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## Mindfulness and acceptance-based group therapy and traditional cognitive behavioral group therapy for social anxiety disorder: Mechanisms of change



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#### ABSTRACT

The present study investigated mechanisms of change for two group treatments for social anxiety disorder (SAD): cognitive behavioral group therapy (CBGT) and mindfulness and acceptance-based group therapy (MAGT). Participants were treatment completers (n = 37 for MAGT, n = 32 for CBGT) from a randomized clinical trial. Cognitive reappraisal was the hypothesized mechanism of change for CBGT. Mindfulness and acceptance were hypothesized mechanisms of change for MAGT. Latent difference score (LDS) analysis results demonstrate that cognitive reappraisal coupling (in which cognitive reappraisal is negatively associated with the subsequent rate of change in social anxiety) had a greater impact on social anxiety for CBGT than MAGT. The LDS bidirectional mindfulness model (mindfulness predicts subsequent change in social anxiety; social anxiety predicts subsequent change in mindfulness) was supported for both treatments. Results for acceptance were less clear. Cognitive reappraisal may be a more important mechanism of change for CBGT than MAGT, whereas mindfulness may be an important mechanism of change for both treatments. © 2015 Elsevier Ltd. All rights reserved.

Although there are various empirically supported treatments for social anxiety disorder (SAD), including longstanding support for traditional cognitive behavioral therapy (CBT; see Heimberg, 2002 for a review) and growing support for mindfulness and acceptancebased approaches (Craske et al., in press; Dalrymple & Herbert, 2007; Kocovski, Fleming, Hawley, Huta, & Antony, 2013), each form of treatment may involve distinct (as well as shared) mechanisms of change. Traditional CBT models focus, in part, on cognitive reappraisal. Alternatively, mindfulness and acceptance-based models suggest that present-moment non-judgemental awareness and willingness to experience anxious thoughts and feelings are at least, in part, responsible for change. The purpose of the present study was to evaluate the role of cognitive reappraisal, mindfulness and acceptance as potential mechanisms of change for two forms of group therapy for SAD, cognitive behavioral group therapy (CBGT;

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Heimberg & Becker, 2002) and mindfulness and acceptance-based group therapy (MAGT; Fleming & Kocovski, 2009), using data from a recent randomized controlled trial (Kocovski et al., 2013). An understanding of how these treatments work may allow for further treatment refinement and ultimately improved treatment efficacy.

### 1. Traditional CBT for SAD: mechanisms of change

A number of studies have recently examined mechanisms of change for CBT for SAD, mostly focusing on cognitive reappraisal as well as probability and cost estimates of feared outcomes. Cognitive reappraisal, an emotion regulation strategy in which the interpretation of a situation is changed in order to reduce the emotional impact (Gross & John, 2003), is related to the commonly used CBT technique of cognitive restructuring, which encourages clients to shift their interpretation of a situation. Moscovitch et al. (2012) found that change in cognitive reappraisal during CBT for SAD distinguished responders and nonresponders, as did change in social probability and cost estimates. Further, Goldin et al. (2012) found that cognitive reappraisal self-efficacy (i.e., the belief that

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one can successfully use cognitive reappraisal to regulate emotions) mediated change in CBT for SAD.

In addition to change in probability and cost estimates distinguishing responders and nonresponders (Moscovitch et al., 2012), several other studies have found support for the importance of reducing probability or cost estimates. Change in estimated social cost was found to mediate change in social anxiety for both CBGT and an exposure-based group treatment (Hofmann, 2004). Similarly, change in the cost of negative evaluation mediated change in social anxiety for an enhanced CBT group, but not for a standard CBT group (comparable to CBGT; Rapee, Gaston, & Abbott, 2009). In contrast, in a sample of individuals with SAD completing a series of public speaking exposures, Smits, Rosenfield, McDonald, and Telch (2006) found that decreased cost estimates were a consequence of decreased fear, whereas reductions in probability estimates led to subsequent fear reduction.

Finally, Hedman et al. (2013) compared four possible mediators (avoidance, self-focused attention, anticipatory processing, and postevent processing, all assessed weekly using one-item scales) for individual vs. group CBT for SAD. The treatments were based on similar cognitive models (Clark & Wells, 1995; Rapee & Heimberg, 1997) but employed different treatment components (e.g., cognitive restructuring vs. behavioral experiments). Although individual CBT led to greater decreases than CBGT on all four variables, only avoidance and self-focused attention mediated change for individual CBT, whereas self-focused attention, anticipatory processing and postevent processing mediated change for CBGT. Therefore, in addition to process differences based on theoretical framework, there may be differences based on differing treatment strategies and modality (individual vs. group).

# 2. Mindfulness and acceptance-based treatments for SAD: mechanisms of change

Experiential acceptance (Hayes, Luoma, Bond, Masuda, & Lillis, 2006) is a construct that is commonly examined as a mechanism of change in ACT, typically assessed using the *Acceptance and Action Questionnaire* (AAQ; Hayes et al., 2004). In an open trial of MACT (Kocovski, Fleming, & Rector, 2009), as well as Dalrymple and Herbert's (2007) ACT open trial, preliminary support was found for acceptance (measured using the AAQ) as a possible mediator of treatment change. In both studies, change in AAQ by midtreatment significantly predicted change in social anxiety from pre to post-treatment, suggesting that acceptance is a variable that would be of interest to examine as a mediator in a randomized trial.

Although acceptance is part of most definitions of mindfulness, mindfulness is a broader construct that includes an awareness component (Baer, 2011). In the MAGT open trial (Kocovski et al., 2009), change in mindfulness was significantly correlated with change in social anxiety; however, further analyses were not supportive of mindfulness as a mediator, though power may have been an issue. Burton, Schmertz, Price, Masuda, & Anderson (2013) examined the effect of exposure group therapy and virtual reality exposure therapy on mindfulness levels and also evaluated mindfulness as a potential moderator of treatment response. Mindfulness did not change significantly across treatments; nor did mindfulness moderate treatment outcome.

## 3. Comparing mechanisms of change across traditional CBT and ACT for SAD

Only one study has compared mechanisms of change for CBT and ACT for SAD, and treatments were delivered in individual formats (Niles et al., 2014). Niles and colleagues examined experiential avoidance (a hypothesized mechanism underlying treatment

response in ACT; the opposite of experiential acceptance) and frequency of negative cognitions (a hypothesized mechanism underlying treatment response in CBT) utilizing a longitudinal framework in which these two constructs were assessed on five occasions during treatment. They used multilevel modeling analyses to examine the rate of change of their hypothesized mediators across treatment and the relationship between this change and outcome. They concluded that early decreases in negative cognitions predicted change in both treatments whereas early decreases in experiential avoidance predicted change in ACT only. It should be noted that Arch, Wolitzky-Taylor, Eifert, and Craske (2012) also compared mechanisms of change for individual ACT and CBT, but in a sample of mixed anxiety disorders (20% with SAD). There was support for cognitive defusion (a hypothesized ACT-specific mediator) as a mechanism of change for a broad range of outcomes for both treatments, and for anxiety sensitivity (a hypothesized CBT-specific mediator) as a mediator for one outcome (worry) in both treatments.

### 4. Present study

The purpose of the present study was to examine three variables that may represent unique mechanisms of change for CBGT or MAGT: cognitive reappraisal, mindfulness, and acceptance. Although similar research examining mechanisms of change in ACT compared to CBT has been published, only one study has focused on SAD, and this involved individual therapy. Given there may be different mechanisms for different disorders, and different mechanisms for group and individual approaches (as found by Hedman et al., 2013), further research is warranted. Additionally, this is the first analysis examining these questions using latent difference score (LDS) analysis, which allows for a) the determination of how each of these variables change independently over time, b) determining how each longitudinal series may relate (comparing four possible clinically relevant models), and c) examining how this dynamic process might change based on treatment modality.

A dataset from a recently published randomized controlled trial (RCT; Kocovski et al., 2013) comparing CBGT, MAGT, and a waitlist control condition (WAIT) was used in the present study. Participants in the treatment conditions both fared significantly better than those in the WAIT condition but were not significantly different from one another on most variables examined in the study, including social anxiety severity, depression, and valued living. Consistent with Moscovitch et al. (2012) and Goldin et al. (2012), it was hypothesized that cognitive reappraisal would affect subsequent longitudinal change in social anxiety symptoms over each time period for clients in the CBGT group (but not MAGT), and that mindfulness and acceptance would affect subsequent longitudinal change in social anxiety symptomatology over each time period for clients treated with MAGT (but not CBGT).

### 5. Method

### 5.1. Participants

Participants were 69 treatment completers, initially diagnosed with social anxiety disorder, according to the *Structured Clinical Interview for DSM-IV* (First, Spitzer, Gibbon, & Williams, 1996), who contacted the study team seeking treatment in response to advertisements (i.e., online, newspaper, flyers etc.). The present study represents a secondary data analysis and details regarding the randomized controlled trial are presented elsewhere (Kocovski et al., 2013). Overall, the sample had a mean age of 34 years, was fairly even in terms of gender split (54% female), was mostly single (62%) and close to half had a history of major depressive disorder (47%). Individuals with current major depressive disorder or current alcohol

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