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Intolerance of uncertainty in body dysmorphic disorder

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ABSTRACT

Intolerance of uncertainty (IU) is a transdiagnostic construct associated with several anxiety and related disorders. Three studies were conducted to explore the potential relationship between IU and body dysmorphic disorder (BDD). Study 1 revealed a positive relationship between IU and BDD symptoms above symptoms of anxiety and depression in an unselected student sample ($N = 88$). Study 2 demonstrated a similar relationship between IU and BDD symptoms above negative affectivity and intolerance of ambiguity in a community sample ($N = 116$). Study 3 found that a clinical BDD sample ($N = 23$) reported greater IU than healthy controls ($N = 20$), though this relationship was accounted for by symptoms of anxiety and depression. Greater IU predicted functional impairment in the clinical sample above BDD symptoms and past-week anxiety and depression. The observed relationship between IU and BDD symptoms provides preliminary support for the relevance of IU to this population.

Introduction

Body dysmorphic disorder (BDD) is a disturbance of body image characterized by an impairing and/or distressing preoccupation with an imagined, or slight, anomaly in one's physical appearance (American Psychiatric Association; APA, 2013). Individuals with BDD engage in time consuming repetitive behaviors or mental acts in response to their appearance preoccupations (e.g., excessive grooming, mirror checking, camouflaging, skin picking, comparing with others; APA, 2013). Furthermore, research has shown that a diagnosis of BDD is associated with poor quality of life as well as marked functional impairment (Marques, LeBlanc, et al., 2011; Phillips, Menard, Fay, & Pagano, 2005). The etiology of BDD is complex; however, several cognitive factors have been implicated in the development and maintenance of the disorder, including, but not limited to, selective attention bias (Buhlmann, McNally, Wilhelm, & Florin, 2002; Grocholewski, Kliem, & Heinrichs, 2012), negative interpretation biases related to body-related and social situations (Buhlmann, Wilhelm, et al., 2002), and implicit and explicit self-esteem and attractiveness beliefs (Buhlmann, Teachman, Naumann, Fehlinger, & Rief, 2009).

While current cognitive-behavioral approaches have demonstrated some success in treating BDD (e.g., Wilhelm et al., 2014), they are far from efficacious for all treatment-seekers. It is possible that exploring other cognitive factors relevant to BDD may increase understanding and improve treatment of the disorder. Specifically, intolerance of uncertainty (IU) is considered a transdiagnostic factor relevant to a variety of anxiety and obsessive-compulsive pathology that may also be relevant in better understanding BDD. IU has been conceptualized as a dispositional characteristic related to negative beliefs about uncertainty, its consequences, and one's ability to cope with uncertainty, as well as maladaptive interpretations and responses to uncertainty (Dugas & Robichaud, 2007). Broadly, research suggests that individuals high in IU are more likely to interpret ambiguous situations as threatening (Dugas et al., 2005), exhibit increased worry (Buhr & Dugas, 2009) and demonstrate irrational decision-making behavior (Luhmann, Ishida, & Hajcak, 2011) compared to individuals low in IU. High IU is also associated with impairment in problem-solving ability as well as inaction and avoidance of ambiguous situations (Dugas, Freeston, & Ladouceur, 1997). Several of these cognitive, behavioral, and emotional correlates of IU have also been noted in individuals with BDD (e.g., Buhlmann, Wilhelm, et al., 2002; Donyavi, Rabiei, Nikfarjam, & Nezhady, 2015; Phillips, Pinto, & Jain, 2004). Therefore, it is important to consider the possibility that IU is contributing to these symptoms as they present in BDD, as it may exacerbate these similar processes (e.g., negative interpretation biases, worry, and low self-esteem). Moreover, IU may contribute to the maintenance of anxiety or distress regarding uncertainty about appearance (e.g., excessive reassurance seeking, body checking) and associated avoidance, defining features of the disorder (Phillips, 2005).

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While the majority of research on IU in clinical populations has centered around pathological worry characteristic of individuals with generalized anxiety disorder (GAD; e.g., Koerner & Dugas, 2008), it has also been linked to other disorders such as social anxiety disorder (SAD; Boelen & Reijntjes, 2009), panic disorder (Buhr & Dugas, 2009; Carleton, Collimore, & Asmundson, 2010), health anxiety (Langlois & Ladouceur, 2004), obsessive compulsive disorder (OCD; Holaway, Heimberg, & Coles, 2006; Sarawgi, Oglesby, & Cougle, 2013), depression (Carleton et al., 2012), eating pathology such as anorexia nervosa and bulimia nervosa (AN and BN; Frank et al., 2012; Sternheim, Konstantellou, Startup, & Schmidt, 2011), and post-traumatic stress disorder (Fetzner, Horswill, Boelen, & Carleton, 2013). Despite evidence suggesting that IU may be a potentially important transdiagnostic construct, the role of IU in BDD has not yet been explored.

BDD is now categorized in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) as an obsessive-compulsive (OC) spectrum disorder (APA, 2013); thus, the role of IU in BDD symptomatology is important to consider, given the established relationship between IU and OCD. Historically, the research regarding IU as a factor related to OCD has focused on its relation to checking symptoms. This may be due to the logical connection between conceptualizations of IU, including individuals' negative beliefs about their ability to cope with uncertainty, and the nature of checking. Nevertheless, previous research has indicated a significant relationship between checking behaviors and IU, such that individuals with OCD who exhibited checking symptoms demonstrated greater IU than individuals with OC symptoms not related to checking, such as washing (Tolin, Abramowitz, Brigidi, & Foa, 2003). The relationship between IU and pathological checking further implicates the possibility of a relationship between IU and BDD, given the prominence of pathological checking in this disorder, as well (e.g., Parker, 2014). Indeed, the majority (80%) of individuals with BDD engage in mirror checking rituals and are driven to do so by the hope or fear that their appearance has changed and a need to know exactly how they look (Veale & Riley, 2001). Just as IU appears to contribute to pathological checking in OCD, individuals' beliefs about their ability to tolerate uncertainty related to changes in their appearance or uncertainty about how they look may contribute to BDD related checking pathology.

Certain features of BDD also overlap considerably with those intrinsic to social anxiety such as high levels of social avoidance (e.g., Fang & Hofmann, 2010; Kelly, Walters, & Phillips, 2010; Pinto & Phillips, 2005), fear of negative evaluation (e.g., Buhlmann, McNally, Etcoff, Tuschen-Caffier, & Wilhelm, 2004; Fang & Hofmann, 2010; Hollander & Aronowitz, 1999), and rejection sensitivity (e.g., Fang et al., 2011). Studies examining the relationship between IU and SAD have shown that IU accounts for a significant amount of variance in social anxiety symptom severity (Boelen & Reijntjes, 2009). Further, the inability to tolerate uncertainty in social situations may contribute to the maintenance of the disorder (Carleton et al., 2010). While feelings of uncertainty in social situations have not been systematically examined in BDD, research has demonstrated that individuals with BDD, compared to healthy controls, report high levels of anxiety associated with perceptions of how others view their appearance (Anson, Veale, & de Silva, 2012). Given the overlapping features between SAD and BDD, it is likely that social situations evoke similar feelings of uncertainty in individuals with BDD (e.g., uncertainty associated with how their appearance may be perceived by others). The inability to tolerate these thoughts related to uncertainty may evoke feelings of distress and/or contribute to behavioral symptoms thought to maintain the disorder (e.g., ritual performance, excessive reassurance seeking, social avoidance).

As BDD is a disturbance of body image, it also shares clinical characteristics with eating disorders (e.g., AN and BN) including distorted attractiveness beliefs (e.g., Buhlmann, Etcoff, & Wilhelm, 2008; Buhlmann, Teachman, & Kathmann, 2011; Buhlmann et al., 2009; Tovée, Emery, & Cohen-Tovée, 2000) and emotional, cognitive, and behavioral components of body image perceptions (Hrabosky et al., 2009). Studies have found that individuals with AN and BN endorse significantly higher levels of IU compared to healthy controls (Frank et al., 2012; Sternheim, Startup, & Schmidt, 2011). Further, one study found that eating disordered individuals reported elevated distress levels in response to a probabilistic reasoning task (the Beads task); during the task, the BN group endorsed greater uncertainty and lower levels of confidence in their decisions, while the AN group placed greater importance on making the correct decision (Sternheim, Startup, et al., 2011). Another study examining a sample of inpatient women with AN noted that these women expressed stress related to uncertainty with regard to others' evaluation of their appearance (Sternheim, Konstantellou, et al., 2011). In individuals with BDD, it is possible that compulsive appearance-related behaviors and/or anxiety about how others perceive their appearance (Anson et al., 2012) are in part driven by distress related to IU or, more specifically, negative beliefs about this uncertainty and their ability to cope with the uncertainty. Collectively, findings of studies linking IU to symptoms of disorders closely related to BDD (e.g., compulsive checking in OCD, social anxiety in SAD, appearance evaluation in AN) provide a basis for the potential value of exploring the role of IU in BDD.

Despite the link between IU and disorders related to BDD, it is important to determine the specificity of its potential relationship to BDD. That is, if the perceived relationship between IU and BDD is better accounted for by other factors such as the closely related construct of intolerance of ambiguity, symptoms of depression and anxiety, or an overall negative affective style, these findings would help to clarify the role of IU in the disorder. Intolerance of ambiguity (IA) is thought to involve similar reactions to those observed in IU (e.g., cognitive interpretations of ambiguity as threatening or distressing (Budner, 1962; McLain, 1993). However, these reactions occur in the face of ambiguity as opposed to uncertainty; with ambiguity describing present-oriented situations that are novel, complex, incongruent, unpredictable, unsolvable, or in situations about which the individual has limited information (Ellsberg, 1961; Furnham & Ribchester, 1995; Grenier, Barrette, & Ladouceur, 2005).

Grenier and colleagues (2005) argue that the primary distinction between IA and IU relates to time orientation, such that IA is present oriented and IU is future oriented. As such, they suggest that IU may be more relevant to anxiety, which often involves anticipation of negative future consequences; indeed, IU has historically been examined in the context of anxiety pathology more often than IA. This conceptualization may be relevant to thoughts surrounding external appraisals of appearance in individuals with BDD. BDD is often associated with fears of being negatively evaluated (e.g., Buhlmann et al., 2004; Fang & Hofmann, 2010; Hollander & Aronowitz, 1999) which in turn may be more closely related to the anticipation of negative consequences in the future, as opposed to a present oriented fear. Thus, it is possible that BDD is more related to IU than IA, according to Grenier and colleagues' (2005) conceptualization of the two constructs.

Current Study

We conducted three separate studies to evaluate the role of IU in BDD. The first study examined IU and BDD symptoms in an unselected sample of undergraduate students; we predicted that IU would be related to BDD symptoms above and beyond past-week symptoms of anxiety and depression. The second study examined this relationship in a community sample recruited via Amazon's Mechanical Turk; we predicted a positive relationship between IU and BDD symptom severity that would not be better accounted