Review

Intolerance of Uncertainty in eating disorders: An update on the field

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HIGHLIGHTS

- Intolerance of Uncertainty (IU) is a transdiagnostic process underlying anxiety.
- IU research has facilitated advances in the treatment of anxiety disorders.
- Anxiety is a core and debilitating clinical feature present in eating disorders.
- Cognitive processes underlying anxiety in eating disorders are poorly understood.
- IU research may enhance our understanding of anxiety symptoms in eating disorders.

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ABSTRACT

Pathological fear and anxiety regarding food, eating, weight and body shape are at the core of eating disorder (ED) psychopathology. To manage anxiety, patients develop complicated repertoires of ritualistic and repetitive behaviours, which can lead to total functional impairment. Yet the cognitive processes underlying anxiety, fear, and anxiety-driven behaviours in EDs remain poorly understood. Intolerance of Uncertainty (IU) is defined as a tendency to react negatively on an emotional, cognitive, and behavioural level to uncertain situations and events. There is substantial evidence that IU is a transdiagnostic process that contributes to the maintenance of anxiety disorders; however, IU may also be relevant to the understanding and treatment of EDs. The current review summarises the growing literature examining IU in relation to ED symptoms, including restriction, bingeing, purging, ritualised behaviours, reassurance-seeking and body checking. Extending from the obsessive-compulsive disorder (OCD) and anxiety disorder literature, we propose that IU provides a novel theoretical and clinical framework from which to understand the anxiety, fixation with rules and rituals, and the cognitively rigid profile that is characteristic of ED presentations. We conclude with suggestions for future research, and discuss IU as a potential treatment target for core features of EDs and comorbid symptoms.

Eating disorders (EDs) are among the most complex psychiatric conditions to treat, and one of the most disabling mental illnesses to bear as a patient (Arkell & Robinson, 2008; Winkler et al., 2014). EDs are consistently associated with poor quality of life and increased morbidity and mortality (Crow et al., 2009; Jenkins, Hoste, Meyer, & Blissette, 2011). Age of onset typically occurs around early adolescence (Anorexia Nervosa; AN) or young adulthood (Bulimia Nervosa; BN), disrupting core developmental periods that contribute to functional impairment later in life (Gustavsson, Svensson, Jacobi, et al., 2011). Treatment outcomes are poor, and treatment itself is often characterised by poor patient engagement, high rates of attrition, and frequent relapse (Carter, Blackmore, Sutandar-Pinnock, & Woodside, 2004; Steinhausen, 2002). In AN, for example, 20% of patients remain chronically ill, less than 50% reach full recovery (Steinhausen, 2002),

and 30–50% relapse within one year of discharge (Pike, 1998). The recognition of a group of patients who experience a protracted and recalcitrant course of the illness, referred to as a 'severe and enduring eating disorder' (SEED; Robinson, 2009; Treasure, Stein, & Maguire, 2015), illustrates the urgency with which research pursuing advances in our understanding, and associated treatment, of this complex group of illnesses is needed.

Anxiety and fear constitute central components of ED psychopathology. This is exemplified particularly clearly in AN and BN, where patients become consumed by the worrying prospect of weight gain, to the point of obsession; developing a repertoire of disordered behaviours to starve off the feared outcome. The cognitions and behaviours developed in response to this anxiety contribute to the complexity of treating this challenging group of illnesses. The clear expression of

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anxiety symptoms in EDs is supported by an expansive literature base implicating anxiety in the development and maintenance of EDs (Bulik, Sullivan, Fear, & Joyce, 1997; Godart et al., 2003; Koskina, Campbell, & Schmidt, 2013). Clinical and epidemiological studies consistently report elevated levels of comorbid anxiety disorders in EDs (Godart et al., 2003; Kaye, Bulik, Thornton, Barbarich, & Masters, 2004). Furthermore, anxiety also constitutes a significant barrier to successful treatment engagement and prognosis (Bloss et al., 2011; Kyriacou, Easter, & Tchanturia, 2009).

Many of the core clinical features of EDs mirror behavioural and cognitive manifestations of anxiety disorders (Steinglass et al., 2011). For example, a morbid fear of food and weight gain; the development and rigid dependence on rules, rituals or safety behaviours to avoid or manage these fears (e.g., calorie counting, vomiting, body checking); and the organisation of these behaviours around an irrational belief system (e.g., dysfunctional beliefs regarding the importance of weight; Steinglass et al., 2011). Accordingly, exposure models aimed at addressing the core fears pertaining to weight gain have been incorporated into ED treatments, with mixed success (Bulik et al., 1997; Koskina et al., 2013; Murray et al., 2016). However, traditional conceptualisations regarding the core fear underlying EDs have been simplistic, and may have contributed to the insufficient application of anxiety-based treatments in ED populations (Murray et al., 2016). Despite a wealth of research demonstrating the key role of anxiety in ED psychopathology, the processes fueling anxiety in this population remain unclear. In order to expand our understanding of the core symptomatic fear in EDs, as well as the range of dysfunctional behaviours that develop to manage anxiety, researchers should consider well-established cognitive processes from the anxiety disorders literature.

Outside of the ED field, Intolerance of Uncertainty (IU) has been established as a robust transdiagnostic construct that independently contributes to a range of psychological disorders (Boelen & Reijntjes, 2009; Dugas, Gagnon, Ladouceur, & Freeston, 1998; van der Heiden, Muris, & van der Molen, 2012). IU refers to a set of beliefs about, and reactions to, situations or events that are experienced as uncertain (Carleton et al., 2012). Individuals with high levels of IU typically experience any uncertainty as negative, unacceptable and threatening (Carleton, Norton, & Asmundson, 2007; McEvoy & Mahoney, 2012), and avoid situations where uncertainty may be present (Buhr & Dugas, 2009; Dugas, Gosselin, & Ladouceur, 2001). Individuals who are intolerant of uncertainty may also doubt their ability to effectively cope with uncertainty or change (Holaway, Heimberg, & Coles, 2006).

Given the similar genetic (Keel, Klump, Miller, McGue, & Iacono, 2005) neural and behavioural (Frank et al., 2002; Mineka & Ohman, 2002; Strober, 2004) mechanisms proposed in development and maintenance of EDs and anxiety disorders, investigating IU in EDs may help elucidate novel cognitive processes that contribute to anxiety in this population. A preliminary body of qualitative and quantitative research investigating the relevance and utility of IU to the field of EDs, has begun accumulating; the findings of which, constitute the primary focus of this paper. Additionally, we extend discussion to stimulate research into IU, as it may relate to core features of EDs; including the presence of perfectionistic traits, a desire for control, repetitive and ritualised eating disordered behaviours and strict adherence to predictable routines. We propose that these ED characteristics may function as maladaptive attempts to gain certainty and avoid uncertainty.

In this literature review, we briefly synthesise relevant research examining IU as it pertains to anxiety disorders (for a review, see Carleton et al., 2012; Einstein, 2014). Then, we review the current state of IU literature in the ED field. Based on a search of MEDLINE (via PubMed) and Psychology Information (PsychINFO) using a combination of the following search terms (Intolerance of Uncertainty, eating disorders, anorexia, bulimia, rituals) with Boolean operators, fourteen studies were identified. Of these, four studies were discarded due to irrelevant content (e.g., clinician uncertainty regarding treatment

delivery). The remaining ten studies utilised clinical or sub-clinical ED populations, and constitute the focus of this review. Drawing upon these findings, as well as IU research from related fields, we outline future hypotheses and areas of research that require empirical attention. Potential clinical and theoretical implications are discussed.

1. Intolerance of Uncertainty and anxiety

IU was first conceptualised as a potentially significant construct underlying worry in Generalized Anxiety Disorder (GAD; Dugas, Freeston, & Ladouceur, 1997). Research quickly accumulated to confirmed IU as both a cognitive vulnerability and a maintaining factor for GAD symptoms (Dugas et al., 1998; Sexton, Norton, Walker, & Norton, 2003). Since then, IU has been proposed as a trigger for maladaptive emotional and behavioural responses commonly exhibited in anxiety disorders (Dugas et al., 2005; Einstein, 2014; Ladouceur, Gosselin, & Dugas, 2000). As with most anxiety related constructs, the literature distinguishes between two types of IU: Trait IU, which refers to an individuals' general degree of IU as it pertains to generic circumstances (e.g., *unforeseen events upset me greatly*); and state or situation-specific IU (SSIS), which refers to an individuals' IU in relation to contexts particularly relevant to specific diagnoses (e.g., uncertainty regarding negative evaluation in social anxiety disorder (SAD), contamination in obsessive compulsive disorder (OCD), and weight gain in EDs).

Trait IU has been proposed as a risk factor that independently contributes to a range of anxiety and depressive symptoms (Boelen & Reijntjes, 2009; Mahoney & McEvoy, 2011). Trait IU predicts the symptoms of GAD (Laugesen, Dugas, & Bukowski, 2003); OCD (Steketee, Frost, & Cohen, 1998), and SAD (Boelen & Reijntjes, 2009; Carleton, Collimore, & Asmundson, 2010). Trait IU also accounts for significant variance in panic disorder, agoraphobia (Carleton, Fetzner, Hackl, & McEvoy, 2013; Carleton, Sharpe, & Asmundson, 2007), and symptoms of depression (Miranda, Fontes, & Marroquin, 2008). In individuals with post-traumatic stress disorder (PTSD), trait IU also strongly predicts avoidance, numbing, and hyperarousal symptoms (Fetzner, Horswill, Boelen, & Carleton, 2013). Furthermore, the number of comorbid anxiety and depressive disorders is predictive of greater trait IU (Holaway et al., 2006; Mahoney & McEvoy, 2011). Support for trait IU as a transdiagnostic factor underlying multiple diagnoses has led some researchers to suggest that treatments targeting IU could prove beneficial to both core and comorbid symptoms (Boswell, Thompson-Hollands, Fachione, & Barlow, 2013; McEvoy & Erceg-Hurn, 2016).

Research has recently shifted away from conceptualising trait IU as a unitary construct, reflecting an individual's general disposition to appraise and respond to uncertain situations, and towards a multi-factor model of trait IU (Berenbaum, Bredemeier, & Thompson, 2008; Birrell, Meares, Wilkinson, & Freeston, 2011). A review of factor analytic studies, suggests a two-factor model of trait IU is best supported by the existing literature (Birrell et al., 2011; McEvoy & Mahoney, 2011). These factors are: i) desire for predictability (also referred to as prospective IU); and ii) uncertainty paralysis (also referred to as inhibitory IU; Berenbaum et al., 2008). *Desire for predictability* is associated with fear and anxiety in anticipation of future uncertain events (e.g., IUS item 7: '*Unforeseen events upset me greatly*'), and it has been suggested to manifest in excessive approach behaviours in order to make the future as certain as possible (e.g., IUS item 21: '*I should always organise everything in advance*'). For example, when faced with an uncertain situation, individuals may seek additional information in an attempt to increase predictability and reduce feelings of anxiety. *Uncertainty paralysis* relates to inaction or 'freezing' in the face of uncertainty, and consists of items on the IUS that refer to a sense of feeling paralyzed or unable to function in the face of uncertainty (e.g., IUS item 12: '*When it's time to act, uncertainty paralyses me*'; IUS item 20: '*The smallest doubt stops me from acting*'). This factor appears to reflect physiological