic ileus, melanosomes coli, and rectal prolapse (11,48,49,52,53).

Besides low body mass index (BMI), no specific physical examination findings have been described for ARFID thus far, but signs of malnutrition and different micronutrient deficiencies can be expected varying on the patients’ restrictive habits (54,55). Low bone mineral density and poor growth in children/adolescents can be found, and anxiety disorders are common (1,54,55).

In addition to common comorbid psychopathology including personality disorders (56), patients with BEDs are at risk of developing chronic pain syndromes, hypertension, and diabetes (57). Patients with BEDs usually have associated obesity (57).

RELATIONSHIP BETWEEN EDs AND GI DIAGNOSIS

A recent study performed at a tertiary center found a prevalence of 19% of clinically significant disordered eating among patients presenting with chronic constipation (58). Compared with healthy controls, patients with GI disease show significantly lower caloric intake and evidence of malnutrition (59,60).

There is sufficient evidence that the relationship between EDs and GI disorders is bidirectional (Figure 1). A review of studies on diet-controlled chronic illnesses (i.e., celiac disease, diabetes mellitus, cystic fibrosis, and inflammatory bowel disease) found that, compared with the general population, individuals with these conditions have a higher risk of disordered eating and EDs (61). Similarly, a recent systematic review on disordered eating in diet-treated pediatric chronic illness found that these conditions were associated with the development of disordered eating and disordered eating was associated with poor physical and psychological health (62). This study also found that in those patients with comorbid EDs, the onset of the chronic illness preceded the development of the ED, suggesting that dietary management increases the risk of disordered eating practices. As such, it is to be expected that the prevalence of disordered eating and EDs in patients with GI disease is high, ranging from 5.3% to 44.4% (6).

In a population-based study, underweight individuals were more likely to report nausea and early postprandial fullness when compared with individuals with normal weight or higher than normal weight (63). Similarly, fundic disaccommodation and early satiety have been linked to weight loss (64). For patients with AN and gastroparesis, delayed gastric emptying seems to improve substantially with weight restoration (65). Constipation is also a common symptom among patients with AN (66), and its relationship in this context with the microbiome is still unclear (67). Interestingly, despite patients’ complaints of severe constipation, for most patients, both anorectal manometry and colonic transit are normal or promptly return to normal once weight is restored (66). In these situations, the constipation may represent a more complex psychosocial issue, given patients’ perception of what would be an adequate frequency and/or volume of stools per day, associated with insufficient PO intake (41).
GERD and IBS that have similar prevalence rates to AN and BN, diagnose an ED (70,71).

struction in how to take a careful dietary history to recognize and seems that the gastroenterologist disease (70). BED has been found to be present in up to 24% of colitis and more prevalent among patients with severe or active

The microbiome seems to also be affected by EDs and starvation, possibly contributing to the patient’s energy homeostasis and nutritional status, behavior and mental health, as well as GI symptoms (68,69).

**Figure 1.** Bidirectional relationship between gastrointestinal (GI) symptoms and eating disorders. GI physicians frequently recommend dietary management (i.e., elimination diets) for conditions such as eosinophilic esophagitis, irritable bowel syndrome, and celiac disease. A maladaptive response can occur in a few patients due to patient-led prolonged or extreme dietary restrictions. This can also occur from insufficient professional guidance about expectations on symptom improvement and about the timeline of restrictions once the diet is instituted. We hypothesized that the lack of longitudinal follow-up to evaluate the results of dietary intervention and to plan reintroduction of foods can also contribute to this maladaptive response. Once eating disorder is established, it can lead to several neurological changes in the enteric nervous system (ENS) (115–117), autonomous nervous system (ANS)(118), and central nervous system (CNS), which can then cause GI symptoms. Malnutrition and “starvation brain” from any etiology can put patients in a very difficult situation, where both GI symptoms and eating disorder can coexist and persist in a vicious cycle. In such situations, a multidisciplinary approach will be the best management strategy.

The American Journal of GASTROENTEROLOGY

© 2020 by The American College of Gastroenterology

APPROACHING EDs AS A GASTROENTEROLOGIST

To improve rates of detection, it is essential for gastroenterologists to familiarize themselves with the high rates of comorbidities of EDs. The prevalence and the impact of EDs in the GI clinic is summarized in Table 2. Notably, ARFID has been identified in 20% of patients attending GI clinics (7). Among patients with inflammatory bowel disease (IBD), ARFID seems to be more commonly associated with Crohn’s disease than with ulcerative colitis and more prevalent among patients with severe or active disease (70). BED has been found to be present in up to 24% of patients (18). As evidenced by the findings of pilot studies in identifying patients with EDs in gastroenterology settings, it seems that the gastroenterologist’s training lacks systematic instruction in how to take a careful dietary history to recognize and diagnose an ED (70,71).

Although GI physicians routinely assess for conditions such as GERD and IBS that have similar prevalence rates to AN and BN, as well as conditions such as celiac disease and IBD which are much more rare in the population than EDs, the routine screening for EDs and disordered eating is generally not part of a standard history and physical examination.

Unfortunately, ED assessment measures, which typically focus on intentional restrictive eating, fear of weight gain, and body image concerns, underestimate the incidence of EDs in a gastroenterology population. Because these patients often underreport weight and shape concerns and are preoccupied with physical consequences of eating, tools for identifying classic EDs such as AN or BN have low specificity in identifying EDs in this population (72).

Because of this challenge, along with the tendency for ED symptoms to be ego syntonic and for patients to claim uncertainty about the cause of weight loss, it can be helpful to examine how these patients respond to recommendations for high calorie diets for weight restoration (73). More specifically, in situations where it is unclear whether the patient has an ED, a behavioral assessment can be helpful to clarify. This assessment involves educating the patient about the consequences of restrictive eating for management of GI disease and the need for aggressive refeeding and weight restoration. Providers should advise patients to eat despite pain or lack of hunger to regulate GI function and normalize weight within a healthy range (74). For patients who are concerned that eating will be uncomfortable or painful, eating despite pain may be described as similar to other medical interventions that have adverse side effects and are challenging to tolerate (75). To assess progress, providers should follow-up with patients to support and evaluate their progress. On follow-up, a lack of improvement in eating and/or weight suggests a referral to an ED specialist for further assessment is likely necessary.

Another challenge faced by clinicians is learning how to ask the right question(s) to identify an ED. Similar to other specialties, using the correct vocabulary is essential to obtain an accurate history and make the correct diagnosis. Questions should start simply and begin in an open-ended manner. Some screening tools (76–78) also recommend using a direct line of questioning to identify an ED. We should point out that these screening tools were not developed specifically for the GI patients, but for the general population.

Table 3 provides some suggestions on how to incorporate the investigation of EDs in standard clinic practice. For example, the question about the patient’s feelings during mealtime or when looking at food may reveal significant anxiety or fear related to meals, which can be a clue to ARFID. In addition, the questions about weight restoration can reveal the patient’s somewhat surprising unwillingness to recover the weight, even if it was lost unintentionally.

We recognize that providers are increasingly being asked to do more with less time. These questions will certainly not apply to all patients, but they should serve as a general guide for those who have not been accustomed to investigating these conditions routinely. If initial questions about changes in diet, weight loss, or issues with body image or exercise are negative, then more focused questions are not required. As well, to make the office visit efficient, many of these questions can be posed while performing the physical examination. As an example, if a patient is noted to have supravacicular wasting or loss of muscle mass in the hands or temporal region, then appropriate questions can be initiated with a remark to the patient that “it appears you have lost some
Although some patients with conditions such as celiac disease require lifelong dietary modifications for disease management, other conditions such as IBS may involve a process of elimination and reintroduction of foods with recommendations to eliminate foods from their diet that seem to trigger symptoms (79). Although dietary modifications may be essential for optimizing health outcomes and managing disease, they can also increase a patient’s risk of disordered eating and a full syndrome ED (6,61,62) (Figure 1).

In light of the overlap between GI disease, dietary management, and ED risk, it is important to recommend dietary management only when appropriate as maladaptive responses could lead to an ED. For those whose disease management depends on dietary restriction of specific foods (i.e., celiac disease), providers should follow these patients closely, helping them to adhere to the regimen but also support dietary flexibility. Patients may benefit from meeting with a dietician to help them find ways to expand their dietary repertoire in the context of food restrictions and ensure that food elimination does not limit social functioning. For patients with food sensitivities (i.e., gluten intolerance), if eliminating foods does not improve symptoms or increase functioning, these eliminations should be discontinued. If the patient is unable or unwilling to reintroduce foods back into their diet despite specific coaching to do so, an ED should be considered.

### MYTHS AND MISCONCEPTIONS

Identifying and treating EDs can be complicated in part because a number of popular myths and misconceptions have distorted our perceptions about the epidemiology and impact of these disorders. In the following section, we list some of the most common misconceptions and then provide accurate data that can be used to help assist the evaluation of patients in the gastroenterology clinic.

#### EDs are rare

In actuality, up to 30 million Americans suffer from an ED at some point in their life (18). One study found that up to 13% of girls had suffered an ED by age 20 (80), while another found that 13% of women older than 50 years engage in ED behaviors (81). A large population-based study found that 57% of female and 33% of male adolescents reported using unhealthy weight control behaviors including fasting and smoking for weight control (82). These subsyndromal behaviors should be taken seriously, as studies suggest comparable rates of mortality and morbidity for subclinical EDs as compared to full spectrum disorders (83,84). EDs are present throughout all levels of society and do not discriminate based on gender, race, or ethnic groups (85,86).

#### EDs only occur in women

It is estimated that approximately 25%–33% of people with an ED are men (18). That translates into approximately 10 million men who may suffer from an ED during their lifetime. It is estimated that approximately 25% of patients with AN or BN and 36% of those with BEDs are men (18). The lifetime prevalence for BEDs in men is estimated to be 2% (18). A large study (n = 2,822) of university students that used an ED screening questionnaire found the female-to-male ratio of EDs in this study was 3:1 (87). Interestingly, during a 10-year period (1999–2009), the number of men hospitalized for an ED-related cause increased by 53% (88). Finally, pediatric studies of the prevalence of ARFID suggest that this disorder is equally distributed among genders, maybe with a slight predominance of men, with 1 small study finding that as many as 67% of those diagnosed are male (89,90).

### DETERMINANTS OF GI DISEASE AND DIETARY MODIFICATIONS

<table>
<thead>
<tr>
<th>GI Practice</th>
<th>Relevance of EDs in the GI practice</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General GI practice</strong></td>
<td>ED prevalence up to 24% (6)</td>
</tr>
<tr>
<td>ARFID as prevalent as 20% in adult patients with functional GI disorders (7)</td>
<td></td>
</tr>
<tr>
<td>Malnutrition and low BMI independently associated with several GI complaints and diagnosis, particularly motility disorders such as gastroparesis and constipation (63–66)</td>
<td></td>
</tr>
<tr>
<td><strong>IBD population</strong></td>
<td>ARFID prevalence 10%, more common in Crohn’s vs ulcerative colitis</td>
</tr>
<tr>
<td>More likely to be present if severe disease (70)</td>
<td></td>
</tr>
<tr>
<td>ED prevalence up to 24% of patients with IBD (71)</td>
<td></td>
</tr>
<tr>
<td>Association of IBD and EDs carry poor prognosis given frequent corticosteroid refusal and deliberate medication abandonment to achieve exacerbation of IBD in weight loss efforts (112)</td>
<td></td>
</tr>
<tr>
<td><strong>Crohn’s disease</strong></td>
<td>In-hospital mortality grows 10-fold if anorexia nervosa is present (96)</td>
</tr>
<tr>
<td><strong>IBS</strong></td>
<td>Prevalence of IBS in patients with AN and BN as high as 66% (8)</td>
</tr>
<tr>
<td>Patients with IBS have more chances of having EDs when compared with healthy adults (odds ratio 5.3) (113)</td>
<td></td>
</tr>
<tr>
<td>No particular subtype of IBS is at higher risk of EDs (113)</td>
<td></td>
</tr>
<tr>
<td><strong>Gastroparesis</strong></td>
<td>If comorbid AN, improvement in nutritional status substantially improves gastric emptying (65)</td>
</tr>
<tr>
<td><strong>Microbiome</strong></td>
<td>Microbiome is affected by starvation and EDs; unclear clinical consequences (67–69)</td>
</tr>
<tr>
<td><strong>Chronic constipation</strong></td>
<td>19% of patients had concomitant disordered eating (58)</td>
</tr>
<tr>
<td>If AN present, constipation and defecatory issues improve with weight restoration (66).</td>
<td></td>
</tr>
<tr>
<td><strong>Celiac disease</strong></td>
<td>Diet-controlled illnesses (i.e., diabetes and celiac disease) at higher risk of developing EDs (61,62)</td>
</tr>
<tr>
<td>In addition to expected restrictive behaviors, patients with celiac disease can develop BEDs (114).</td>
<td></td>
</tr>
</tbody>
</table>

**Table 2. Relevance of EDs in the GI practice**

AN, anorexia nervosa; ARFID, avoidant/restrictive food intake disorder; BED, binge ED; BMI, body mass index; BN, bulimia nervosa; ED, eating disorder; GI, gastrointestinal; IBD, inflammatory bowel disease; IBS, irritable bowel syndrome.
EDs are not medically serious
EDs should not be disregarded as medically insignificant because they have the second highest mortality rate of all mental health disorders, surpassed only by opioid addiction (94). AN has the highest mortality rate of any psychiatric disorder. Young women with AN are 10–12 times more likely to die from the illness than any other cause of death. It is estimated that 10%–20% of patients with chronic severe AN will die to complications of their anorexia (3,95). In a large database analysis of hospitalized patients with Crohn’s disease, the mortality is almost 10 times higher if AN is present (96). In addition, EDs have extremely high morbidity and are associated with a wide range of physical comorbidities that affect every organ system in the body, as well as a high degree of psychosocial impairment and psychiatric consequences that can be lifelong, even after recovery (97).

EDs are untreatable
Fortunately, this is not true. Treatments are available and full recovery can occur, particularly in cases where the ED is identified early, and treatment is evidence-based (98). However, evidence-based treatments can be labor-intensive, require a multimodal approach, and take considerable time (99). Recovery can be expected in approximately 40% of adults, and a higher percentage of success can be found in adolescents (100). Early identification—within the first 3 years of symptom onset—and a multidisciplinary approach have been identified as independent factors for ED recovery (101,102). Of note, a pilot study with video therapy in Scotland has shown good results and high levels of patient satisfaction. This is especially relevant now because telehealth visits are spreading beyond rural and remote areas (103).

TREATMENT OF EDs IN A GASTROENTEROLOGY SETTING
Historically, conservative refeeding protocols for nutritional and weight restoration, starting patients on low calorie diets and advancing the calories slowly to prevent refeeding syndrome, have been recommended. However, recent studies have found significant benefit to a more aggressive feeding regimen, with studies finding few incidents of refeeding syndrome, shorter hospitalizations, and fewer complications (104,105). Patients who are unable to eat independently may require alimentation to increase calories and weight. In critically ill patients who are unable to eat independently and require inpatient outcomes for these patients. With the shift to the DSM-5 diagnostic standards for AN, the field of ED specialists did away with the absolute weight criterion that BMI must be below 18.5 because of the understanding that patients can present with life-threatening AN at any BMI. A diagnosis of AN is contingent on a patient losing weight/failing to make expected weight gains based on their personal growth history, as opposed to a population-based norm. That means that patients with AN can present at a normal or even higher than average BMI. In fact, 1 study of 179 adolescents with AN found 36.7% had premorbid BMI percentile in the overweight or obese range, and these adolescents went twice as long as patients without premorbid overweight/obesity for their EDs to be detected (93). Similarly, a study of patients with IBD in an academic medical center found that, compared with IBD patients without a comorbid ED, those with a comorbid ED presented at a higher BMI (71).

EDs do not develop in children or older patients
Many patients and health care providers believe that EDs only affect teenage or young adult women. As mentioned in previous text, this is incorrect. A number of studies have demonstrated that EDs can affect patients at all ages, including young children and patients older than 50 years. For example, a longitudinal study of young girls in the community found that the incidence of EDs was increasing in the 6- to 12-year-old age range, with at least 12% experiencing some form of an ED (91). On the other end of the age spectrum, as previously mentioned, 13% of women older than 50 years engage in ED behaviors (81), with a growing awareness that these illnesses are not uncommon in patients in the geriatric population as well (92).

Only very thin people can have an ED
The misperception that a patient needs to be visibly thin to have an ED likely contributes the most to delayed detection and poor
ED treatment, alimentation through a nasogastric tube may initially be required to increase calories and weight. In this effort, it is important to recognize the high caloric demands of these patients. Inappropriately low caloric recommendations are common and are shown to interfere with recovery even when the patient is compliant with oral recommendations or on alimentation. Although patients with AN are hypometabolic when in a starved state, with refeeding, they quickly become hypermetabolic (6,104,105). It is also important to note that the use of enteral alimentation should be a temporary measure, so not to impede the psychological recovery efforts to overcome maladaptive eating behaviors. Consequently, aggressive high caloric diets for weight restoration and maintenance should be considered.

In some cases, pharmacotherapy may be part of the therapeutic strategy. Medication, particularly high-dose fluoxetine, is considered an adjunct treatment for BN and BEDs; medications have been shown to reduce binge eating in the short term, but long-term efficacy has not been established (106). For AN, medications have not been found to be effective at increasing weight or improving its core symptoms. However, they may be helpful for comorbid symptoms of anxiety or depression (107,108). At this time, controlled trials of pharmacotherapy for symptoms of ARFID are limited (109). Psychotropic medications will be best recommended by the psychiatrist in the multidisciplinary team.

Given the complexity of these diseases and the high rates of physical comorbidities, a multidisciplinary approach to treatment should be pursued (102). Mental health professionals, specifically psychiatrists specialized in EDs, usually coordinate other clinicians (general practitioners, dietitians, and mental health counselors) in the diagnosis, and management of these conditions and psychotherapy remains extremely important for all EDs.

CONCLUSION
EDs are serious conditions that are prevalent in patients with GI disease. Both intentional and unintentional weight loss associated with GI symptoms may begin the cascade of physiological and psychological changes characteristic of an ED. The gastroenterologist is in a unique position to assess weight loss, malnutrition, and EDs, manage complications, and attempt to normalize eating and weight.

CONFLICTS OF INTEREST
Guarantor of the article: Monia E. Werlang, MD.
Specific author contributions: All authors contributed to the development of this manuscript, including outline, content writing, and editing.
Financial support: None to report.
Potential competing interests: None to report.

REFERENCES
74

REVIEW ARTICLE


107. Attia E. In the clinic. Eating disorders. Ann Intern Med 2012;156(7):IITC4-1, IITC4-2, IITC4-3, IITC4-4, IITC4-5, IITC4-6, IITC4-7, IITC4-8, IITC4-9, IITC4-10, IITC4-11, IITC4-12, IITC4-13, IITC4-14, IITC4-15, quiz IITC4-16.


