



Does Gluten Avoidance in Patients with Celiac Disease Increase the Risk of Developing Eating Disorders?

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Eating disorders are serious mental health disorders typified by abnormal eating behaviors, sometimes associated with body image disturbance. As they progress, eating disorders may negatively affect physical health and psychosocial functioning. Early identification of eating disorders is essential since the institution of behavioral, nutritional, and pharmacologic therapy can lessen some their most dire consequences [PMID: 32171414].

Eating disorders can coexist with many gastroenterological conditions the rely on specific dietary modifications. One example is celiac disease (CD), which requires the consumption of a gluten-free diet (GFD) [1]. A growing body of literature suggests that strict adherence to a GFD may impact psychological health and quality-of-life, with the concern that some patients may develop disordered eating. There is high correlation between eating disorders and CD, with the pooled prevalence of an eating disorder in individuals with CD at 8.88% and the pooled prevalence of CD at 0.90% in individuals with an eating disorder, according to a recent systematic review and meta-analysis [2]. In fact, this meta-analysis also shows a bi-directional risk between anorexia nervosa and CD with a relative risk of anorexia nervosa in CD of 1.48 and a relative risk of CD in anorexia nervosa of 2.35 [2]. Nevertheless, why CD and eating disorders are related has yet to be determined.

In this issue of *Digestive Diseases and Sciences*, Gholmie et al. [3] assess the utility of the Celiac Disease Food

Attitudes and Behaviors (CD-FAB) scale [4] in identifying maladaptive attitudes and behaviors toward food in a sample of 50 adults with CD. Gholmie et al. [5] posit that both (1) distress related to weight gain after beginning a GFD and (2) increased anxiety surrounding the possibility of gluten cross-contamination could contribute to the development of eating disorder symptoms in individuals with CD. For example, individuals with CD gaining weight as a result of a GFD may experience greater body image concerns, and as a result engage in maladaptive weight control behaviors (e.g., self-induced vomiting, excessive dietary restrictions). Alternatively, individuals with CD may become exceedingly worried about the possibility of gluten cross-contamination to the extent that they avoid other non-gluten-containing foods, crossing the threshold into a non-body image-based eating disorder termed avoidant/restrictive food intake disorder (ARFID). Whereas the CD-FAB has not yet been evaluated in relation to eating disorder risk or current eating disorder symptom severity, Gholmie et al. take a key next step to understand the relationship between the CD-FAB and clinical characteristics in adults with CD.

The CD-FAB has three subscales assessing maladaptive food attitudes and behaviors with items reflective of different facets of anxiety around gluten contamination. Gholmie et al. [3] found that individuals in the highest tertile of CD-FAB scores were recently diagnosed with CD, had a larger number of CD-related gastrointestinal complaints, and had a reduced CD-specific quality-of-life. Interestingly, since both the average total scores and the range of mean scores of CD-FAB items in their sample were below or around the scale midpoint, it would be informative to identify thresholds that indicate maladaptive food attitudes/behaviors. Caution of and some anxiety around gluten exposure, particularly while adjusting to a new diagnosis are normative, though it is unknown at what point caution becomes pathologic. Coburn and colleagues recently suggested a model in which the scale is tipped to over-caution when an individual is hypervigilant with greater quality-of-life disturbance in regard to dietary

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adherence [5]. The CD-FAB includes items assessing hypervigilance; given the inverse relationship with quality-of-life, higher scores are likely reflective of over-caution. Having a cut-off score for the CD-FAB could indicate a current eating disorder or risk for an eating disorder. For example, a certain CD-FAB score may capture high levels of anxiety and hypervigilance around eating indicative of ARFID, which is the most common reason for reduced food intake in individuals with functional gastrointestinal disorders [6].

It will be important for future research to identify the specific relationship between CD-FAB scores and eating disorders, both concurrently and prospectively. First, it is important to understand how CD-specific maladaptive attitudes and behaviors relate to the likelihood of the presence of a full-threshold overt eating disorder (i.e., meeting full diagnostic criteria for anorexia nervosa, bulimia nervosa, or binge eating disorder). As the authors note, the present study did not include patients who had a self-reported history of an eating disorder, with only one patient in the sample who met current criteria for a full-threshold eating disorder. It is also unknown whether CD-FAB scores are associated with higher scores on other eating disorder measures. Thus, it is unknown whether higher CD-FAB scores are associated with higher levels of eating disorder symptoms. Further, the authors split the sample into tertiles rather than dimensionally examining the relationships between the CD-FAB and other clinical variables, where variables are examined across the continuum of frequency without artificial cut-off points. As a result, it is unclear whether CD-FAB scores across the spectrum are associated with recency of CD diagnosis, the number of GI symptoms, and quality-of-life. Furthermore, longitudinal studies are needed to help clarify risk factors for the development of eating disorders in individuals with CD and vice versa.

Less is known about the relationship between CD and ARFID. Individuals with CD may restrict their food intake above and beyond what is necessary to manage their condition, suffering medical or psychosocial consequences as a result, possibly indicative of ARFID. ARFID has developed in cases where dietary restriction extends beyond the GFD, usually due to the fear of gluten cross-contamination or of gastrointestinal symptoms, with consequent medical (e.g., weight loss) and/or quality-of-life disturbances. Nevertheless, current self-report measures of ARFID (e.g., the Nine-Item ARFID Screen) may have extensive overlap with normative anxiety encompassing food intake that patients with CD experience, without distinguishing whether the individual has become over-cautious or over-restrictive. In fact, one study found that over 48% of adults with CD could meet criteria for ARFID. This high percentage may be spurious, as the ARFID symptom items may overlap with CD-related gastrointestinal symptoms [7]. Nonetheless, another study among adults with CD showed that those screening

positively for ARFID on a checklist did not have significantly different duodenal biopsy activity or GFD adherence, suggesting that there are a subset of individuals without active disease activity who have ARFID [8]. A strength of the CD-FAB is that it has been validated in a CD population—future research should examine how the CD-FAB relates to ARFID symptoms, as higher CD-FAB score may indicate possible presence of or future risk for ARFID.

Overall, Gholmie et al.'s [5] findings that CD-related maladaptive attitudes and behaviors are related to the recency of CD diagnosis, the number of GI symptoms, and quality-of-life provide an important contribution to the literature. The CD-FAB will be a key measure in future work examining the relationship between CD and eating disorders, including ARFID, identifying individuals with CD at risk for developing eating disorders that can then be proactively managed. Specifically, it will be important to understand the nature and course of the CD-FAB over time, identify clinically meaningful thresholds, and identify if the CD-FAB could be used to screen for possible eating disorder presence or if certain scores are predictive of eating disorder development.

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Declarations

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