Cognitive Mediators of Treatment for Social Anxiety Disorder: Comparing Acceptance and Commitment Therapy and Cognitive-Behavioral Therapy

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Objective: To assess the relationship between session-by-session mediators and treatment outcomes in traditional cognitive-behavioral therapy (CBT) and acceptance and commitment therapy (ACT) for social anxiety disorder.

Method: Session-by-session changes in negative cognitions (a theorized mediator of CBT) and experiential avoidance (a theorized mediator of ACT) were assessed in 50 adult outpatients randomized to CBT (n = 25) or ACT (n = 25) for DSM-IV social anxiety disorder. Results: Multilevel modeling analyses revealed significant nonlinear decreases in the proposed mediators in both treatments, with ACT showing steeper decline than CBT at the beginning of treatment and CBT showing steeper decline than ACT at the end of treatment. Curvature (or the nonlinear effect) of experiential avoidance during treatment significantly mediated posttreatment social anxiety symptoms and anhedonic depression in ACT, but not in CBT, with steeper decline of the Acceptance and Action Questionnaire at the beginning of treatment predicting fewer symptoms in ACT only. Curvature of negative cognitions during both treatments predicted outcome, with steeper decline of negative cognitions at the beginning of treatment predicting lower posttreatment social anxiety and depressive symptoms. Conclusions: Rate of change in negative cognitions at the beginning of treatment is an important predictor of change across both ACT and CBT, whereas rate of change in experiential avoidance at the beginning of treatment is a mechanism specific to ACT.

Keywords: social anxiety disorder; treatment mediator; treatment mechanism; cognitive-behavioral therapy; acceptance and commitment therapy

Social anxiety disorder is among the most common psychological disorders, affecting approximately 13% of individuals at some point in their lives (Kessler, Petukhova, Sampson, Zaslavsky, & Wittchen, 2012). Cognitive-behavioral therapy (CBT) is an effective treatment for social anxiety disorder (Heimberg, 2002; Rodebaugh, Holaway, & Heimberg, 2004). However, a significant number of individuals do not benefit from CBT (Arch & Craske, 2009; Clark et al., 2006; Davidson et al., 2004). Recently, new behavioral treatments such as acceptance and commitment therapy (ACT; Hayes, Strosahl, & Wilson, 1999) have emerged that draw from Eastern mindfulness meditation practice, and preliminary evidence supports their effectiveness for anxiety disorders (Eifert & Forsyth, 2005). Understanding the mechanisms that drive treatment response is essential for optimizing their delivery and
improving outcomes (Kazdin, 2007). The goal of the current study was to examine possible mediators of treatment outcome in two treatments for social anxiety disorder—CBT and ACT—to better understand why these treatments work.

Testing mediators in randomized controlled trials can tell us why and how treatments are effective (Kraemer, Wilson, Fairburn, & Agras, 2002), and comparison of mechanisms across two active treatments may ultimately help us tailor treatment approaches based on an individual’s presentation. For a rigorous test of treatment mediation, the mediators must be tested during treatment and preferably at multiple time points. Doing so ensures that the mediator temporally precedes the outcome (Kraemer et al., 2002), and assessing mediators at multiple time points throughout treatment allows assessment of change in mediators over time. Multilevel modeling is optimal for nested designs where repeated measures are collected within individuals (Kenny, Kashy, & Bolger, 1998). In addition, multilevel modeling handles missing data effectively. As reviewed below, few studies have examined treatment mediators using this rigorous approach.

**Evidence for Treatment Mediators in CBT and ACT**

The cognitive model for social anxiety disorder posits that reductions in negative cognitions in relation to social situations explain subsequent symptom reduction following CBT (Craske, 2010; Craske et al., 2008). In support of this purported mediator, Hofmann (2004) found that reduction in social cost ratings (patient ratings of “How bad would it be?” if a feared social outcome occurred) from pre- to post-treatment predicted symptom reduction. However, since social cost ratings were not measured during treatment, rigorous testing of the mediator as a temporal precedent to the outcome was not conducted. In another study, session-by-session ratings of the probability of a negative social outcome predicted subsequent fear reduction (Smits, Rosenfield, McDonald, & Telch, 2006). The mediator was measured during treatment and prior to the outcome, and the authors used multilevel modeling to model change in the mediator over time. However, to fully understand whether a mediator is specific to CBT (as opposed to common treatment processes), it is necessary to compare CBT mediators with those of another active treatment (see Arch & Craske, 2008; Kraemer et al., 2002).

ACT (Hayes et al., 1999) has been shown to be effective for anxiety disorders (Arch, Eifert, et al., 2012), and in one randomized controlled trial, ACT was effective for social anxiety disorder in particular (Dalrymple & Herbert, 2007). ACT aims to promote mindfulness, acceptance, and cognitive defusion (learning to detach from thoughts and observe them more dispassionately) with the ultimate goal of increasing psychological flexibility and promoting behavior change that aligns with one’s life values (Hayes et al., 1999). Decreased experiential avoidance, or becoming more willing to experience uncomfortable physical sensations and emotions, has been proposed as a possible mechanism of change (Hayes et al., 2004).

In a study of ACT for social anxiety disorder, Dalrymple and Herbert (2007) found that greater increases in acceptance and cognitive defusion by midtreatment predicted better outcomes posttreatment, whereas greater perceived control over anxiety (a more CBT consistent mediator measure) did not. However, the meaningfulness of these results was limited by the fact that the mediator was assessed only once midtreatment, and difference scores were calculated to assess the effect of the mediator on treatment outcomes. Repeated measurement of the mediator at multiple time points throughout treatment and subsequent analysis using growth curve modeling would allow for a more fine-grained assessment of how the mediator changes throughout treatment.

To our knowledge, only one study has compared treatment mediators in CBT and ACT. Arch, Wolitzky-Taylor, Eifert, and Craske (2012) examined treatment mediators in CBT and ACT for individuals with a variety of anxiety disorders. Participants with panic disorder, social anxiety disorder, generalized anxiety disorder, and specific phobia were randomized to 12 sessions of either CBT or ACT. Participants completed measures of purported treatment mediators (negative beliefs in CBT and cognitive defusion in ACT) repeatedly throughout treatment. Using multilevel modeling, both purported mediators were found to change significantly in both treatments, with experiential avoidance and negative cognitions decreasing more in ACT than in CBT. Also, change in both purported mediators significantly predicted symptom reduction and increased quality of life in both treatments, suggesting similarity in the change mechanisms in ACT and CBT.

**Current Study**

The current study included analysis of session-by-session data from a treatment study in which ACT and CBT were compared for the treatment of social anxiety disorder. Patients in both treatment groups demonstrated significant symptom reduction following completion of treatment, and the two groups did not significantly differ posttreatment, or at 6- or 12-month follow-ups (Craske et al., 2014).
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