



Review

A Narrative Review on Eating Disorders and Disordered Eating in Inflammatory Bowel Diseases: Need for Increased Awareness

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Abstract: Recent evidence suggests a link between Inflammatory Bowel Disease (IBD) and eating disorders, an emerging complex bidirectional association. Indeed, the overlap of symptoms and signs can lead to delayed diagnosis and misdiagnosis of both conditions, but also the fear of food-induced symptoms, commonly observed in patients with IBD, determines dietary restrictions which in predisposed individuals may induce an overt eating disorder. ARFID (Avoidant Restrictive Food Intake Disorder) and anorexia nervosa are the eating disorders more frequently reported, while disordered eating and orthorexia nervosa are emerging conditions. Disease worsening due to refusal of therapies in patients with anorexia is also a matter of concern and an increased awareness of the possible association of these conditions by gastroenterologists and dietitians is strongly warranted in order for patients to receive the appropriate counseling.

Keywords: inflammatory bowel disease; eating disorder; disordered eating; food restriction; orthorexia



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1. Introduction

Patients with Inflammatory Bowel Disease (IBD), namely, Crohn's disease (CD) and ulcerative colitis (UC), have a complex relationship with diet [1–7]: they often ask their doctor what they can eat and, if they do not receive a clear answer, adopt a restrictive approach regarding many foods that they consider harmful, such as milk, fruits and vegetables, spicy foods, and fried foods.

Restrictions are so many that they can sometimes cause severe nutritional deficiencies and have a negative impact on quality of life and lifestyle.

Specific diets such as the gluten-free or lactose-free diet are often followed; even though the gluten-free diet is indicated exclusively in celiac disease or “gluten sensitivity”, it has been observed that gluten can exacerbate gastrointestinal symptoms such as bloating, abdominal pain, and diarrhea even in patients without gluten-related diseases. These observations have led to the increased use of gluten-free products in IBD patients [6]. In addition, patients with IBD often follow a “dairy-free” diet. In many cases, patients have no lactose intolerance or milk protein allergy, but milk and dairy products are still eliminated from the diet. In some cases, this type of diet is recommended by the treating physician (usually in the flare-up stages in the hypothesis of lactase deficiency induced by mucosal damage), in other cases it is the patient himself who makes this decision (e.g., after consulting specific publications or the web), while in other cases milk and dairy products are avoided because they are perceived as foods that cause the worsening of symptoms. Indeed, dairy products are very often found on the top of the list of restricted foods [7].

Recently, our group conducted a survey [1] on the perception of the role of food in exacerbating IBD in a sample of 167 patients attending our IBD clinic (83 patients on conventional therapies and 84 patients on biologics were interviewed) and the list of perceived food “triggers” is reported in Table 1.

Table 1. Foods avoided by IBD patients because they are perceived as “triggers” of symptoms of the disease: a study of 167 patients from the Mediterranean area [1].

Foods Avoided	Rate
Spicy foods	82 (49.1%)
Seasoned foods	64 (38.3%)
Fried foods	48 (28.7%)
Carbonated drinks	50 (29.9%)
Milk and dairy products	57 (34.1%)
Energy drinks	12 (7.2%)
Alcoholic drinks	31 (18.6%)
Pork meat	11 (6.6%)
Processed meat	11 (6.6%)
Vegetables	47 (28.1%)
Fruit	27 (16.2%)
Legumes	32 (19.2%)
Whole grain bread	22 (13.2%)
Bread	8 (4.8%)
Eggs	4 (2.4%)
Rice	3 (1.8%)
Chicken	1 (0.6%)
Pasta	2 (1.2%)
Fish	1 (0.6%)
Coffee	21 (12.6%)
Refined sugars (sweets)	15 (9%)

Our results are comparable with those reported in other studies [2–7]. Most patients, while not considering diet as a cause of the disease, decide to change their diet after diagnosis, often not upon the doctor’s advice. Other studies have also shown that many IBD patients report a change in food habits: they take much longer to read food labels, prepare their own meals, giving up to take-away meals, and very often cook separately for themselves and other family members. Many develop feelings of anxiety and frustration related to the fact that eating out could lead to consuming foods that could trigger symptoms of the disease and lead to the need to use toilets, which are not always accessible. When possible, many patients apply for smart working from home because this reduces their anxiety and allows them to eat more peacefully without skipping meals. In fact, many patients feel uncomfortable at work because of their eating habits and prefer to avoid eating in public. Several patients also report declining outings with friends, colleagues, or family members. Many patients plan their daily activities, but the sense of frustration related to food choices contributes to stress and anxiety, and many feel they are living a life full of limitations and restrictions [3].

Dietary beliefs are strongly associated with anxiety and depression, whose prevalence is reported in IBD to be higher than in the general population, and they lead to a lower quality of life; moreover, patients who are anxious or have mood alterations also have worsening of symptoms and respond less well to treatment. Data on the prevalence of anxiety and depression in IBD are confirmed in two large systematic reviews. Neuendorf et al. [8] conducted a meta-analysis where they evaluated the prevalence of anxiety–depressive symptoms in patients with IBD, looking for correlations with the type of IBD and disease activity. According to this review, about 15% of IBD patients have depression, with the prevalence being higher in patients with an active disease as compared to those in remission (40.7% versus 16.5%). In addition, about 20% of IBD patients suffer from anxiety and the prevalence of this disorder is three to four times higher than in the general population. The prevalence of phobias in IBD patients is 7.4%, which is also higher than in the general population. Dubinsky et al. [9] also underline how anxiety and depression not only impact quality of life but also increase healthcare utilization and the caregiver burden. There is a need for mental health integration in IBD care settings, and the psychological impact of IBD must be considered when treating these patients. Indeed, Spagnuolo et al. have

analyzed psychometric tools used for PROMs, evaluating anxiety and depression in IBD, including in the remission phase, and suggest that these tools should be part of a holistic IBD care approach and can be eventually used also by the nursing staff [10–12].

Whether mood disorders and the erroneous perception of the role of food and the consequent restrictions in IBD can lead to conventional eating disorders (ED, i.e., “eating disorders”) is the subject of this review.

2. Literature Review

We retrieved all the full papers in the English language found in PubMed by using the following keywords: “eating disorders”, “anorexia nervosa”, “orthorexia”, “ARFID” AND “inflammatory bowel disease”, “Crohn’s disease”, “ulcerative colitis”. Congress abstracts and case reports were excluded.

Paniz et al. [13], in a recent review, report that there has been increased attention in the literature and social media to ED and their increased prevalence both in the general population and in patients with chronic digestive diseases, such as CD and UC. What is more, the diagnosis of ED, particularly anorexia nervosa, seems to be related to an increased risk of developing chronic inflammatory and immune-mediated diseases, with a prevalence ranging from 5.3% to 44.4%. These patients have been seen to have a lower quality of life, greater comorbidities, and a higher mortality rate than the general population. The exact causes of the development of ED are not yet known, but several factors might be involved, including genetic factors, psychological factors, and social influences related to the family, school, or even work context. These conditions can result in nutritional deficits, reduced effectiveness of therapies, and severe worsening of quality of life and disease prognosis.

A Spanish group, Ilzarbe et al. [14], in 2017 were the first researchers to give attention to the association between IBD and ED: they conducted a systematic review of published cases, finding 219 cases of patients with IBD and ED, namely, anorexia nervosa, bulimia nervosa, and unspecified eating disorders (EDNOS), as defined according to the criteria of the DSM-5, the 5th edition of the manual that classifies mental disorders (Table 2). A significant association between CD and anorexia nervosa has been found, especially in young women (10–44 years). This association is related to fear of abdominal discomfort from eating food; the refusal of corticosteroids, which often leads to changes in body shape, such as acne, moon face, oedema, and skin striae, triggering restrictive behaviors in order to avoid these modifications in their appearance; and the arbitrary discontinuation of therapies, in the belief that the active disease helps them to lose weight. These behaviors have a negative impact on CD prognosis. It is still unclear whether IBD leads to the development of ED, or vice versa. The authors conclude that this comorbidity must be identified early, because delayed diagnosis may lead to a worsening of the prognosis, and that a multidisciplinary approach is fundamental to provide an adequate therapeutic intervention. Appropriate questionnaires for diagnosis are also recommended, in order to recognize this condition early. In addition, the combination of CD and anorexia nervosa may also be a source of misdiagnosis or delayed diagnosis of IBD, given the coexistence of similar symptoms and signs (Table 3).

Larsen et al. [15] evaluated the association between anorexia nervosa and IBD and assessed whether there are genetic correlations that can help in making an early diagnosis and understanding the common etiological mechanisms underlying these diseases. They led their analysis on a population study that had the Danish population-based registry as its source. They reported that having a diagnosis of anorexia nervosa is associated with a greater risk of having a subsequent diagnosis of IBD, while the opposite has not been demonstrated. At the basis of this association, there are no genetic factors but different pathogenetic factors: the altered relationship with food with excessive attention to the food consumed, self-induced vomiting, and laxative misuse that can lead to atypical intestinal microbiota and lower microbial diversity. These behaviors can result in an altered immune response and a persistent state of intestinal inflammation. Larsen et al. also found a correlation between prior depression and later IBD; in this case, the association is related

to increased cortisol levels and reduced sensitivity of the glucocorticoid receptors, which may increase the inflammatory response and the risk of IBD. Because of the overlap of symptoms between anorexia nervosa and IBD, it is important to make a proper differential diagnosis to understand when the lack of appetite, diarrhea, or weight loss is a consequence of anorexia or an underlying IBD.

Table 2. Classification of nutrition and eating disorders according to the DSM*–5 (<https://www.salute.gov.it/portale/saluteMentale/homeSaluteMentale.jsp>, accessed on 4 December 2022).

Type of Eating Disorder	Presenting Features
Anorexia nervosa	Restriction of food intake relative to the requirement that induces a significantly lower weight (lower than the normal minimum) relative to age, sex, developmental evolution, and physical health
Bulimia Nervosa	Recurrent episodes of binge eating with (a) eating in a certain period a significantly greater amount of food than most individuals and (b) the feeling of losing control during the episode
Binge Eating Disorders	Recurrent episodes of binge eating
Avoidant/Restrictive Disorder of Food Intake (Orthorexia, Reverse Anorexia)	Lack of interest in food/avoidance based on the sensory characteristics of the food that manifests as a persistent inability to take an adequate nutritional intake
Rumination disorder	Repeated regurgitation of food for at least a month
Pica	Persistent ingestion of nonfood substances for at least one month
Other specific nutrition and eating disorders (e.g., Night Eating Syndrome)	Atypical anorexia nervosa Atypical Bulimia Nervosa Low-frequency Binge Eating Purgative disorder (i.e., abuse of laxatives or diuretics and self-induced vomiting) Recurrent episodes of night feeding
Unspecified nutrition and eating disorders	

* Diagnostic and Statistical Manual of Mental Disorders.

Yelencich et al. [16] published a study in which they describe another type of eating disorder, the “Avoidant Restrictive Food Intake Disorder (ARFID)”, more recently included in the DSM-5 and thus less well known, though diagnostic criteria are well described (Figure 1).

- A.** An eating or feeding disorder (e.g., an apparent lack of interest in food or eating; avoidance of foods because of their sensory characteristics; concern about the consequence of eating), which manifests as an inability to get adequate nutrients and/or energy into the body with food and links to at least one of the following:
1. Significant weight loss (or lack of expected weight gain or growth in children);
 2. Significant nutritional deficiencies;
 3. Dependence on enteral feeding or oral food supplements;
 4. Disturbances in psychosocial functioning.
- B.** The disorder cannot be explained by a lack of food availability or cultural and religious reasons/practices.
- C.** This disorder does not occur exclusively in the course of anorexia nervosa or bulimia nervosa and is not the result of abnormalities in the experience of body weight and shape.
- D.** This disorder cannot be explained by the current state of health or other co-occurring mental disorders.

Figure 1. Diagnostic criteria for ARFID according to DSM-5.

Table 3. Similarities and differences between clinical presentation of inflammatory bowel disease (IBD) and ED (adapted from [14]).

		IBD	ED	
Epidemiology	Female: male	No differences	Higher in female (5:1 to 10:1)	
Common signs and symptoms	Age of highest incidence	CD or UC: 20–230 years	Anorexia: 15–19 y/o Bulimia: 20–24 y/o	
	Diarrhea	Due to inflammation	Related to laxative abuse	
	Nausea and vomiting	Due to inflammation or stenosis	It could be self-induced	
	Reduced appetite	Secondary to disease activity and fear of abdominal pain and cramping	It can be present in anorexia	
	Weight loss and malnutrition (dehydration, anemia, fatigue, and amenorrhea in women)	Due to inflammation, malabsorption, and reduced food intake	Due to reduced food intake	
	Postprandial symptoms		Bloating	Feeling of fullness, bloating
			Abdominal pain	Post-prandial pain
Differential signs and symptoms	Constipation	Due to stenosis (can lead to bowel obstruction)		
		Fever Blood in stool Fistula Tenesmus Fear of abdominal discomfort from eating food	Due to low food intake Body image distortion Fear of gaining weight	

They recruited patients referred to the University of California Los Angeles (UCLA) center for IBD, and, to assess the ARFID risk, an ad hoc questionnaire, the Nine-Item ARFID Screen, was used [17]. The disorder was common in patients with IBD (28 patients out of 161, i.e., 17% of consecutive patients recruited in the referral center), especially in patients with the active disease, who generally avoid one or more food types to relieve symptoms and to control the disease activity, but it should be noted that patients avoided foods even in the remission phase, because they were afraid of relapsing. Indeed, alimentary self-restrictions, even in the remission phase, in particular for fibers, have been previously reported also by Principi et al. [18], who hypothesize that dietary changes do not parallel with disease activity and clinical symptoms but more often are related to psychological issues.

In the study by Yelencich, participants with active symptoms and inflammation were significantly more likely to screen positive for ARFID risk, and participants who screened positive for ARFID risk were significantly more likely to be at risk of malnutrition. Indeed, an unsupervised and independent control of the disease through the diet can lead to the risk of developing restrictive eating behaviors that can result in deficient nutritional intake and an increased risk of malnutrition (60.7% ARFID positive scores are malnourished versus 15.8% with a negative score). In addition, malnourished patients are at a higher risk of nonelective surgeries, hospitalizations, longer lengths of stay, mortality, and active flares. ARFID is also associated with anxiety disorders and gastrointestinal complications, and an early diagnosis can guide treatment and prevent these types of complication. ARFID in IBD patients has been explored also in another study by Robelin et al. [19], conducted at the Mayo Clinic, that reported a prevalence of 10.2% in a cohort of 98 patients: 40% of patients with ARFID had a severe disease compared with 3.3% of patients without ARFID, showing that patients with a more severe disease are more likely to suffer from ARFID. They used the Nine-Item Avoidant/Restrictive Food Intake Disorder Screen (NIAS), a questionnaire used to identify ARFID-associated eating behaviors. The providers were then

asked to judge if the patients were at risk of developing an eating disorder or not. Providers' awareness (treating physicians and nurses) was low, suggesting the need of educating gastroenterology clinicians to identify and screen at-risk patients. Lack of awareness means lack of proper and timely diagnosis and management. In fact, there is an overlap between symptoms of IBD and ARFID, which can lead to considering all the symptoms experienced from the patient as IBD activity, without considering other conditions which may coexist with IBD. Furthermore, given that in the literature there is not a clear consensus about dietary programs for patients with IBD, they often adopt an avoidant behavior towards those foods correlated with a relapse of the symptoms.

Wabich et al. [20] conducted a study analyzing the prevalence of ED in patients with IBD using the EAT-26 questionnaire [21] and found that approximately 13% of patients tested positive for ED, and that subclinical disordered eating behaviors and beliefs were common between patients. Restrictive diets are a significant risk factor for the onset of disordered eating, including eating disorders themselves. A high score was found especially in women, underweight patients, and patients with a diagnosis in childhood, psychological distress, or a body image disorder, which should lead the clinicians to be more cautious when suggesting restrictive diets to IBD patients, without screening for disordered eating behaviors and attitudes. IBD patients, in fact, share many characteristics identified as risk factors for eating disorders.

David et al. [22] analyzed the prevalence of ED and inappropriate food behaviors in adolescents with IBD. Adolescents with IBD have a higher risk of experiencing a worsening quality of life due to symptoms of the disease, changes in their bodies, dietary restrictions, and side effects from medical treatment or after surgery, than their healthy peers. One third of the participants reported body image disorders and more than 10% an eating disorder. The analysis also showed that ED are more frequent in anxious patients and in patients with a long-standing disease. Unfortunately, there are no screening tests for ED in a pediatric IBD population and often there is no adequate psychological support. Appropriate screening tests and increased psychological support could help to identify and treat eating disorders in IBD patients.

Hedman et al. [23] analyzed the relationship between autoimmune diseases and ED by finding a two-way relationship between the two conditions in women (autoimmune diseases, including celiac disease and CD, increase the risk of developing anorexia, bulimia, and other disorders, and vice versa) but not in men. There seems to be a common mechanism underlying these alterations such as a dysregulation of the immune system, or a common genetic vulnerability or a third mechanism, such as changes in diet, or the effect of drugs related to autoimmune diseases that cause appetite disorders. It is therefore important to assess the development of autoimmune diseases in patients with ED.

Kuznicki et al. [24] evaluated alcohol and drug abuse as well as the development of ED in patients with IBD. IBD is associated with a reduced quality of life and a risk of developing anxiety and depression, which can lead to a greater susceptibility to certain types of addiction and a higher risk of developing ED than in the general population (24.3% vs. 2.7%). In contrast, autoimmune diseases including IBD have a higher prevalence in patients with ED than in the general population (for CD, 1.1% vs. 0.4%, and for UC, 1% vs. 0.7%). The data on alcohol consumption are conflicting: most patients with IBD avoid it because it is considered a trigger for the worsening of the disease symptoms. In fact, it is reported as one of the most commonly avoided dietary component, together with spicy and fatty foods, carbonated drinks, red meat, and raw fruit and vegetables. In addition, chronic alcoholic drinking impacts the transit time in the gut, leading to diarrhea and consequently malnutrition, common conditions in IBD patients. In some studies, however, it has been found that patients with IBD, because of the higher incidence of psychiatric disorders, consume more alcohol and are more easily addicted than the general population. As for cannabinoids, these have shown a subjective improvement on gastrointestinal symptoms and are often used by patients with IBD for therapeutic purposes, although recent studies

have not confirmed a positive role of cannabinoids for objective outcomes such as remission or mucosal healing.

Recently, the perception of eating problems in chronic diseases, such as type one diabetes [25], has changed and two groups of eating behavior have been described: the first includes the diagnosed ED according to the DSM-5, while the second is the group of disordered eating symptoms (DES), which include behaviors such as dieting for weight loss, binge eating, self-induced vomiting, excessive exercise, and laxative or diuretic use. These types of behavior cannot be categorized as complete diseases, and although apparently mild, they must be closely evaluated because they can evolve into true ED. Disordered eating has been reported also in IBD.

Wardle et al. [26] described disordered eating especially binge eating and decreased control of cravings in patients with active CD, finding a relationship with lower mood and higher anxiety and suggesting a stronger psychological support with firm dietetic advice for healthy eating.

A study [27] utilizing the EAT-26 to evaluate eating attitudes in women with celiac disease, IBD, type two diabetes, and healthy controls found that 20% of patients with IBD scored above the clinical cutoff for the EAT-26. This percentage was similar to that of female patients with celiac disease (16%), but higher than those with type two diabetes (9%), and healthy controls (4%).

Our group [28] analyzed the prevalence of orthorexia, that is the pathological obsession with healthy food, a recent eating behavior not yet listed as an eating disorder in DSM-5 [19], even if could be be categorised as a variant of ARFID. Subjects with orthorexia nervosa eliminate products containing preservatives, color additives, food flavoring, pesticides, excessive fat, sugar, salt, or genetically modified food from their diets and usually prefer foods coming from ecological farming. A list of acceptable foods may be subject to individual variation, with a gradual intensification of imposed dietary restrictions and changes in lifestyle. In this study we used the Donini standardized questionnaire ORTO-15 test [29] to assess the risk of orthorexia in patients with IBD. We demonstrated a risk of orthorexia in up to 70% of subjects with IBD and that this risk was associated with the status of single and low body weight.

Orthorexia is receiving growing attention from the medical literature. Niedzielski et al. [30] conducted a literature review on the prevalence of orthorexia nervosa and diagnostic methods. They described different orthorexia diagnostic tools: Orthorexia Self-Test -BOT, the ORTO-15 questionnaire [25], Eating Habits Questionnaire-EHQ, Düsseldorf Orthorexia Scale-DOS, Teruel Orthorexia Scale-TOS, Barcelona Orthorexia Scale-BOS and Orthorexia Nervosa Inventory-ONI. Orthorexia Self-Test (BOT), developed by Bratman and Knight, is a 10-item test where it is possible to answer “yes” or “no”; each positive answer is worth one point, and a score of more than four points suggests the presence of orthorexia symptoms. Although it has not been validated, the ORTO-15 questionnaire realized by Donini et al. [23] is largely used: it is a questionnaire consisting of 15 items. Each question can be answered with “always”, “often”, “sometimes”, or “never”. Each answer has a different score (from one to four) based on how close the answer is to healthy behavior (score four) or to symptoms of orthorexia (score one). The final score is the sum of the individual points: the lower the score, the greater the risk of orthorexia. A score of 40 or less has a sensitivity of 100%, specificity of 73.6%, positive predictive value 17.6%, and negative predictive value of 100%. The use of this test is however questionable because of the high number of false positives.

Kujawowicz et al. [31] conducted a study on eating behavior and the risk of orthorexia in women with celiac disease; previous studies have shown a higher risk of ED in patients with celiac disease than in the general population, and in most cases the patients at greatest risk are young women. Their study included 123 female participants diagnosed with celiac disease and the “ORTO-15” [23] questionnaire was used to evaluate the risk of orthorexia (Table 4). The inclusion criteria were an age over 18 years, diagnosis of celiac disease, and consent to voluntary participation in the study. The duration of the disease was considered

by forming two groups: patients with celiac disease for less than 3 years (29 patients) and patients diagnosed for more than 3 years (94 patients). The authors analyzed eating habits and physical activity using questionnaires. A questionnaire with the number of meals per day, attention to calories and food composition, difficulty eating out, and ways of preparing gluten-free foods with a scale of one to five (one—does not influence much or little; five—influences a lot) was used to assess eating habits. A questionnaire with various types of sport (swimming, running, etc.) and frequency per week was used to assess the presence of physical activity. Analysis of the results showed that most participants have a normal weight (73%), the main comorbidities are lactose intolerance (23%) and Hashimoto's disease (22%), all participants are on a gluten-free diet (100%), and 87% report improved health by following a gluten-free diet. A risk of orthorexia was found in 71% of the study participants with a cut-off point of 40, but by taking the cut-off point to 35, the risk of orthorexia dropped to 32%; comparing these data with those for the general population, in which an average risk of orthorexia of 6.9% was found, it can be seen that this disorder is much more frequent not only in patients with IBD but also in those with celiac disease. In this study, the risk of orthorexia decreases with age and the risk is greater in young women.

Table 4. ORTO-15, Test for the diagnosis of orthorexia nervosa [29].

ORTO-15 Test				
	Always	Often	Sometimes	Never
1. When eating, do you pay attention to the calories of the food?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. When you go in a food shop do you feel confused?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. In the last 3 months, did the thought of food worry you?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Are your eating choices conditioned by your worry about your health status?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Is the taste of food more important than the quality when you evaluate food?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Are you willing to spend more money to have healthier food?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Does the thought about food worry you for more than three hours a day?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Do you allow yourself any eating transgressions?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Do you think your mood affects your eating behavior?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Do you think that the conviction to eat only healthy food increases self-esteem?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Do you think that eating healthy food changes your lifestyle (frequency of eating out, friends, ...)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Do you think that consuming healthy food may improve your appearance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Do you feel guilty when transgressing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Do you think that on the market there is also unhealthy food?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. At present, are you alone when having meals?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Scoring Grid for ORTO-15 Test Response				
Items	Response			
	Always	Often	Sometimes	Never
2–5–8–9	4	3	2	1
3–4–6–7–10–11–12–14–15	1	2	3	4
1–13	2	4	3	1

3. Conclusions

Medical literature suggests a relationship between IBD and ED. The mechanisms underlying this association are not yet known: genetic and environmental factors can be involved, and psychological issues and erroneous beliefs about food contribute to dietary modifications and restrictive behaviors. The role of the dietitian within the multidisciplinary team in dedicated centers is fundamental and could prevent dietary errors from turning into real ED, which have a negative impact on the prognosis. The dedicated dietitian, more than the busy clinician, should regularly perform food diaries, checking for food restrictions, measure body weight, investigate if the patient has difficulty in choosing meals and takes a long time in shopping or cooking, and whether he plays sports and how often. All of these clues can be helpful in correcting disordered eating and lead to an early diagnosis of ED. Further studies are warranted to develop strategies aimed at reducing the risk of onset of anorexia nervosa and less severe but more frequent forms such as Avoidant/Restrictive Disorder (ARFID) and orthorexia in order to prevent malnutrition and improve psychological health and disease prognosis. Table 5 reports questionnaires which could be integrated in the dedicated dietitian approach to allow a timely diagnosis in suspect patients.

Table 5. Questionnaires assessing eating disorders and their reference.

Questionnaire	Disorder Assessed	Author Reference
EAT-26 (Eating Attitude Test)	Anorexia nervosa	Garner et al. [21]
Nine-Item ARFID Screen	ARFID (Avoidant Restrictive Food Intake Disorder)	Zickgraf et al. [17]
ORTO-15 test	Orthorexia nervosa	Donini et al. [29]

Our review has an obvious limitation since it is based on narration and not on a systematic review of the literature; however, we believe it addresses a relevant and somehow neglected topic: the need of increased awareness among gastroenterologists on the prevalence of disordered eating and overt ED in patients with IBD and the need of developing appropriate skills in dealing with them in referral IBD centers.

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