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The structure, correlates, and treatment related changes of mindfulness facets across the anxiety disorders and obsessive compulsive disorder

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ABSTRACT

Research with non-clinical and clinical samples has examined how mindfulness concepts relate to psychological symptom presentations. However, there is less clarity when examining treatment-seeking patients who experience DSM-diagnosed anxiety and obsessional disorders – both cross-sectionally, and following empirically-supported treatments. The Five Facet Mindfulness Questionnaire (FFMQ; Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006) conceptualizes mindfulness as consisting of five facets: Observing, Describing, Acting with Awareness, Nonreactivity, and Nonjudging. The current study examines the factor structure and predictive validity of the FFMQ in a large sample of treatment-seeking individuals with obsessive compulsive disorder (OCD), panic disorder with or without agoraphobia (PD/A), social anxiety disorder (SAD), and generalized anxiety disorder (GAD). Confirmatory factor analyses (CFA) established that both four and five-factor models (i.e., with and without inclusion of the Observing factor) provided an acceptable representation of the underlying FFMQ structure, but did not support a one-factor solution. For each of these diagnostic groups, hierarchical regression analyses clarified the association between specific FFMQ facets and diagnosis specific symptom change during CBT treatment. These findings are discussed in the context of the possible transdiagnostic relevance of specific mindfulness facets, and how these facets are differentially associated with diagnosis specific symptom alleviation during CBT.

1. Introduction

Mindfulness can be defined as the process of "paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally" (Kabat-Zinn, 1994). Meta-analyses have demonstrated that mindfulness based interventions (MBIs) such as Mindfulness Based Cognitive Therapy (MBCT) and Mindfulness Based Stress Reduction (MBSR) are efficacious when considering a broad range of outcomes in clinical and nonclinical samples, leading to improvement in stress, depression symptoms, and reducing subsequent depressive relapse risk (e.g., Chiesa and Serretti, 2009; Hofmann et al., 2010; Piet and Hougaard, 2011). There is also an emerging literature supporting the efficacy of MBIs when considering specific anxiety disorders (see review by Hofmann, Sawyer, Witt, & Oh, 2010), including generalized anxiety disorder (GAD; Craigie, Rees, Marsh, & Nathan, 2008; Evans et al., 2008), panic disorder with or without agoraphobia (PD/A; Kabat-Zinn, Massion, Kristeller, & Peterson, 1992; Kim et al., 2009; Lee et al., 2007), and social anxiety disorder (SAD; Bögels, Sijbers, & Voncken, 2006; Koszycki, Benger, Shlik, & Bradwejn, 2007). However, the results of these studies are somewhat inconsistent. For example, the Strauss et al. (2014) meta-analysis examined the effects of MBIs on anxiety symptom severity, and although the mean treatment effect size was within the moderate range, this result was not statistically significant.

Although there is empirical support for the efficacy of MBIs, the mechanisms by which MBIs lead to successful treatment outcomes remain largely untested, especially when considering treatment for anxiety disorders and OCD. A related issue involves determining whether the mindfulness variables that relate to treatment response in MBIs are specific to MBIs, or whether dispositional mindfulness facets demonstrate predictive validity when examining other structured interventions such as Cognitive Behavior Therapy (CBT). For example, it may be that trait mindfulness may influence whether patients are able

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to maintain focused attention on clinically meaningful processes that occur during CBT treatment. The two-component model of mindfulness proposed by Bishop et al. (2004) can be helpful in terms of understanding how mindfulness may relate to treatment response when considering CBT. The first component involves an intentional process in which individuals attend to, and observe, important mood related experiences that occur in the present moment. The second component involves adopting a non-evaluative orientation toward these experiences, characterized by curiosity, openness, and acceptance. Although CBT does not involve any specific discussion of mindfulness, it may be that patients who are able to attend to meaningful mood related experiences, while adopting a non-evaluative, curious orientation towards these events, may experience an enhanced treatment response. Understanding this process may help clarify whether this is an underlying mechanism that influences treatment response.

It may be that trait mindfulness demonstrates a generalized enhancing effect on any structured treatment process, or it may be that specific mindfulness facets relate to symptom alleviation during CBT treatment. Further, this relationship may differ depending on the type of anxiety disorder a patient experiences. Broadly speaking, anxiety disorders are characterized by an intolerance of one's inner experience (e.g., Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). In order to alleviate anxious distress, individuals engage in various problematic strategies that promote experiential avoidance (e.g., avoiding, withdrawing or escaping from situations, procrastinating, engaging in safety behaviors, ritualizing, etc.). It may be that mindfulness facets, which essentially involve the measurement of experiential avoidance, are clinically relevant indicators of prognostic utility, and perhaps specific mindfulness facets differentially predict symptom alleviation during CBT. Further, it may be that this pattern of association may be diagnosis specific. If we are able to better understand the nature of this relationship, this knowledge may be used to optimize treatment outcome.

A range of meta-cognitive and meta-emotional variables have emerged in the broader CBT treatment literature that have been construed as having relevance to both MBIs and traditional CBT treatment. One noteworthy variable is termed "decentering" (defined as the extent to which individuals can view their thoughts as temporary events in the mind, as opposed to being true reflections of reality; Fresco, Segal, Buis, & Kennedy, 2007). Historically, decentering has been recognized as an important process in CBT treatment (Beck, Rush, Shaw & Emery, 1979), however decentering in CBT is typically related to the analytical process of re-evaluating distressing thoughts. In MBIs, decentering is considered to be a more essential concept; engaging in mindfulness practices promotes experiential awareness, tolerance, and acceptance of internal experiences as opposed to specifically re-evaluating dysfunctional thought processes (Teasdale et al., 2000). Similar concepts have been considered in other treatment paradigms. For example, Wells (2004) developed the metacognitive model, and defined metacognition as "the cognitive processes, strategies, and knowledge that are involved in the regulation and appraisal of thinking itself" (Wells 1995, 2009). In acceptance and commitment therapy, "diffusion" strategies are used in order to improve experiential awareness in order to cultivate an open and accepting attitude toward thoughts, without explicit attempts to alter the content of these thoughts (Hayes, Strosahl, & Wilson, 1999).

1.1. Mindfulness facets and their relationships with acute symptom reduction for patients experiencing an anxiety disorder or obsessive compulsive disorder

A growing area of research has examined whether trait mindfulness predicts various psychological phenomena, as assessed by self-report questionnaires. For example, the Five Facet Mindfulness Questionnaire (FFMQ; Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006) is a commonly used, multi-dimensional self-report measure of mindfulness. Baer and colleagues (2006) proposed that mindfulness can be conceptualized as a multifaceted construct involving five related "facets": Observing, Describing, Acting with Awareness, Nonjudging of Inner Experience, and Nonreactivity to Inner Experience. To our knowledge, there is no previous research that has clarified how specific mindfulness facets (measured using a multidimensional mindfulness questionnaire) relate to diagnosis-specific symptom change for patients receiving CBT for an anxiety disorder or OCD. However, there is research evidence derived from studies of non-clinical and clinical populations that is relevant to our understanding of how mindfulness facets might relate to various psychological phenomena. The FFMQ Acting with Awareness facet assesses the ability to sustain focused attention on activities in the present moment; this facet has been shown to be negatively associated with generalized psychological distress (Baer et al., 2006, 2008), worry (de Bruin, Topper, Muskens, Bögels, & Kamphuis, 2012), anxious arousal and generalized anxiety related distress (Desrosiers, Klemanski, & Nolen-Hoeksema, 2013). The FFMQ Describing facet assesses the ability to label feelings with words; it has been shown to be inversely related to anxious arousal (Desrosiers et al., 2013). The FFMQ Nonreactivity facet assesses the capacity to allow feelings to come and go without getting drawn into them; this facet has been shown to be negatively correlated with symptoms of general distress (Baer et al., 2006, 2008), anxiety related distress (Desrosiers et al., 2013), and symptoms of anxiety and depression (Barnhofer, Duggan, & Griffith, 2011; de Bruin et al., 2012; Delgado et al., 2010; Fisak and von Lehe, 2012). The FFMQ Nonjudging facet assesses the ability to adopt a non-evaluative stance towards thoughts and feelings; this facet has been shown to be significantly inversely related to depression related distress (Desrosiers et al., 2013). Considering the existing literature as a whole, there are relatively inconsistent findings relating trait mindfulness facets to generalized psychological distress as well as specific diagnostic symptoms.

1.2. Measures of mindfulness: Psychometric properties in the anxiety disorders

In order to accurately assess how mindfulness facets relate to clinically relevant anxiety and obsessional symptomatology, it is important that we first establish the psychometric properties of a measure within specific diagnostic populations (e.g., Brown & Ryan, 2004; Dimidjian & Linehan, 2003). There are occasions in which a validated measure may have differential psychometric properties, depending on the clinical population being examined, and depending on whether mindfulness is defined as a unidimensional or multidimensional construct. Within the past few years, several self-report measures have been created to operationalize the construct of mindfulness (e.g., Bergomi, Tschacher, & Kupper, 2013). For example, the *Mindful Attention Awareness Scale* (MAAS; Brown and Ryan, 2003) conceptualizes mindfulness as a unitary construct and assesses the tendency to be attentive and aware of the present moment. The *Kentucky Inventory of Mindfulness Scale* (KIMS; Baer, Smith, & Allen, 2004) assesses four facets of mindfulness, including Observing (i.e., attending to internal and external stimuli), Describing (i.e., labeling or noting observed phenomena using words), Acting with Awareness (i.e., engaging fully in one's current activities with undivided attention), and Accepting without Judgment (i.e., being nonjudgmental or non-evaluative about present moment experiences).

Items from these previously validated mindfulness measures were considered during the development of the multidimensional FFMQ (Baer et al., 2006). The psychometric properties of the FFMQ have been examined using both non-clinical (Baer et al., 2006; Baer et al., 2008) and clinical samples (Bohlmeijer, ten Klooster, Fledderus, Veehof, & Baer, 2011; Christopher, Neuser, Michael, & Baitmangalkar, 2012; Curtiss and Klemanski, 2014; Desrosiers et al., 2013; Gu et al., 2016). Baer and colleagues demonstrated that five existing mindfulness questionnaires subsume five latent factors, namely: Observing, Describing, Acting with Awareness, Nonreactivity, and Nonjudging. The FFMQ