Peeking into the black box: Mechanisms of action for anger management treatment

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ABSTRACT

We investigated potential mechanisms of action for anger symptom reductions, specifically, the roles of anger regulation skills and therapeutic alliance on changes in anger symptoms, following group anger management treatment (AMT) among combat veterans with posttraumatic stress disorder (PTSD). Data were drawn from a published randomized controlled trial of AMT conducted with a racially diverse group of 109 veterans with PTSD and anger symptoms residing in Hawaii. Results of latent growth curve models indicated that gains in calming skills predicted significantly larger reductions in anger symptoms at post-treatment, while the development of cognitive coping and behavioral control skills did not predict greater symptom reductions. Therapeutic alliance had indirect effects on all outcomes mostly via arousal calming skills. Results suggest that generalized symptom reduction may be mediated by development of skills in calming physiological arousal. In addition, arousal reduction skills appeared to enhance one's ability to employ other anger regulation skills.

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1. Introduction

Anger, aggression and hostility are significant clinical issues among our active military and veteran populations (Jakupcak et al., 2007; Morland, Love, Mackintosh, Greene, & Rosen, 2012), especially in the context of posttraumatic stress disorder (PTSD) (McHugh, Forbes, Bates, Hopwood, & Creamer, 2012; Novaco & Chemtob, 2002; Orth & Wieland, 2006; Taft, Creech, & Kachadourian, 2012). Of recent concern have been the roles of dysregulated anger and associated behaviors on post-deployment family functioning, including increased rates of domestic violence, sexual violence, and child abuse seen among veterans with PTSD (Evans, McHugh, Hopwood, & Watt, 2003; Marshall, Panuzio, &

Taft, 2005; Taft, Street, Marshall, Dowdall, & Riggs, 2007; Teten, Schumacher, Bailey, & Kent, 2009; Teten et al., 2010).

While research has documented issues of anger, aggression and PTSD among United States (U.S.) Vietnam era veterans (Chemtob, Novaco, Hamada, & Gross, 1997; Kulka et al., 1990), recent research has also begun to document elevated levels of anger among more recent cohorts of veterans from the U.S. (Erbes, Curry, & Leskela, 2009; Hellmuth, Stappenbeck, Hoerster, & Jakupcak, 2012; Hoge, Auchterlonie, & Milliken, 2006; Novaco, Swanson, Gonzalez, Gahm, & Reger, 2012), Australia (Elliott, Biddle, Hawthorne, Forbes, & Creamer, 2005; Forbes et al., 2005) and Great Britain (McManus, Craig, McAlpine, Langhorne, & Ellis, 2009). However, this remains an understudied area, especially regarding the mechanisms through which elevated anger impacts treatment presentation, engagement and outcomes (Ahmed, Kingston, DiGiuseppe, Bradford, & Seto, 2012; McHugh et al., 2012). In civilian and military populations and across different trauma types, research has shown that reports of increased anger following traumatic exposure increase the risk for the development of PTSD (Andrews, Brewin, Rose, & Kirk, 2000; Ehlers, Mayou, & Bryant,

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1998; Riggs, Dancu, Gershuny, Greenberg, & Foa, 1992). Also, among those receiving treatment for PTSD, elevated levels of anger predict more severe PTSD presentations (Elliott et al., 2005) and poorer treatment response (Foa, Riggs, Massie, & Yarczower, 1995; Forbes, Creamer, Hawthorne, Allen, & McHugh, 2003; Koenen, Stellman, Stellman, & Sommer, 2003; Lloyd et al., 2013). However, these effects have not been consistent across all studies (Cahill, Rauch, Hembree, & Foa, 2003; Elliott et al., 2005; Forbes et al., 2005). While PTSD treatment may ameliorate some anger symptoms, it has not been found to be a sufficient treatment (Bolton et al., 2004; Stapleton, Taylor, & Asmundson, 2006).

The experience of anger includes a complex set of affective, cognitive, physiological and motivational processes that lead to a wide range of behaviors (Deffenbacher, 2011). While anger per se is not necessarily pathological, dysfunction occurs when the frequency, intensity and duration with which it is activated, expressed and/or experienced becomes problematic (Novaco, 2011; Reilly & Shopshire, 2002). Often it is the nature and extent of outcomes that help define whether anger and related behaviors become problematic (Deffenbacher, 2011).

Psychotherapy research has documented the efficacy of treatments for dysregulated anger (Beck & Fernandez, 1998; Del Vecchio & O'Leary, 2004; DiGiuseppe & Tafrate, 2003; Glancy & Saini, 2005; Kulesza & Copeland, 2009; Orth & Wieland, 2006; Saini, 2009) with standardized treatment effect sizes (ES) of 0.64–1.16. Existing psychotherapies for anger are based on a wide range of different psychosocial treatment approaches (Deffenbacher, 2006), although most contain cognitive behavioral elements (Beck & Fernandez, 1998; Bowman-Edmonson & Cohen-Conger, 1996; Reilly & Shopshire, 2002). A meta-analytic review of anger treatments (Bowman-Edmonson & Cohen-Conger, 1996) supported the effectiveness of interventions based on a variety of specific techniques (using pre-post change ES), including relaxation training (mean ES = 0.82), cognitive treatment (mean ES = 0.64), social skills training (mean ES = 0.80) and cognitive-relaxation (mean ES = 0.76), although they reported some variation in technique effectiveness depending on type of anger outcome.

Despite our growing understanding of the phenomenology of dysregulated anger and research showing positive outcomes for psychosocial anger treatments, there has been little research on what mechanisms of change contribute to clinical improvement (Chemtob, Novaco, Hamada, Gross, & Smith, 1997; Marshall et al., 2010; McHugh et al., 2012; Morland et al., 2012). Due to the multidimensional presentation of anger, most intervention strategies include multiple components aimed at improving relaxation and self-calming skills, skills for correcting cognitive distortions, and behavioral skills for resolving conflicts in a constructive manner. Treatments are often based on implicit assumptions about change processes (e.g., it is often assumed that one needs to learn "time outs" and self-calming skills prior to learning constructive conflict resolution) but these mechanisms have not been studied empirically. Identifying the specific mechanisms of action can help to distil multiple component treatments into more efficient protocols or to help prioritize sessions, allowing therapists flexibility during sessions (Marshall et al., 2010).

We also need to better understand the joint effects of specific techniques and therapeutic alliance (TA) on anger treatment outcomes. Research has consistently documented the beneficial effects of TA on treatment outcomes across a range of psychotherapeutic techniques for different psychological disorders (Horvath, Del Re, Flückiger, & Symonds, 2011; Martin, Garske, & Davis, 2000; Norcross & Wampold, 2011), including anger management therapy (Deffenbacher, 2011; Kassinove & Tafrate, 2002) and PTSD treatment (Cloitre, Stovall-McClough, Miranda, & Chemtob, 2004). However, as discussed by Norcross and Lambert (2011), to move forward in our understanding of psychotherapy outcomes, research

needs to investigate the synergistic effects between both the "what" (which therapeutic techniques are employed) and the "how" (context of interpersonal relationship) of clinical interactions as well as how these factors are adapted in the context of individual clients or groups. Zuroff and Blatt (2006) have suggested three ways in which technique and alliance may contribute to treatment outcomes. The "TA skeptical" view maintains the mechanism of change is the specific technique, independent of TA. The Rogerian view is that TA is itself a necessary and sufficient factor for change (Rogers, 1961; Zuroff & Blatt, 2006). A third view is that TA is necessary for change but is not itself a sufficient causal mechanism. This conceptualization is consistent with many cognitive behavioral treatment perspectives which focus on technique-based change, but value the role that shared goals, shared methods for attaining goals and relational quality play in motivating and achieving those therapeutic goals (Deffenbacher, 2011; Kassinove & Tafrate, 2002; Zuroff & Blatt, 2006).

The goals of this study were to assess potential mediators of gains in anger management treatment (AMT) outcomes among veterans with PTSD. The parent study, a randomized clinical trial, compared the effectiveness of AMT delivered via video teleconferencing (VTC) with in-person treatment. While veterans benefitted significantly and similarly across modalities (Morland et al., 2010), it is unclear to what extent specific treatment processes contributed to improvements. We examined two sets of hypotheses using the full collapsed sample from both conditions. First, we predicted that gains in specific anger regulation skills would be most strongly associated with improvements in corresponding anger symptoms domains. Specifically, we anticipated that reductions in arousal-based anger symptoms would be mediated by gains in calming skills (hypothesis 1.1), cognitive-based anger symptoms would be mediated by gains in cognitive coping skills (hypothesis 1.2), and behavior-based anger symptoms would be mediated by gains in behavioral control skills (hypothesis 1.3).

Our second set of hypotheses investigated the possible mechanisms of action by which TA impacts anger outcomes. Prior results from this trial found that stronger TA predicted better outcomes (Greene et al., 2010), but the mechanism was unclear as higher TA was demonstrated in the in-person group compared to the VTC group. Thus, we tested both the Rogerian view that TA has direct effects on anger outcomes (hypothesis 2.1) and the hypothesis that TA has indirect effects on anger outcomes via skills acquisition (hypothesis 2.2).

2. Method

2.1. Participants

Participants were 109 male veterans who met the following inclusion criteria: (1) lifetime diagnosis of PTSD, based on the Clinician Administered PTSD Scale (Blake et al., 1995); (2) moderate to severe levels of self-reported anger symptoms, identified by a score of 20 or higher on the 10-item trait anger subscale of the State-Trait Anger Expression Inventory-2 (STAXI-2; Speilberger, 1988); and (3) on a stable medication regimen for at least 2 months, if taking psychotropic medications. Exclusionary study criteria were active alcohol or substance dependence or psychosis, unwillingness to refrain from substance abuse during treatment, history of organic mental disorder, significant cognitive impairment, and active homicidal or suicidal ideation. In the parent study, veterans were recruited in cohorts from three Department of Veterans Affairs (VA) clinics and three Vet Centers on the Hawaiian Islands. Veterans were then randomly assigned to receive group AMT via VTC (experimental condition) or in-person (control condition). Using a non-inferiority design, Morland and colleagues (2010)