



## Qualitative examination of cognitive change during PTSD treatment for active duty service members



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### ABSTRACT

The current study investigated changes in service members' cognitions over the course of Cognitive Processing Therapy (CPT) for posttraumatic stress disorder (PTSD). Sixty-three active duty service members with PTSD were drawn from 2 randomized controlled trials of CPT-Cognitive Only (CPT-C). Participants wrote an impact statement about the meaning of their index trauma at the beginning and again at the end of therapy. Clauses from each impact statement were qualitatively coded into three categories for analysis: assimilation, accommodation, and overaccommodation. The PTSD Checklist, Posttraumatic Symptom Scale-Interview Version, and the Beck Depression Inventory-II were administered at baseline and posttreatment. Repeated measures analyses documented a significant decrease in the percentage of assimilated or overaccommodated statements and an increase in the percentage of accommodated statements from the beginning to the end of treatment. Changes in accommodated statements over the course of treatment were negatively associated with PTSD and depression symptom severity, while statements indicative of overaccommodation were positively associated with both PTSD and depression symptom severity. Treatment responders had fewer overaccommodated and more accommodated statements. Findings suggest that CPT-C changes cognitions over the course of treatment. Methodological limitations and the lack of association between assimilation and PTSD symptom severity are further discussed.

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Many psychological theories have been proposed to account for the development and maintenance of posttraumatic stress disorder (PTSD; Brewin & Holmes, 2003). Cognitive processing theory focuses on the impact of a traumatic life event on a person's belief system, and how that affects cognitive, emotional, and behavioral responses (Resick & Schnicke, 1993). Cognitive behavioral

treatments for PTSD have long recognized the importance of the relationship between dysfunctional cognitions and PTSD symptoms (Ehlers et al., 1998; Resick & Schnicke, 1992). Indeed, the problematic nature of inaccurate trauma-related cognitions has been emphasized in the restructuring and revising of the diagnostic criteria for PTSD in the 5th edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-5; American Psychiatric Association, 2013)*, with the introduction of a new symptom criterion: negative cognitions and mood. This new symptom cluster includes "persistent and exaggerated negative beliefs or

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expectations about oneself, others, or the world” and “persistent distorted cognitions about the cause or consequence of the traumatic event(s) that lead the individual to blame himself/herself or others” (American Psychiatric Association, 2013, p. 272).

Cognitive Processing Therapy (CPT; Resick, Monson, & Chard, 2014; Resick & Schnicke, 1992) is a 12-session evidence-based treatment for PTSD with two decades of research supporting its effectiveness with a variety of populations (Galovski, Wachen, Chard, Monson, & Resick, 2015). CPT stems from the work of the constructivist, social-cognitive theorists including Horowitz (1986) and Janoff-Bulman (1985). CPT specifically targets negative cognitions about the meaning of the trauma. Following a traumatic event, an individual is confronted with new information that is often inconsistent with preexisting beliefs and schemas (Resick & Schnicke, 1993).

In order to reconcile a traumatic experience, individuals either accommodate, assimilate, or overaccommodate information about the traumatic event with previous beliefs. Through accommodation, existing schemas are modified to accurately incorporate new information resulting from the traumatic event, supporting a natural recovery process of trauma-related symptoms. In contrast, recovery from trauma can be interrupted by the development of trauma-related cognitions (i.e., assimilated beliefs) and/or overgeneralization of current or future-oriented beliefs about oneself, others, and the world (i.e., overaccommodated beliefs). People may have preexisting negative beliefs (perhaps stemming from a prior trauma history) that are reaffirmed by the traumatic event. Hind-sight bias and erroneous blame of oneself or others are examples of assimilation. Also, an individual may change previous beliefs about oneself, others, and the world to the extreme, resulting in overaccommodated beliefs such as “nowhere is safe” or “I must have control at all times.”

The goal of CPT is to help patients develop balanced thoughts (e.g., accommodated beliefs) through cognitive therapy (Resick et al., 2014). As such, cognitive change is believed to be the primary mechanism of symptom reduction. Several clinical trials of CPT have found reductions in trauma-related cognitive distortions over the course of therapy in addition to a reduction in PTSD symptoms (Owens, Pike, & Chard, 2001; Resick, Nishith, Weaver, Astin, & Feuer, 2002; Resick et al., 2008). Most recently, Schumm, Dickstein, Walter, Owens, and Chard (2015) found change in trauma related cognitions preceded change in PTSD symptoms though change in depression preceded both change in self-blame cognitions and PTSD symptoms. However, these findings were based on preselected forced-choice lists of cognitions, which limit the extent to which an individual's personalized cognitions can be evaluated. Sobel, Resick, and Rabalais (2009) examined cognitive changes among female sexual assault survivors before and after CPT by qualitatively coding patients' written impact statements about the meaning of the traumatic event. Within CPT, impact statements are assigned to help patients identify how the traumatic event has impacted their cognitions about the event, themselves, others and the world. Consistent with this theory, Sobel et al. (2009) found that reductions in dysfunctional cognitions (i.e., overaccommodation) and improvements in balanced, accommodated cognitions over the course of therapy were associated with reductions in PTSD symptoms. There were very few statements indicative of assimilation at both time points. The authors speculated that the small number of assimilated statements were likely to be related to insufficient instructions designed to probe for such statements, which is a problem addressed in revisions of the CPT manual (Resick et al., 2014) by including explicit instructions to describe why the patient believes the event occurred. Furthermore, when these participants were asked to write an impact statement at a long term follow-up (5–10-years post-treatment), reductions

in accommodated thinking and increases in overaccommodated thinking were associated with higher levels in PTSD and depression symptoms independent of status at posttreatment (Iverson, King, Cunningham, & Resick, 2015). In this study, the reverse was also true; in that, reductions in PTSD and depression symptoms were associated with improvements in accommodated thinking and declines in overaccommodated thinking.

The unique cognitive processes that contribute to the development of combat-related PTSD among active duty service members are worth noting. In particular, the cultural context of the military is essential to understanding how war experiences are processed and construed (More, 2011; Reger, Etherage, Reger, & Gahm, 2008). Each branch of service has a number of core beliefs and values that are instilled into new members during basic and advanced military training. For example, the U.S. Army has seven core values: loyalty, duty, respect, selfless service, honor, integrity, and personal courage (U.S. Army, n.d.). Following a traumatic life event, these core values or beliefs can become schemas through which traumatic experiences are interpreted. Although essential to the mission, internalization of core military values may lead to assimilated or overaccommodated beliefs following a traumatic life event.

For example, prior to losing a friend in a blast from an improvised explosive device (IED), a service member may have the belief “if everyone does their job, everyone comes home alive.” Accommodation would require reconciling the difficult reality of the trauma with preexisting beliefs and developing a new balanced belief such as “even if everyone does their job, people still sometimes die in war.” However, accommodation requires changing basic beliefs stemming from early life experiences and the warrior ethos, such as invincibility and the efficacy of training and preparation. In order to maintain preexisting beliefs, a service member may also assimilate an event consistent with prior instilled knowledge about responsibility for the safety of unit members, such as “my buddy died because I didn't do my job” or “it's my fault he died.”

The purpose of this study was to explore changes in cognitions over the course of treatment with Cognitive Processing Therapy-Cognitive only version (CPT-C) in relation to symptoms of PTSD and depression among active duty military personnel. There were three main predictions. First, it was anticipated that there would be an increase in the percentage of accommodated statements and a decrease in the percentage of assimilated and overaccommodated statements from pre-to posttreatment. Second, it was anticipated that changes in cognitions would be associated with changes in symptoms of PTSD and depression. Finally, it was predicted that treatment responders would have higher levels of cognitive change in comparison to treatment nonresponders from pre-to posttreatment. This study replicates and extends the findings of Sobel et al. (2009) by examining changes in the unique cognitions of military service members with combat-related PTSD.

## 1. Methods

### 1.1. Participants

Data were selected from two clinical trials studying the efficacy of CPT-C with active duty service members. Participants provided written informed consent before participating in treatment. Participants were active duty military personnel who were 18 years of age or older. Eligibility required participants to have experienced at least one Criterion A traumatic event during deployment to Iraq or Afghanistan and a diagnosis of PTSD as defined by the *DSM-IV-TR* (American Psychiatric Association, 2000). However, the worst traumatic event on which the diagnosis was based (i.e., “index

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