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Metacognitive capacity predicts severity of trauma-related dysfunctional cognitions in adults with posttraumatic stress disorder

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ABSTRACT

Deficits in metacognition have been proposed as a barrier to adaptive responding to trauma. However, little is known about how different aspects of metacognitive capacity relate to responses to trauma and whether their potential link to such responses is independent of the overall level of psychopathology. To explore both issues, negative trauma-related cognitions about the self, the world, and self-blame, as measured by the Posttraumatic Cognitions Inventory (PTCI), were correlated with concurrent measures of depression, posttraumatic stress disorder symptoms, and two forms of metacognition; the Metacognitions questionnaire (MCQ-30), which focuses on specific thoughts, and the Metacognition Assessment Scale Abbreviated (MAS-A) which focuses on the degree to which persons can form complex representations of self and other. Participants were 51 veterans of the wars in Iraq and Afghanistan who had a PTSD diagnosis primarily involving a combat-related index trauma. Correlations revealed that being younger and more depressed were linked with greater levels of negative cognitions about self and the world. Lower levels of self-reflectivity on the MAS-A and higher levels of cognitive self-consciousness on the MCQ-30 were uniquely related to greater levels of self-blame even after controlling for age, level of depression, and PTSD. Implications for research and treatment are discussed.

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1. Introduction

Given that the severity of posttraumatic stress disorder (PTSD) symptoms are not fully explained by trauma severity (Brewin et al., 2000), interest has grown in identifying the factors that influence how persons respond to trauma. One element of particular relevance for understanding response to trauma, based on the information processing theory of PTSD development (Horowitz, 1986; Foa et al., 1992), is how people make sense of traumatic experiences, which is reflected by their cognitions about themselves, others, and the world in general. For example, trauma can shatter beliefs that are at the core of one's conceptual system, such as "I am a good person who lives in a benevolent, just, and meaningful world" (Janoff-Bulman, 1992; Beck et al., 2014). Research suggests that dysfunctional posttraumatic cognitions, such as "the trauma ruined my life" or "I am to blame for what happened (the trauma)," may be linked to higher levels of depression (Beevers et al., 2007; McEvoy et al., 2013) and overall severity of PTSD symptoms (Moser et al., 2007; Blain et al., 2012).

Evidence suggests that addressing dysfunctional posttraumatic cognitions with treatment, such as Cognitive Processing Therapy, may lead to reductions in PTSD symptoms (Holliday et al., 2014). However, it is less clear what kinds of deeper cognitive processes may affect the extent to which cognitions about the self, others, and the world are adaptive following trauma. Understanding the processes that lead to more severely maladaptive posttraumatic cognitions seems essential. This understanding could point to meaningful targets for prevention and treatment, which if addressed, could potentially reduce the risk for developing PTSD or assist persons who have PTSD to recover more fully and perhaps more quickly.

The current study seeks to extend previous research by examining a related set of psychological processes that might influence posttraumatic cognitions, namely metacognition. In this

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paper, we use a definition of *metacognition* that stresses a spectrum of abilities which range from the consideration of discrete thoughts and feelings to the synthesis of discrete perceptions into an integrated representation of the self and others (Semerari et al., 2003; Lysaker et al., 2013). Metacognition has been suggested as a foundation for resiliency as it provides the means to: (1) understand the unique meaning of adversity; (2) make sense of one's own psychological responses to adversity; and (3) find adaptive ways to respond to adversity (Lysaker et al., 2013). Similar to social cognition, metacognition is concerned with how persons form ideas about social exchanges (Pinkham et al., 2014). However, metacognition focuses more on variations in the complexity, adaptiveness and flexibility of mental representations, not merely on their accuracy. Metacognition is related to the construct of mentalizing (Fonagy et al., 2002), although the latter conceptualizes disruptions of these processes as occurring within the context of a disturbed attachment, an assumption that metacognitive research does not share.

Support for the potential relationship of metacognition with posttraumatic cognitions can be found in work that suggests adults with PTSD experience a range of metacognitive deficits (Mazza et al., 2012; Farina and Liotti, 2013; Nazarov et al., 2014; Lysaker, et al., 2015). Others propose that trauma may disrupt attachment patterns causing deficits in source monitoring, emotional recognition, and ultimately the ability to form coherent representations of oneself and others (Fonagy et al., 2002; Siegel, 2003; Verhaeghe and Vanheule, 2005; Liotti and Prunetti, 2010). More direct evidence can be found in the work of Wells and Colbear (2012), who propose that PTSD symptoms are sustained by metacognitive beliefs and have presented preliminary evidence that metacognitive therapy, which focuses on modifying metacognitive beliefs about rumination, worry, attention and symptoms, may reduce PTSD symptoms.

Accordingly, this study sought to test whether two different forms of metacognitive capacities were linked with three different kinds of posttraumatic beliefs: maladaptive beliefs about the self, the world, and self-blame. The two types of metacognition include one that is more synthetic and involves forming complex and integrated representations of the self and others (as measured by the MAS-A; Lysaker et al., 2005) and the other a more discrete form which assesses metacognitive beliefs related to the types of things people tend to focus their thinking upon (as measured by the MCQ, Wells and Cartwright-Hatton, 2004). We predicted that deficits in both forms of metacognition would be associated with more maladaptive posttraumatic cognitions. Given that severity of PTSD symptoms and depression might be expected to be linked with more maladaptive posttraumatic cognitions, we also included measures of these for use as covariates.

2. Methods

2.1. Participants

Fifty-one veterans of the Iraq and Afghanistan wars with a diagnosis of posttraumatic stress disorder (PTSD) were recruited from outpatient psychiatry clinics at the Indianapolis Roudebush VA Medical Center for a study of a mindfulness-based adaptation of Cognitive-Behavioral Conjoint Therapy for PTSD. All participants met diagnostic criteria as evaluated by an interview with trained/reliable assessors using the Clinician-Administered PTSD Scale for DSM-IV (CAPS; Blake et al., 1995). All participants reported experiencing a traumatic event while serving in the U.S. military. Exclusion criteria were: not enrolled in outpatient treatment; major changes in psychiatric medication within the last month; cognitive impairment precluding understanding and/or retaining psychotherapy session content; uncontrolled psychotic or bipolar disorder; active substance dependence; self-mutilation or self-injury in the previous 6 months; current suicidal/homicidal intent; and severe physical or sexual relationship aggression in the past year. The mean age was 39.33 ($sd = 10.81$) and the mean education was 14.81 ($sd = 1.74$). Forty-six of the participants were male and five were female (N = 51). Forty-four of the participants were Caucasian, three were African American, one was Latino, and three were identified as "Other" (Native American, Asian N = 51).

2.2. Instruments

2.2.1. Metacognitions Questionnaire-30 (MCQ-30; Wells and Cartwright-Hatton, 2004)

The MCQ-30 is a shortened version of the original Metacognitions Questionnaire (Cartwright-Hatton and Wells, 1997) designed to assess multiple dimensions of metacognition considered important in conceptualizing psychopathological processes for a range of psychological disorders. This 30-item self-report measure yields a total scale score as well as scores for five subscales: positive beliefs about worry (POS), negative beliefs about thoughts related to uncontrollability and danger of worry (NEG), cognitive confidence (CC), need for control (NC), and cognitive self-consciousness (CSC). The POS subscale assesses the belief that worrying is useful for avoiding problems in the future. In contrast, negative beliefs about worry (i.e., worrying is uncontrollable or dangerous) are evaluated by the NEG subscale. The CC subscale measures thoughts and beliefs about the quality of one's attention and memory. The NC subscale evaluates beliefs regarding the necessity of thought control and consequences of lacking thought control. Finally, the tendency to focus attention on thought processes or metacognitive monitoring is measured by the cognitive self-consciousness (CSC) subscale. Scores for each subscale are calculated by summing the value of the response indicated on a 4-point Likert scale ranging from 1 ("do not agree") to 4 ("agree very much"). A total score is calculated by summing scores for each subscale.

2.2.2. Posttraumatic Cognitions Inventory (PTCI; Foa et al., 1999)

The PTCI is a 36-item self-report measure of thoughts and beliefs typically associated with trauma. The three subscales of the PTCI include: Negative Cognitions about the Self (negative beliefs regarding him/herself), Negative Cognitions about the World (negative beliefs about others and the safety of the world), and self-blame (blame attributed to the self regarding the traumatic event). Each item is rated on a 7-point Likert scale with 1 representing "totally disagree" and 7 representing "totally agree". A total score is obtained by summing the scores for each of the 36 items. Scores for each of the subscales are obtained by dividing the sum for each subscale by the number of items that comprise the subscale.

2.2.3. Indiana Psychiatric Illness Interview (IPII; Lysaker et al., 2002)

The IPII is a semi-structured interview that assesses how individuals understand their experience of mental illness. Trained research assistants conducted the interviews that typically lasted between 30 and 60 minutes. Responses were audio taped and later transcribed. The interview is divided into five sections. First, rapport is established and participants are asked to tell the story of their lives. Second, participants are asked if they think they have a mental illness, which is followed by questions about whether or not this condition has affected different facets of their life. Third, participants are asked if and how their condition controls their life and how they control their condition. Fourth, they are asked how their condition affects and is affected by others. Finally, participants are asked about what they expect to remain the same and what will be different for them in the future.