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Fear of food prospectively predicts drive for thinness in an eating disorder sample recently discharged from intensive treatment

Cheri A. Levinson[a,*], Leigh C. Brosof[a], Jackie Ma[a], Laura Fewell[a], Eric J. Lenze[b]

[a] University of Louisville, Department of Psychological & Brain Sciences, United States
[b] Washington University in St. Louis, Department of Psychiatry, United States

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ABSTRACT

Fears of food are common in individuals with eating disorders and contribute to the high relapse rates. However, it is unknown how fears of food contribute to eating disorder symptoms across time, potentially contributing to an increased likelihood of relapse. Participants diagnosed with an eating disorder (N = 168) who had recently completed intensive treatment were assessed after discharge and one month later regarding fear of food, eating disorder symptoms, anxiety sensitivity, and negative affect. Cross lagged path analysis was utilized to determine if fear of food predicted subsequent eating disorder symptoms one month later. Fear of food—specifically, anxiety about eating and feared concerns about eating—predicted drive for thinness, a core symptom domain of eating disorders. These relationships held while accounting for anxiety sensitivity and negative affect. There is a specific, direct relationship between anxiety about eating and feared concerns about eating and drive for thinness. Future research should test if interventions designed to target fear of food can decrease drive for thinness and thereby prevent relapse.

Eating disorders (EDs) are serious mental illnesses that cause extreme suffering and carry an increased risk of mortality (Klump, Bulik, Kaye, Treasure, & Tyson, 2009). Individuals diagnosed with EDs have high rates of comorbid anxiety disorders, with rates estimated up to 80% (Pallister & Waller, 2008). Even without a comorbid anxiety disorder, individuals with EDs are highly anxious, with much of their anxiety centered around food, eating, and appearance-related concerns (Halmi, 2007).

Recent research has begun to explore food-related anxieties and fears that are common in EDs in more depth. Specifically, researchers have identified fear of food as a particular type of anxiety that is common in the eating disorders (Levinson & Byrne, 2015). It was found that three cognitive-behavioral aspects of fear of food (i.e., anxiety about eating, food avoidance behaviors, and feared concerns related to eating) were significantly higher in individuals diagnosed with an ED versus healthy controls. Further, each of these three cognitive-behavioral aspects of fear of food decreased across a four-session exposure intervention, suggesting that exposure therapy may be an efficacious approach to treat these fears. Anxiety occurring within the context of eating disorders is a focus of recent treatment advances, with researchers finding that exposure and response prevention therapy for anorexia nervosa is successful at increasing food intake and weight gain (Levinson et al., 2015; Steinglass et al., 2012). However, it is still unknown how fears that may be addressed in exposure therapy impact eating disorder symptoms, though it seems clear that such fears are an important treatment target.

The period immediately after discharge from intensive treatment centers may be a critical time to address these fears. Individuals with eating disorders continue to struggle with fears of food after discharge from intensive treatment, with research finding that individuals with anorexia nervosa (AN) continue to exhibit difficulty eating, consuming fewer calories than healthy controls (Mayer, Schebendach, Bodell, Shingleton, & Walsh, 2012). Given that difficulty adhering to a meal plan is associated with poor treatment outcomes (McFarlane, Olmsted, & Trottier, 2008), it seems likely that the high rates of relapse in the eating disorders are influenced by a failure to maintain or gain weight in outpatient settings (Kaplan et al., 2009), which may be influenced by fears of food. This research highlights the importance of understanding how fears of food impact eating disorder symptoms, especially after discharge from intensive treatment.

In particular, it seems worthwhile to examine eating disorder symptoms related to a consistent desire to maintain a low weight, such as drive for thinness. Drive for thinness is characteristic of individuals who have a high fear of weight gain and consequently diet to prevent it, such as those with AN and BN (Chernyak & Lowe, 2010; Penas-Lledo, Bulik, Lichtenstein, Larsson, & Baker, 2015). Ramacciotti et al. (2002)

* Corresponding author at: University of Louisville, Life Sciences Room 307, Louisville, KY 40292, United States.
E-mail address: cheri.levinson@louisville.edu (C.A. Levinson).

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found that individuals with AN or BN with a low drive for thinness reported less severe eating disorder-related psychopathology than those with a high drive for thinness, highlighting how drive for thinness may be an indicator of future relapses. Further, drive for thinness is associated with intentional weight loss and disordered eating patterns (e.g., restrictive eating; Keski-Rahkonen et al., 2005). It seems likely that fear of food may be specifically associated with drive for thinness (versus other symptoms such as bulimia and body dissatisfaction), as individuals may feel anxious about eating to avoid their fear of gaining weight, and that this fear may be heightened in the period after discharge from treatment. However, to the best of our knowledge, the relationship between fear of food and drive for thinness has not been examined in prospective data. Furthermore, it is unclear if there is a specific relationship between fear related to food and drive for thinness, or if general anxiety not focused on food might account for such a relationship. If we identify that fear of food specifically impacts the desire to lose weight over time, we may be able to develop treatments targeted to this specific type of anxiety (e.g., fear of food) with the ultimate goals of reducing anxiety, increasing caloric intake to stabilize a healthy weight, and preventing relapse.

In the current study, we surveyed a sample of individuals diagnosed with an eating disorder and recently discharged from a residential or partial hospital program. We assessed fears of food after discharge and then one month later. We hypothesized that the three cognitive-behavioral components of fear of food (i.e., anxiety about eating [emotions], feared concerns related to eating [thoughts], and food avoidance behaviors [behaviors]) would predict later eating disorder symptoms, specifically symptoms related to the desire to be thin (but not to bulimia symptoms and body dissatisfaction), given that drive for thinness is the eating disorder symptom most directly related to fears of gaining weight. We also hypothesized that these relationships would not be accounted for by general anxiety, negative affect, and eating- or weight-related concerns, but rather, fear specific to food would be a primary driver behind eating disorder symptoms.

1. Methods

1.1. Procedure

All procedures were approved by the Washington University Institutional Review Board. Participants were recruited from a research database from an eating disorder clinic in the Midwest. All participants had recently discharged from either a partial hospital or residential program for eating disorders. Participants completed online measures of eating disorder symptoms, anxiety, and fear of food at two time points, each one month apart (i.e., Time 1 and Time 2).

1.2. Participants

Participants were 168 individuals recently discharged from intensive eating disorder treatment. Participants had all recently been discharged from a residential or partial hospitalization eating disorder treatment center (median days since discharge at start of study = 140 days, range = 1 day to 868 days; *SD* = 40.12). 125 participants (74.4%) reported that they were currently in some type of treatment for their eating disorder. Specifically, 96 participants (*n* = 57.1%) were in outpatient treatment, sixteen participants (9.5%) were in intensive outpatient, five participants were in partial hospitalization (3.03%), and eight participants (4.7%) were in inpatient or residential treatment. Participants median time in treatment is 2.00 h (*SD* = 42.26) a week.

The majority of participants were female (*n* = 159; 94.6%) and European American (*n* = 156; 92.9%). Other ethnicities reported include multiracial or biracial (*n* = 3; 1.8%), Hispanic (*n* = 3; 1.8%), Black (*n* = 1; 0.6%), and Japanese American (*n* = 1; 0.6%). Four participants did not report their ethnicity. Participants ranged in age from 14 to 59 years old, with an average age of 26.27 (*SD* = 9.44).

1.3. Measures

1.3.1. Eating Disorder Diagnostic Scale (EDDS; Stice, Telch, & Rizvi, 2000)

The EDDS is a brief self-report measure used to diagnose eating disorders, such as anorexia, bulimia, and binge eating disorder. The EDDS has demonstrated adequate internal consistency as well as criterion and convergent validity (Stice, Fisher, & Martinez, 2004). Internal consistency in this sample was adequate (α = 0.78).

1.3.2. Fear of Food Measure (FOFM; Levinson & Byrne, 2015)

The FOFM is a 25-item self-report questionnaire measuring fear of food through a cognitive-behavioral approach (i.e., thoughts, feelings, and behaviors). The measure includes three subscales addressing each aspect of the cognitive-behavioral model of fear of food: trait anxiety about eating (i.e., feelings), feared concerns related to eating (i.e., thoughts), and food avoidance behaviors (i.e., behaviors). Example items from the anxiety about eating subscale include: *I feel tense when I am around food* and *I worry about eating*. Example items from the feared concerns about eating subscale include: *Eating makes me feel anxious because I am afraid I might get fat* and *I don't like to eat around other people because they might judge me*. Example items from the food avoidance behaviors subscale include: *There are certain foods I avoid because they make me anxious* and *I have to eat my food in a certain order*. The FOFM has been shown to have good convergent and divergent validity, as well as excellent test-retest reliability (Levinson & Byrne, 2015). In the current sample, anxiety about eating (α = 0.96) and feared concerns about eating (α = 0.92) exhibited excellent internal consistency and food avoidance behaviors (α = 0.89) exhibited good internal consistency.

1.3.3. Eating Disorder Inventory-2 (EDI-2; Garner, Olmstead, & Polivy, 1983)

The EDI-2 is a 91-item self-report questionnaire designed to measure psychological features commonly associated with anorexia nervosa and bulimia nervosa. It has been shown to have good internal consistency and good convergent and discriminant validity (Garner et al., 1983), and is frequently used by clinicians for the assessment of eating disorder symptoms (Brookings & Wilson, 1994). Three of the eleven subscales were used for this study: the drive for thinness (DT), body dissatisfaction (BD), and bulimia symptoms (BN). In the current sample, body dissatisfaction (α = 0.92) and bulimic symptoms (α = 0.91) exhibited excellent internal consistency and drive for thinness (α = 0.76) exhibited adequate internal consistency.

1.3.4. Eating Disorder Examination-Questionnaire (EDE-Q; Fairburn & Beglin, 1994)

The EDE-Q is a 38-item self-report measure of eating disorder-related attitudes and behaviors in the past 28 days based on the Eating Disorder Examination (EDE) interview (Fairburn & Cooper, 1993). The current study used the weight concerns and eating concerns subscales, which assess disordered eating concerns around weight and eating respectively. Example items are: *Have you had a strong desire to lose weight* and *Have you had a definite fear of losing control over eating*. The EDE-Q has evidenced good internal consistency (Peterson et al., 2007). In this