

## A Fresh Look at Potential Mechanisms of Change in Applied Relaxation for Generalized Anxiety Disorder: A Case Series

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*Applied relaxation (AR), which involves noticing early signs of anxiety and responding with a relaxation response, is an empirically supported treatment for generalized anxiety disorder (GAD). However, research on hypothesized mechanisms of AR (e.g., reduced muscle tension) has been mixed, making it likely that additional mechanisms are contributing to the efficacy of AR. Stemming from more recent conceptualizations of GAD, it is hypothesized that mindfulness, decentering, and acceptance may be potential mechanisms of change in AR. Outcome, mechanism data, and case descriptions from three individuals diagnosed with GAD who received 16 weeks of AR as part of a larger randomized controlled trial are presented to demonstrate the ways that AR may lead to clinical improvement through mindfulness, decentering, and acceptance.*

GENERALIZED anxiety disorder (GAD) is characterized by anxiety, tension, and chronic and persistent worry (American Psychiatric Association, 2000). It is a chronic disorder, unlikely to remit without treatment (Yonkers, Warshaw, Massion, & Keller, 1996), that affects between 4% to 7% of the population (Kessler, Keller, & Wittchen, 2001). GAD is associated with a diminished quality of life (Hoffman, Dukes, & Wittchen, 2008) and is frequently comorbid with other anxiety and mood disorders (Kessler, Walters, & Wittchen, 2004). Cognitive-behavioral therapy—particularly applied relaxation (AR)—is considered an empirically supported treatment for GAD (Chambless & Ollendick, 2001).

As described in Borkovec and Costello (1993), AR is based on the premise that anxiety involves an interacting system of cognitive, physiological, affective, and behavioral responses. These responses are proposed to develop over time, with each channel amplifying the others, increasing the intensity of the anxious response. AR is aimed at teaching clients to notice the earliest signs of anxiety and to react with a different response, namely relaxation, before the cycle of anxiety has a chance to strengthen.

*Keywords:* applied relaxation; mindfulness; decentering; acceptance; GAD

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There is a large body of research showing that AR is efficacious in treating anxiety disorders. For example, AR has been shown to be more effective than a nondirective therapy (Borkovec & Costello, 1993) and roughly as effective as cognitive therapy (Arntz, 2003; Öst & Breitholtz, 2000) in treating GAD. In a meta-analysis, Siev and Chambless (2007) found that cognitive therapy and relaxation therapy were equivalent treatments for GAD. One study showed a clear benefit of CBT over relaxation therapy (Butler, Fennell, Robson, & Gelder, 1991); however, this study used only progressive muscle relaxation (PMR) and did not integrate applied relaxation (Öst, 1987). Although the efficacy of PMR and AR have yet to be compared for individuals with GAD, AR has incremental benefits over PMR in the treatment of panic disorder (Öst, 1988). It is worth noting that AR is just one of several efficacious approaches for GAD. For example, there are treatments that address other processes of GAD, such as metacognitive awareness (Wells, 2007), intolerance of uncertainty (Robichaud & Dugas, 2006), emotion regulation (Mennin, 2004), interpersonal relationships (Newman, Castonguay, Borkovec, Fisher, & Nordberg, 2008), and mindfulness, acceptance, and engagement in valued actions (Roemer & Orsillo, 2009). While these processes also deserve research attention, the focus of this paper will be on a select group of change process that may be involved in AR.

It has been hypothesized that AR leads to changes in anxiety by decreasing muscle tension. If psychological

distress stems from a generalized stress activation response that is comprised of multiple central and peripheral physiological systems (e.g., Öst, 1987), then learning to reduce activation of one system, here the muscular system, should also reduce activation in other systems (e.g., Gellhorn & Kiely, 1972). However, the research on the role of reduced muscle activation has been mixed at best (see Conrad & Roth, 2007, for a review). Therefore, while the reduction in tension likely plays some role in the efficacy of AR, there may be other mechanisms of action that are playing important roles as well.

With the rise of acceptance-based interventions, there has been an increased focus on particular mechanisms of action that may be playing a role in cognitive behavioral therapies more generally. For example, both Arch and Craske (2008) and Orsillo, Roemer, Block Lerner, and Tull (2004) highlight the similarities and overlap between acceptance-based interventions and more “traditional” cognitive-behavioral therapies. Given this degree of similarity, coupled with our clinical observations of the kinds of changes clients receiving AR make, we were interested in looking more specifically at the ways that AR may lead to changes in three proposed mechanisms of change: mindfulness, decentering, and acceptance (described below). What follows is a description of how AR may lead to change through these mechanisms.

### **Mindfulness and Decentering**

It has been proposed that anxiety is partially maintained by a rigid, fused, judgmental relationship with internal experiences (Roemer & Orsillo, 2009). In fact, individuals diagnosed with GAD report lower levels of mindfulness than those without clinically significant anxiety (Roemer et al., 2009). Therefore, strategies that cultivate mindfulness, or a curious, nonjudgmental awareness of the present moment (Kabat-Zinn, 2005), and promote decentering, that is, the process of seeing thoughts and feelings as objective events in the mind rather than personally identifying with them (Safran & Segal, 1990), are proposed to change this problematic relationship and reduce anxiety and related distress.

Many of the strategies used in AR likely cultivate mindfulness and decentering as relaxation is functionally similar to mindfulness (Borkovec & Sharpless, 2004). For example, self-monitoring of early indicators of anxiety likely changes an individual's relationship with anxiety. The act of self-monitoring requires a different type of awareness, one that is characterized by a more objective and curious stance towards anxious responses. Furthermore, the acts of recording early cues on a monitoring sheet and observing and reporting on responses during an imaginal exercise both require the client to decenter and more objectively consider her or his responses.

PMR may also cultivate present-moment awareness as clients who may typically seek to avoid or ignore anxiety-related symptoms are encouraged to focus on the sensations of tension and relaxation in the body. In addition to present-moment awareness, mindfulness also involves a compassionate, less judgmental type of awareness (Kabat-Zinn, 2005). This part of mindfulness is not explicit in PMR and we do not believe that all clients receiving PMR experience this self-compassionate mindful awareness; however, as illustrated below, some clients do appear to use PMR and early cue detection to change their relationships with their internal experiences in a mindful, decentered, or self-compassionate way.

### **Acceptance**

Experiential avoidance, or the tendency to want to avoid or change one's internal experience, has also been considered a fundamental process in anxiety disorders (Hayes, Strosahl, & Wilson, 1999) and has been shown to differentiate those with and without a diagnosis of GAD (Lee, Orsillo, Roemer, & Allen, 2010). Although a natural response to uncomfortable experiences like anxiety is to avoid the anxiety-provoking stimuli, this response is often ineffective and may actually paradoxically increase distress (Salters-Pedneault, Tull, & Roemer, 2004). Each time an unwanted sensation arises, the inability to remove or change the unwanted experience serves as a reminder of the struggle with control. This inability to change the experience then elicits more negative reactions and urges to avoid and escape, perpetuating the cycle of anxiety. The alternative to experiential avoidance is acceptance (Hayes, Luoma, Bond, Masuda, & Lillis, 2006), or the recognition that experiences will come and go and that judging or resisting them is not useful.

AR may target acceptance in a number of ways. Most notably, the in-session imaginal exercises require the client to vividly recall anxiety-provoking situations. Similar to techniques used in other forms of behavior therapy, this reexperiencing exercise may serve the function of having clients notice their anxious responses while the therapist helps them to stay with the experience, encouraging clients to approach, rather than avoid. Likewise, rather than automatically responding to signs of anxiety, self-monitoring of cues also requires clients to approach the cues. PMR may also promote acceptance as clients are instructed to continue with the practice, while not responding with avoidance, regardless of what comes up during the exercise. Many clients report that they worry during PMR and so the repeated experience of practicing may be teaching clients that they can have worries without needing to respond to them; demonstrating that if they just let the worries be and focus their attention elsewhere (on relaxation), then the worries or their response to the worries eventually do

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