



# Somatic symptoms and health-related quality of life among treatment-seeking Canadian Forces personnel with PTSD

Kate St. Cyr<sup>a,\*</sup>, Alexandra McIntyre-Smith<sup>a</sup>, Ateka A. Contractor<sup>b</sup>,  
Jon D. Elhai<sup>c</sup>, J. Don Richardson<sup>a,d,e</sup>

<sup>a</sup> Parkwood Hospital Operational Stress Injury Clinic, St. Joseph's Health Care, London, Ontario, Canada

<sup>b</sup> Department of Psychology, University of Toledo, Toledo, OH, United States

<sup>c</sup> Departments of Psychology and Psychiatry, University of Toledo, Toledo, OH, United States

<sup>d</sup> Department of Psychiatry, University of Western Ontario, London, Ontario, Canada

<sup>e</sup> Department of Psychiatry, McMaster University, Hamilton, Ontario, Canada

## ARTICLE INFO

### Article history:

Received 22 May 2013

Received in revised form

6 January 2014

Accepted 29 March 2014

### Keywords:

Military

Posttraumatic stress disorder

Major depressive disorder

Symptom severity

## ABSTRACT

This study examined the association between somatic complaints and health-related quality of life (HR-QoL) in treatment-seeking Canadian military personnel with military-related Posttraumatic Stress Disorder (PTSD). Current and former Canadian Forces (CF) members attending the Parkwood Hospital Operational Stress Injury Clinic in London, Ontario ( $N=291$ ) were administered self-report questionnaires assessing number and severity of somatic complaints, PTSD and depressive symptom severity, and mental and physical health-related quality of life (HR-QoL) prior to commencing treatment. Regression analyses were used to identify the role of somatic complaints on physical and mental HR-QoL, after controlling for PTSD symptom cluster and depressive symptom severity. Somatic symptom severity accounted for only a small amount of the variance in mental HR-QoL after accounting for PTSD symptom cluster and depressive symptom severity, but accounted for a larger proportion of the variance in physical HR-QoL after accounting for PTSD cluster and depressive symptom severity. Understanding the role of somatization in the symptom-presentation of military personnel with PTSD may provide additional avenues for treatment with this population.

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## 1. Introduction

Previous research has demonstrated the association between posttraumatic stress disorder (PTSD) and physical health symptoms in both military and civilian samples (Engel et al., 2000; Hoge et al., 2007; Sareen et al., 2007; Osório et al., 2012; Pacella et al., 2012), and up to 70% of individuals with psychological trauma report somatic symptoms (Escobar et al., 1983; Sierles et al., 1983; White and Faustman, 1989; Roszell et al., 1991; Baker et al., 1997; Van Ommeren et al., 2002). The development of somatic symptoms such as pain and neurological symptoms for which no organic cause can be found (American Psychiatric Association, 2001; North et al., 2004) has been conceptualized as the physical manifestation of psychological distress (McFarlane et al., 1994). However, the etiology of these symptoms remains unclear, and there is disagreement as to whether they are a consequence or

causal factor in PTSD, or independent sequelae of psychological trauma (Elklit and Christiansen, 2009).

Despite the ambiguity surrounding the relationship between somatization and PTSD, it is clear that unexplained physical symptoms can impact PTSD severity (Beckham et al., 1998), and exacerbate disability among individuals with PTSD (Escobar et al., 1998). Health-related quality of life (HR-QoL) and daily functioning are also greatly impacted among military personnel with mental and/or physical health conditions (Richardson et al., 2008, 2010; Vasterling et al., 2008). Further, somatic symptoms could be a part of the non-specific distress following trauma exposure, given that they are a common component of anxiety and depressive symptomatology (Ursano et al., 2009).

Several hypotheses have attempted to explain the association between somatization and PTSD. First, previous research demonstrates that up to 50% of military veterans with chronic PTSD will also experience major depressive disorder (MDD) at some point in their lifetimes (Orsillo et al., 1996), and the association between depressive symptoms and somatic complaints is well-documented (Simon et al., 1999; Haug et al., 2004; Vaccarino et al., 2008). Thus, it may be possible that the presence of comorbid MDD influences the association between PTSD and somatization. Second, some

\* Correspondence to: Parkwood Hospital Operational Stress Injury Clinic, 3rd Floor, Hobbins Building, Room H3012, 801 Commissioners Road, East London Ontario, Canada N6C 5J1. Tel.: +1 519 200 1358; fax: +1 519 685 4585.

E-mail address: [katherine.stcyr@sjhc.london.on.ca](mailto:katherine.stcyr@sjhc.london.on.ca) (K. St. Cyr).

researchers suggest that a physical injury or environmental exposure sustained in combat may result in multiple independent physical and psychological consequences – for example, being shot at may act as both a Criterion A stressor leading to the development of PTSD and a source of persistent physical pain (Proctor et al., 1998; Grieger et al., 2006). Third, the mutual model of pain and PTSD suggests that common psychological mechanisms such as anxiety, sensitivity, avoidance, and pain perception (Sharp and Harvey, 2001; Asmundson et al., 2002; Jakupcak et al., 2006) are responsible for PTSD, somatization (Fedroff et al., 2000; Keogh et al., 2002), and chronic pain severity (Asmundson and Norton, 1995; Asmundson and Taylor, 1996). Fourth, others have suggested that the increased cortisol secretion and muscle tension seen in some individuals with PTSD (Pitman and Orr, 1990; Norton and Asmundson, 2003) renders these complaints a core feature of PTSD (Reinhard et al., 2010); however, it is worth noting that this finding has not been widely consistent in studies examining cortisol secretion and PTSD status (e.g., Kanter et al., 2001). Lastly, as per the dual representation theory of PTSD, use of avoidance or inadequate coping to avoid distress associated with processing trauma memories may contribute to the experience of somatic symptoms (Brewin and Holmes, 2003).

Despite the lack of clarity surrounding the association between somatic symptoms and PTSD, it is possible that the early identification of the presence of somatic symptoms and comorbid psychiatric disorders among veterans may be an important factor in the success of the treatment plan, and achieving improved HR-QoL, nonetheless. A recent study of Canadian military veterans found that physical health status appeared to have a greater effect on overall HR-QoL than mental health status (Thompson et al., 2013). Therefore, it may be possible that, by addressing physical symptoms in military veterans who present with mental health concerns, improved global HR-QoL may be achieved. Further, because many veterans may misinterpret psychiatric symptoms as having a physical basis and therefore seek medical care through their primary care physician, as opposed to a specialized mental health care service (Deykin et al., 2001), they may risk delaying their path to recovery and ultimately, improved overall HR-QoL.

As such, the objectives of the current study were to evaluate the presence of somatic complaints in a treatment-seeking veteran population with PTSD and to evaluate the association between somatic complaints and HR-QoL. The authors hypothesize that somatic complaints will be reported frequently among a sample of treatment-seeking military personnel, and that self-reported severity of somatic complaints will be inversely associated with measures of physical and mental HR-QoL.

## 2. Methods

### 2.1. Participants and procedure

The current study is a retrospective analysis of data collected from 291 treatment-seeking currently serving Canadian Forces (CF) and veterans referred by their primary care physician or Veterans Affairs Canada – Case Manager to the Parkwood Hospital Operational Stress Injury (OSI) outpatient clinic between January 2002 and May 2012. The Parkwood Operational Stress Injury (OSI) Clinic is one of ten specialized clinics funded by Veterans Affairs Canada to treat veterans with psychiatric disorders such as PTSD resulting from military operations.

The clinic utilizes a standardized intake screening protocol which includes the Patient Health Questionnaire (Spitzer et al., 1999), the PTSD Checklist – Military version (Weathers et al., 1993), the Alcohol Use Disorder Identification Test (Babor et al., 2001), the Short-Form Health Survey-36 (Ware et al., 2000), and the Brief Traumatic Brain Injury Screen (Schwab et al., 2006). At intake to the OSI clinic, participants provided informed consent for information collected from psychological measures administered during their initial assessment to be used for research, clinical review, education, and outcome measurement. The data from intake assessments are de-identified and stored in an electronic dataset. The current study obtained its data from this previously-collected dataset and received

approval for its use from both the Office of Research Ethics of the University of Western Ontario and the relevant hospital ethics review board.

### 2.2. Measures

#### 2.2.1. PTSD Checklist – Military version

The PTSD Checklist – Military version (PCL-M; Weathers et al., 1993) is a self-administered, 17-item scale which provides an estimate of PTSD symptom severity related to a military-specific traumatic experience. Using a five-point scale, respondents rank how affected they have been by each of 17 symptoms over the past month; a total score is tabulated by summing all 17 item responses (range=17–85) (Weathers and Ford, 1996; Bliese et al., 2008). A score of 50 or greater is typically considered a positive screen for PTSD in populations similar to participants in this study (Weathers et al., 1993; Weathers and Ford, 1996; Bliese et al., 2008). In the current study, the internal consistency of the PCL-M was excellent (Cronbach's  $\alpha=0.92$ ). In order to determine the effect of each of the DSM-IV symptom clusters on HR-QoL, the current study used PCL-M subscale scores for each of re-experiencing, numbing and avoidance, and hyperarousal symptoms. In the current study, internal consistency estimates of the re-experiencing subscale was excellent (Cronbach's  $\alpha=0.90$ ), while those of the numbing and avoidance and hyperarousal subscales were good (Cronbach's  $\alpha=0.85$  and  $0.80$ , respectively).

#### 2.2.2. Medical Outcomes Study 36-Item Short Form Health Survey

The Medical Outcomes Study 36-Item Short Form Health Survey (SF-36; Ware et al., 2000) assesses concepts of functional health, well-being, and HR-QoL. It provides psychometrically-based physical and mental health summary measures (PCS and MCS, respectively) as well as eight measures of functional health, such as bodily pain, limitations in physical and emotional roles, and vitality. Lower scores on these measures are indicative of poorer health status (Ware and Sherbourne, 1992). In the current study, the internal consistency of the PCS was good, while that of the MCS was acceptable (Cronbach's  $\alpha=0.83$  and  $0.76$ , respectively).

#### 2.2.3. Patient Health Questionnaire

The Patient Health Questionnaire (PHQ) is a self-administered version of the Primary Care Evaluation of Mental Disorders (PRIME-MD), and assesses for threshold and sub-threshold mood, anxiety, and somatoform disorders. The current study used the PHQ-9 to assess depressive symptom severity, and the PHQ-15 to assess somatic symptom severity. The PHQ-9 uses a 4-point scale, where 0="Not at all" and 3="Nearly every day". Scores of individual items are summed to provide a total score ranging from 0–27; scores of 5, 10, 15, and 20 represent cut-off scores for mild, moderate, moderately severe and severe depression, respectively. Internal consistency estimates in the original scale development samples were good (Cronbach's  $\alpha=0.86$  and  $0.89$ ) (Kroenke et al., 2001); an internal consistency estimate in the current study was similar (Cronbach's  $\alpha=0.89$ ). The PHQ-15 uses a three-point scale, where 0="Not bothered" and 2="Bothered a lot" to assess severity of a variety of somatic complaints over the past four weeks. Total scores range from 0–30; scores of 5, 10, and 15 represent cut-off scores for low, medium, and high somatic symptom severity, respectively. Adequate internal consistency of the PHQ-15 in the current sample (Cronbach's  $\alpha=0.79$ ) was comparable to the original scale development samples (Cronbach's  $\alpha=0.80$ ) (Kroenke et al., 2002).

### 2.3. Statistical analysis

SPSS Statistics v. 21.0 (Chicago, Ill.) was used for all analyses. Two separate regression analyses were conducted: the first evaluated the impact of somatic complaint severity on physical HR-QoL; and the second assessed the impact of somatic complaint severity of mental HR-QoL. In both regression analyses, we controlled for PTSD symptom cluster severity (re-experiencing, numbing and avoidance, and hyperarousal) and depressive symptom severity. Pairwise deletion was used in the regression analyses to handle cases with missing data ( $N=7$  for PHQ-9 scores to 17 for PCS/MCS scores).

## 3. Results

### 3.1. Demographics

Most of the sample was male (91.8%,  $n=267$ ), and the mean age of participants was 44.82 years (S.D.=15.03). CF veterans comprised 80.7% of the sample ( $n=235$ ). The mean number of years served in the CF was 13.53 years (S.D.=9.16). Approximately one-fifth of the sample (20.3%;  $n=59$ ) had been deployed to the recent conflict in Afghanistan. Other commonly reported deployment locales included the Balkans, Korea, and Africa.

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