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Mindfulness-Based Exposure Strategies as a Transdiagnostic Mechanism of Change: An Exploratory Alternating Treatment Design

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The present study explored whether distress reduction in response to strong negative emotions, a putative transdiagnostic mechanism of action, is facilitated by mindfulness strategies. Seven patients (mean age = 31.14 years, *SD* = 12.28, range 19–48 years, 43% female, 86% Caucasian) with heterogeneous anxiety disorders (i.e., panic disorder with or without agoraphobia, social anxiety, generalized anxiety) were assigned a randomized order of weeklong blocks utilizing either mindfulness- or avoidance-based strategies while ascending a 6-week emotion exposure hierarchy. Participants completed three exposures per block and provided distress and avoidance use ratings following each exposure. Anxiety severity, distress aversion, and distraction/suppression tendencies were also assessed at baseline and the conclusion of each block. Visual, descriptive, and effect size results showing exposures utilizing mindfulness were associated with higher overall distress levels, compared with those utilizing avoidance. Within blocks, the majority of participants exhibited declining distress levels when employing mindfulness strategies, as opposed to more static distress levels in the avoidance condition. Systematic changes in anxiety severity, distress aversion, and distraction/suppression were not observed. These results suggest mindfulness strategies may be effective in facilitating emotion exposure; however, a minimum dosage may be necessary to overcome initial distress elevation. Potential transdiagnostic change mechanisms and clinical implications are discussed.

Keywords: transdiagnostic; mindfulness; exposure; treatment mechanisms; single-case experimental design

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ANXIETY, DEPRESSIVE, AND RELATED emotional disorders (e.g., obsessive–compulsive disorders [OCDs], posttraumatic stress disorder, eating disorders) are prevalent, costly, and debilitating to daily functioning

and quality of life (Barlow, 2002). Disorders within these diagnostic classes are highly comorbid, with lifetime comorbidity estimates as great as 81% (Brown, Campbell, Lehman, Grisham, & Mancill, 2001). An emerging literature indicates that this high rate of co-occurrence may be the result of a shared propensity toward the experience and intolerance of negative emotions (i.e., neuroticism), suggesting these conditions are phenotypically diverse expressions of a common syndrome (Brown, Chorpita, & Barlow, 1998). This neurotic vulnerability has been implicated in the development and maintenance of these "emotional disorders," often leading to strong aversive reactions to negative emotional experience (Barlow, 2000; Barlow, Sauer-Zavala, Carl, Bullis, & Ellard, 2014). As a result, individuals with these disorders may attempt to reduce or avoid negative emotions by engaging in strategies that might initially succeed but often backfire (Mogg, Bradley, Miles, & Dixon, 2004), paradoxically exacerbating distress, symptoms, and neurotic temperament (Fledderus, Bohlmeijer, & Pieterse, 2010; Venta, Sharp, & Hart, 2012).

These commonalities suggest emotional disorders may be effectively treated via a transdiagnostic approach targeting shared maintenance factors. Recent years have seen a proliferation in treatments designed to address mental illness across diagnostic categories (e.g., Barlow, Ellard, et al., 2011a; Barlow, Farchione, et al., 2011b; Fairburn, Cooper, & Shafran, 2003); however, little research has explored the mechanisms by which these transdiagnostic interventions operate. Treatment mechanism research is essential for establishing the utility of transdiagnostic protocols, strengthening psychopathological theory, and advancing future research and therapies. Though various treatments have shown effective outcomes across disorders, transdiagnostic interventions grounded in a core rationale for disorder maintenance provide an ideal framework for mechanistic research.

The unified protocol for transdiagnostic treatment of emotional disorders (UP; Barlow, Ellard, et al., 2011a; Barlow, Farchione, et al., 2011b) is one such intervention built upon core transdiagnostic theory to address emotional disorders. Specifically, the UP purportedly targets underlying neuroticism by facilitating extinction of distress in response to strong emotions, leading to reduced emotional avoidance and, consequently, disorder symptoms. Across various skills modules, patients are taught to cultivate emotional acceptance in an effort to reduce reliance on maladaptive avoidant coping; less avoidant coping, in turn, leads to fewer instances of avoided emotions rebounding with increased frequency and intensity. Preliminary evidence has supported the UP's targeted approach across emotional disorders for reducing both symptoms and neuroticism itself (Carl, Gallagher, Sauer-Zavala, Bentley, & Barlow, 2014; Farchione et al., 2012).

The UP's putative mechanism of action, extinction of distress during strong emotional experience, has not yet been systematically tested. The UP consists of five core skills modules: (a) emotion awareness training, (b) cognitive appraisal and reappraisal, (c) emotion avoidance and emotion-driven behaviors, (d) awareness and tolerance of physical sensations, and (e) interoceptive and situation-based emotion exposures (see Payne, Ellard, Farchione, Fairholme, & Barlow, 2014, for details). However, two of these modules may be particularly relevant for targeting this putative mechanism in practice. First, mindfulness (emotion awareness) training may encourage patients to nonjudgmentally accept present-moment experiences through experiential exercises. Mindful awareness of distressing thoughts, emotions, or sensations in the absence of dire consequences hypothetically teaches individuals that emotions are not harmful, reducing reliance on avoidant coping strategies that ultimately worsen distress (Craske & Barlow, 2007). Mindfulness skills have demonstrated negative associations with neuroticism (Baer, Smith, & Allen, 2004; Giluk, 2009), and recent work by Boswell, Anderson, and Barlow (2014) found that increases in mindfulness temporally preceded decreases in anxious and depressive symptoms during UP treatment. Research further suggests that increased emotional acceptance mediates the relationship between mindfulness practice and the tendency to experience negative emotions (van den Hurk et al., 2011).

The final core module, emotion exposure, may also be particularly effective in extinguishing distress from emotional experience. Based on conditioning principles, exposure therapy encourages patients to repeatedly confront emotion-provoking situations with the goal of reducing distress associated with these experiences. Exposure procedures have been linked to symptom improvement across a range of anxiety disorders (Barlow, Allen, & Basden, 2007; Lindsay, Crino, & Andrews, 1997) and are based on a number of established learning theories. For example, *emotional processing theory* (Foa & Kozak, 1986) proposes that activating negative emotional responses via feared stimuli (i.e., fear activation) allows the distressed individual to habituate to the feared stimuli. Additionally, *belief (*or *expectancy) disconfirmation theory* (Salkovskis, Clark, Hackmann, Wells, & Gelder, 1999) holds that the greatest benefits of exposure are garnered when patients actively seek to disconfirm catastrophic beliefs and counter safety behaviors that may reinforce these beliefs. Accumulating evidence has shown greater