A psychometric evaluation of the Posttraumatic Cognitions Inventory with Veterans seeking treatment following military trauma exposure

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A B S T R A C T

Trauma-related beliefs have salient relationships to the development and maintenance of Posttraumatic Stress Disorder (PTSD) following stress exposure. The Posttraumatic Cognitions Inventory (PTCI) has the potential to be a standard assessment of this critical construct. However, some critical aspects of validity and reliability appear to vary by population. To date, the PTCI has not been psychometrically evaluated for use with military-specific traumas such as combat and military sexual trauma (MST). Based on exploratory and confirmatory analyses with 949 Veterans seeking trauma-focused treatment for military traumas, we found a four factor model (negative view of the self, negative view of the world, self-blame, and negative beliefs about coping competence) provided the best fit. In contrast, the original three factor model was not confirmed. Both models demonstrated convergent and discriminative validity. Although gender was associated with PTCI total and factor scores, differences did not persist after controlling for trauma type. MST was associated with higher PTCI scores even when controlling for gender, though the clinical magnitude of these differences is likely negligible. Internal reliability validity was demonstrated with PTCI total and subscale scores.

1. Introduction

Theory and extant research have identified clinically meaningful connections between negative posttraumatic cognitions and PTSD symptoms. Cognitive models of PTSD suggest that preexisting negative beliefs about the self and others facilitate the development of PTSD by both expediting fear conditioning and maintaining the perceptions of continuing threat and inability to cope (Ehlers and Clark, 2000; Foa and Rothbaum, 1998). Additional cognitive vulnerability models postulate that the distress experienced by individuals with PTSD yields a sense of vulnerability which fosters development of negative beliefs (Shahar et al., 2013). Empirical research has supported a connection between negative posttraumatic cognitions and the persistence and severity of PTSD (Foa and Rauch, 2004; Iverson et al., 2015) and change in thoughts appears to drive symptom change (Kumpula et al., 2016; Schumm et al., 2015). The significance of negative trauma-specific cognitions as mediators of posttraumatic functioning seems clear. As such, it is critical that assessment instruments designed to gauge such cognitions are psychometrically robust.

To this end, Foa and colleagues designed the Posttraumatic Cognitions Inventory (PTCI), a 36-item self-report questionnaire, to assess for and characterize the nature of posttraumatic cognitions (Foa et al., 1999). This widely used measure has the potential to be a standard assessment of this critical construct. Utilizing negative beliefs derived from clinical and theoretical foundations, the authors rigorously evaluated the psychometric properties of the scale with individuals without trauma histories, those with histories of trauma but not experiencing PTSD, and those with moderate or greater severity of PTSD. Their initial analyses yielded a three factor solution with 33 items comprised of three subscales: Negative Cognitions about Self...
behaviors (Burns et al., 2014; Suris and Lind, 2008). Similarly, those military peers would be unsupportive of e bodily strength. As such, survivors of MST may be more likely to believe studies are based on physical and sexual assault survivors, it is un- the context of combat trauma. Relatedly, though some psychometric assault trauma, the PTCI has not been empirically evaluated for use in traumas, suggesting that the validity of the PTCI may vary depending on trauma type (Su and Chen, 2008). In addition, results have varied widely with respect to support for using all items of the PTCI and the dependability of items to load on anticipated factors. This evidence, coupled with the frequent use of convenience populations in PTCI va- lidity studies, may limit our conclusions regarding the psychometric constancy of the PTCI with trauma-exposed individuals.

Veterans with exposure to military combat and sexual traumas ex- perience PTSD at higher rates than non-military samples (Kang et al., 2005; Tolin and Foa, 2006), and evidence suggests that negative post- traumatic cognitions are highly prevalent among Veterans presenting for trauma-focused care (Rauch et al., 2009). While military combat traumas (MCT) often share some of the interpersonal aspects of civilian assault trauma, the PTCI has not been empirically evaluated for use in the context of combat trauma. Relatedly, though some psychometric studies are based on physical and sexual assault survivors, it is un- known whether the PTCI will retain its utility following experiences of military sexual trauma (MST). The possibility that Veterans’ experi- ences of sexual trauma within the context of military culture differ from those experienced by their civilian counterparts in unique ways that influence cognitions and beliefs concerning self and others warrants consideration. For example, the military prizes unit cohesiveness and bodily strength. As such, survivors of MST may be more likely to believe military peers would be unsupportive of efforts to report assaultive behaviors (Burns et al., 2014; Suris and Lind, 2008). Similarly, those who have experienced MST may be more prone to believing they are to blame for not being able to physically deter an attacker. Nonetheless, researchers have been using the PTCI with combat Veterans and iden- tified that the PTCI has clinical utility in mediating associations be- tween PTSD and anger or pain, for example (Germain et al., 2015; Porter et al., 2013). Yet, without establishing the psychometric char- acteristics of the PTCI for Veterans with military-specific traumas, the generalizability and interpretability of these findings is limited. The current study aimed to address this gap in the literature by evaluating the validity and reliability of the PTCI in a sample of treatment-seeking Veterans and directly contrasted the pervasiveness of negative cogni- tions between those seeking care for combat and military sexual traumas while taking gender into consideration.

While no currently published studies have examined gender differ- ences in the PTCI among American military Veterans, studies of other populations suggest that significant gender differences exist, particu- larly for SELF. In a sample of Israeli adults with exposure to hetero- geneous trauma types, for example, women reported higher scores on SELF, whereas no differences were found on the PTCI total score or the WORLD or BLAME scales (Daie-Gabai et al., 2011). Similarly, Moser et al. (2007) examined the PTCI among trauma-exposed college stu- dents and found that the associations between the WORLD and BLAME scales with PTSD symptoms were no longer significant once gender and other relevant variables were included in the model. Unfortunately, in Veteran populations, gender and trauma type are often conflated as women Veterans are more likely to present for treatment secondary to sexual trauma while men are more likely to seek care for combat events. To address this concern, we also investigated gender differences on PTCI total and subscale scores with and without controlling for trauma type.

To further assess the psychometric performance of the PTCI with Veterans, we aimed to explore its factor structure in treatment-seeking Veterans and contrasted the performance of our empirically-derived factor model with that originally proposed by Foa et al. (1998). PTCI responses were also compared to self-reported symptom and coping scales to establish convergent validity, and internal reliability was in- vestigated using both models. We hypothesized negative cognitions would be positively correlated with PTSD and depression symptom scales and negatively correlated with a scale of resilient coping.

2. Method

2.1. Participants and procedure

Participants were 949 Veterans presenting for trauma-focused treatment at a Midwestern Veterans Healthcare Administration PTSD specialty clinic between 2006 and 2013. At their initial visit, Veterans completed self-report questionnaires, (including the PTCI), as part of the intake and treatment planning process. In order to investigate the psychometric performance of the PTCI following military-specific traumas, only Veterans with complete PTCIs who endorsed primary combat or military sexual traumas were included in analyses. The VA Ann Arbor Healthcare System’s Human Subject Committee approved the research protocol.

2.2. Measures

2.2.1. Posttraumatic Cognitions Inventory (PTCI)

This study utilized the original 36-items of the PTCI developed by Foa et al. (1999). The initial instrument included 33 validated items and three additional items recommended for further assessment. The self-report items contain responses ranging from 1 (totally disagree) to 7 (totally agree). The original factor structure supported a three-factor model including Negative Cognitions About the Self (SELF, 21 items), Negative Cognitions About the World (WORLD, seven items), and Self-Blame (BLAME, five items). The PTCI has demonstrated adequate convergent and discriminant validity in some samples though the re- commendation to retain all of the items has varied by population as previously discussed. In the present analyses, we utilized the 36-item version to explore the factor structure of the PTCI and contrasted our findings with Foa’s 33-item version.

2.2.2. PTSD checklist-civilian (PCL-C)

The PCL-C (Weathers et al., 1993) is 17-item self-report assessment of PTSD symptom severity based on DSM-IV-TR (APA, 2000) diagnostic criteria. Items are scored from 1 (not at all) to 5 (extremely) with par- ticipants rating how bothered they have been by the presence of the symptom during the past month with total scores ranging from 17 to 85. The PCL-C has demonstrated adequate reliability and validity (Ruggiero et al., 2003).

2.2.3. Patient health questionnaire-9 (PHQ-9)

Depressive symptoms were evaluated with the PHQ-9 (Kroenke et al., 2001), a nine-item self-report screen. Items responses range from 0 (not at all) to 3 (nearly every day). Scores above nine are generally considered reflective of moderate or greater symptom severity and scores above 13 suggest a current major depressive episode. The PHQ-9 has demonstrated good reliability and validity (Beard et al., 2016; Inoue et al., 2012; Kroenke et al., 2001).
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