Chronic pain acceptance incrementally predicts disability in polytrauma-exposed veterans at baseline and 1-year follow-up

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A R T I C L E   I N F O

Article history:
Received 12 January 2015
Received in revised form 12 June 2015
Accepted 13 July 2015
Available online 15 July 2015

Keywords:
Chronic pain
Acceptance
Functioning
Disability
Posttraumatic stress disorder
Veterans

A B S T R A C T

War veterans are at increased risk for chronic pain and co-occurring neurobehavioral problems, including posttraumatic stress disorder (PTSD), depression, alcohol-related problems, and mild traumatic brain injury (mTBI). Each condition is associated with disability, particularly when co-occurring. Pain acceptance is a strong predictor of lower levels of disability in chronic pain. This study examined whether acceptance of pain predicted current and future disability beyond the effects of these co-occurring conditions in war veterans. Eighty trauma-exposed veterans with chronic pain completed a PTSD diagnostic interview, clinician-administered mTBI screening, and self-report measures of disability, pain acceptance, depression, and alcohol use. Hierarchical regression models showed pain acceptance to be incrementally associated with disability after accounting for symptoms of PTSD, depression, alcohol-related problems, and mTBI (total adjusted \( R^2 = .57 \), \( p < .001 \), \( \Delta R^2 = .03 \), \( p = .02 \)). At 1-year follow-up, the total variance in disability accounted for by the model decreased (total adjusted \( R^2 = .29 \), \( p < .001 \)), whereas the unique contribution of pain acceptance increased (\( \Delta R^2 = .07 \), \( p = .008 \)). Pain acceptance remained significantly associated with 1-year disability when pain severity was included in the model. Future research should evaluate treatments that address chronic pain acceptance and co-occurring conditions to promote functional recovery in the context of polytrauma in war veterans.

Published by Elsevier Ltd.

Chronic pain and pain-related disability \(^1\) are prevalent and significant problems among returning U.S. war veterans, occurring in up to 60% of those returning from recent conflicts (Adler et al., 2011; Butchart, Kerr, Heisler, Piette, & Krein, 2009; Dobie et al., 2004; Dobscha et al., 2009; Haskell et al., 2012; Kerns, Otis, Rosenberg, & Reid, 2003; Rodriguez, Holowka, & Marx, 2012; Ruff, Ruff, & Wang, 2009). Chronic pain is strongly associated with functional disability in both the general population (Breivik, Collett, Ventafridda, Cohen, & Gallacher, 2006; Smith et al., 2001) and in samples of war veterans (Barry, Guo, Kerns, Duong, & Reid, 2003; Dobscha et al., 2009; Helmer et al., 2009; Matthias, Miech, Myers, Sargent, & Bair, 2014). The long-term course of chronic pain is characterized by low recovery rates and relatively static pain severity, with as many as 80% of those with chronic pain continuing to report chronic pain after four to twelve years, and increased mortality (Andersson, 2004; Elliott, Smith, Hannaford, Smith, & Chambers, 2002).

Chronic pain frequently co-occurs with a number of common mental health and neurobehavioral conditions, including...
The objective of the present study was to examine whether acceptance of chronic pain would predict current and future (i.e., one year) disability beyond the effects of PTSD, depression, alcohol-related problems, mTBI, and pain severity among trauma-exposed war veterans with chronic pain. We hypothesized that pain acceptance would be incrementally associated with current disability after accounting for the influence of PTSD, depression, alcohol-related problems, and mTBI, such that higher pain acceptance would predict lower current disability (Hypothesis 1), and that higher pain acceptance would similarly predict lower disability at 1-year follow-up (Hypothesis 2). Finally, in a subset of veterans who provided information on pain severity, we hypothesized that chronic pain acceptance would incrementally predict lower disability at 1-year follow-up after accounting for pain severity and the other predictors (Hypothesis 3).

1. Methods

1.1. Participants

A total of 117 participants were enrolled in a parent longitudinal study and also participated in a companion study examining predictors of mental health problems and functional impairment among OEF/OIF veterans enrolled at the Central Texas Veterans Health Care System (CTVHCS). Individuals were excluded if they: (a) met criteria for a diagnosis of schizophrenia or other psychotic disorder; or bipolar disorder; (b) reported current suicidal or homicidal risk that warranted crisis intervention; (c) had recently begun (i.e., had not reached stabilization as indicated by less than three months of consistent treatment) psychiatric medications or psychotherapy; or (d) were unable to comprehend or complete the assessments. Recruitment involved over-sampling veterans with one or more lifetime mental health diagnoses other than the excluded diagnoses. All participants were enrolled in the parent study and then invited to participate in the second study if they met the additional inclusion criterion of being exposed to one or more potentially traumatic events that met Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV; American Psychiatric Association, 2000) criterion A for PTSD during their military service. Most of the sample (n = 80; 68.4%) reported currently experiencing chronic pain and were included in the present analyses.

Demographic and descriptive characteristics of the sample are shown in Table 1. The ratio of males (86.3%) to females was representative of the 2013 gender distribution of veterans ages 20 to 64 nationally (i.e., 13.5% females, U.S. Department of Veterans Affairs, 2014). The majority of the sample (86.0%) served in the Army. Based on structured clinical interviews, the majority met criteria for military-related PTSD (i.e., related to any type of traumatic stressor(s) occurring during their service in support of OEF/ OIF; 55% current; 75% lifetime).

Additional data regarding chronicity, frequency, and severity of chronic pain were obtained at baseline for a subset of participants (n = 55, 68.8%), due to these questions being added after the study was underway. The majority of participants (n = 71; 88.8%) completed a functional assessment at one-year follow-up. All participants who provided the additional pain data (n = 55) completed the 1-year follow-up assessment.

1.2. Procedures

All study procedures were reviewed and approved by the CTVHCS Institutional Review Board prior to data collection. Participants were recruited through direct mailings, advertisements at enrollment sites, and presentations to clinical staff. Following...
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