



## Testing a cognitive model of generalized anxiety disorder in the eating disorders

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### ABSTRACT

Generalized anxiety disorder (GAD) is one of the most common comorbid disorders found in individuals with eating disorders. Despite this, little is known of shared vulnerability factors between the two disorders. The aim of the present study was to examine the four main components of a cognitive model for GAD in the eating disorders. One hundred and sixty-two females took part. Three groups were formed comprising of 19 participants with an eating disorder and GAD, 70 with an eating disorder without GAD and 73 healthy controls. All completed self-report questionnaires that measured eating attitudes, levels of GAD, intolerance of uncertainty, positive beliefs about worry, negative problem orientation, and cognitive avoidance. Participants with an eating disorder and GAD scored the highest on all four components when compared to healthy individuals and on most components when compared to those with an eating disorder. Participants with an eating disorder without GAD scored higher on all components compared to healthy controls. Findings extend our understanding of shared vulnerability factors between the eating disorders and GAD.

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Anxiety often co-occurs with the eating disorders, and research suggests that up to two thirds of individuals with eating disorders also meet diagnostic criteria for an anxiety disorder (Jordan et al., 2008; Kaye, Bulik, Thornton, Barbarich, & Masters, 2004). Comorbid anxiety is likely to negatively affect the course of the eating disorder and its treatment (Berkman, Lohr, & Bulik, 2007; Pallister & Waller, 2008). Furthermore, it has been suggested that targeting non-eating disordered behaviors, such as comorbid anxiety, may increase treatment effectiveness for eating disorders (Fletcher, Kupshik, Uprichard, Shah, & Nash, 2008).

One of the most common anxiety disorders found in individuals with eating disorders is generalized anxiety disorder (GAD; Kaye et al., 2004; Pallister & Waller, 2008). The main feature of GAD is worry, which has been found elevated in patients with eating disorders when compared to a healthy control group (Kerkof et al., 2000; Sassaroli et al., 2005). To date, research examining the link between the eating disorders and anxiety has mainly focused on levels of comorbidity between the two. However, Pallister and Waller (2008) suggest that there is a strong need to explore further shared vulnerability factors between the two disorders.

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Dugas, Gagnon, Ladouceur, and Freeston (1998) have proposed a model of GAD that suggests that worry, the main feature of GAD, is maintained by four components: Intolerance of uncertainty, positive beliefs about worry, poor problem orientation and cognitive avoidance. Intolerance of uncertainty refers to an individual's tendency to experience uncertainty as distressing due to a set of negative beliefs about uncertainty and its implications (Dugas & Robichaud, 2007; Heimberg, Turk, & Mennin, 2004). Positive beliefs about worry refer to a set of beliefs that promote worry as a useful strategy. These include the belief that worry aids problem solving, motivates the individual to do things, prevents negative outcomes, protects one from negative emotions in the event of a negative outcome and that worry is a positive personality trait (Freeston, Rheaume, Letarte, Dugas, & Ladouceur, 1994). Negative problem orientation refers to a set of beliefs about one's cognitive approach towards solving problems, such as, doubting one's problem-solving abilities, finding problems threatening and having a pessimistic view about the outcome of a problem (Davey, 1994; Dugas, Letarte, Rheaume, Freeston, & Ladouceur, 1995). Finally, cognitive avoidance consists of an individual's tendency to use avoidance strategies to manage worry, such as suppressing threatening intrusive thoughts or unpleasant emotions (Dugas & Robichaud, 2007).

Recent research has found elevated levels of intolerance of uncertainty in adults with problematic eating attitudes when compared to a healthy control group (Konstantellou & Reynolds, 2010). In a clinical population of adults diagnosed with anorexia

nervosa uncertainty was described and experienced as something bad that brought much distress (Sternheim, Konstantellou, Startup, & Schmidt, 2010). Such research supports the idea that intolerance of uncertainty may be an important factor in the eating disorders. Conceptually, intolerance of uncertainty could be related to the excessive need for control and certainty seen in individuals with eating disorders (Sassaroli, Gallucci, & Ruggiero, 2008) and subsequently to the positive value assigned to the illness (Serpell, Treasure, Teasdale, & Sullivan, 1999). Intolerance of uncertainty has also been associated with obsessive-compulsive disorder (Tolin, Abramowitz, Brigidi, & Foa, 2003) social anxiety disorder (Boelen & Reijntjes, 2009; Carleton, Collimore, & Asmundson, 2010) depression (Dugas, Schwartz, & Francis, 2004; Yook, Kim, Suh, & Lee, 2010) and psychosis (Broome et al., 2007; White & Gumley, 2010). Research is accumulating and showing that intolerance of uncertainty could be a trans-diagnostic maintaining factor for anxiety and depression (McEvoy & Mahoney, 2011), as well as, an indicator of psychological distress, determined by comorbid states of anxiety, stress, hopelessness, depression, and suicidal ideation (Ciarrochi, Said, & Dean, 2005). For example, individuals with OCD and GAD symptoms show significantly higher levels of intolerance of uncertainty than those with a single diagnosis (Holoway, Heimberg, & Coles, 2006).

Three lines of reasoning guided the present study. First, taking into account previous research showing high levels of comorbid GAD and worry in individuals with an eating disorder we would expect underlying vulnerability factors of GAD to be also present in individuals with an eating disorder. Second, there is a need to understand, beyond comorbidity, the overlap between GAD and the eating disorders. Third, there is accumulating evidence showing intolerance of uncertainty to be an important factor in relation to eating disorder psychopathology. The present study aimed to examine the four main components of the Dugas model of GAD (1998) in individuals with an eating disorder and a diagnosis of GAD, those with an eating disorder without a diagnosis of GAD, and healthy controls. It was hypothesized that:

1. Participants with an eating disorder also meeting diagnostic criteria for GAD would show significantly elevated levels of the four GAD components of the Dugas model than participants affected only with an eating disorder and healthy controls.
2. Participants with an eating disorder not meeting criteria for GAD would score higher than healthy controls on the four GAD components, particularly intolerance of uncertainty.

## 1. Method

### 1.1. Participants

One hundred and sixty-two adult females participated in this study. The eating disordered group ( $N = 89$ ) was recruited from the volunteer database at the Institute of Psychiatry, Eating Disorders Research Unit. Thirty-one were currently in treatment for an eating disorder and 36 had previously received treatment but not at the time of completing the questionnaires. A trans-diagnostic approach was adopted, as anorexia nervosa and bulimia nervosa share similar underlying psychopathology (Fairburn, Cooper, & Shafran, 2003). Of this group, 19 also met diagnostic criteria for GAD according to guidelines from Dugas following responses on the Worry and Anxiety Questionnaire (WAQ; Dugas et al., 2001); mean age = 34.36 (Min = 24, Max = 54;  $SD = 10.91$ ). Seventy made up the eating disorder group without GAD ( $N = 70$ ) mean age = 34.29 (Min = 17, Max = 65,  $SD = 11.07$ ).

The control group was recruited through two sources. First, emails containing information about the study, consent and the

option to complete measures online were circulated to students from the Institute of Psychiatry, Kings College London. Second, similar emails were sent to friends of the first author who were asked to forward the email to family and friends. Seventy-three participants made up the control group, these consisted of both students and non student adults with a mean age of 31.64 years (Min = 20, Max = 61;  $SD = 9.68$ ). Controls were initially screened using the Eating Attitudes Test (EAT-26; Eating Attitudes Test (EAT-26; Garner & Garfinkel, 1979; Garner, Olmsted, Bohr, & Garfinkel, 1982). If they scored a total of 20 or more on items 1–26 of the EAT-26 or if they answered YES to any of the eating disordered behavior questions (e.g., In the past 6 months have you gone on eating binges where you feel that you may not be able to stop?) they were not included in our control sample, as this is indicative of the presence of an eating disorder. Seventy-four participants were recruited as controls, of which 73 made up the control group as one participant was excluded from the analysis for meeting criteria for GAD according to their responses on the Worry and Anxiety Questionnaire and the criteria set out by Dugas et al. (2001).

### 1.2. Measures

#### 1.2.1. Eating Attitudes Test (EAT-26; Garner & Garfinkel, 1979; Garner et al., 1982)

The EAT-26 is a 26-item self-report questionnaire designed to measure problematic eating attitudes and behaviors. Responses are made on a six-point Likert scale and a total score is comprised by adding up all the items (items 1–26) of the EAT-26. A total score of greater than 20, or a positive response in one or more of the four behavioral questions is indicative of problematic eating attitudes. The EAT-26 shows good to excellent internal consistency ( $\alpha = .70-.88$ ). Convergent and discriminant validity have also been established (Doninger, Enders, & Burnett, 2005; Mintz & O'Halloran, 2000).

#### 1.2.2. Worry and Anxiety Questionnaire (WAQ; Dugas et al., 2001)

The WAQ assesses the presence and the severity of the GAD diagnostic criteria, as they appear in the DSM-IV (American Psychological Association, 1994). It is an 11-item self-report measure rated on a nine-point Likert scale. The first item of this instrument asks about the most frequent worry topics and the subsequent items assess the presence and severity of GAD diagnostic criteria. The WAQ is scored by adding up the responses for all of the items. The WAQ has good validity and shows satisfactory test-retest reliability (Dugas & Francis, 2000; Dugas et al., 2001).

#### 1.2.3. Intolerance of Uncertainty Index (IUI; Gosselin et al., 2008; English version: Carleton, Gosselin, & Asmundson, 2010)

The IUI is a 45-item self-report questionnaire that measures an individuals' tendency to find uncertainty distressing and unacceptable. The IUI is made up of two parts; Part A, which comprises of 15 items assessing the level of dislike and unacceptability towards uncertainty and Part B, which comprises of 30 items assessing different manifestations of intolerance of uncertainty. Part A is made up of 3 subscales: Intolerance of uncertainty and uncertain situations; Intolerance of the unexpected; Difficulty waiting in an uncertain situation. Part B is made up of six subscales: Overestimation of the probability that a negative event will occur, Control, Reassurance, Avoidance, Worry, and Doubt. The IUI is scored by summing up all the items of Part A and Part B. Subscales can also be calculated by summing up all the items for each subscale for Part A and separately for Part B. The IUI shows excellent psychometric properties (Carleton, Gosselin, et al., 2010; Gosselin et al., 2008). The IUI was chosen over the IUS (Buhr & Dugas, 2002) as a more appropriate measure of intolerance of uncertainty for this

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