Journal of Anxiety Disorders 25 (2011) 185–191

Contents lists available at ScienceDirect

Journal of Anxiety Disorders

Main and interactive effects of a nonclinical panic attack history and distress tolerance in relation to PTSD symptom severity

Erin C. Marshall-Berenz[a,b], Anka A. Vujanovic[c], Michael J. Zvolensky[a,*]

[a] Department of Psychology, University of Vermont, Burlington, VT, United States
[b] Department of Psychiatry, University of Mississippi Medical Center/Jackson VA, United States
[c] National Center for PTSD - Behavioral Science Division, VA Boston Healthcare System and Boston University School of Medicine, Boston, MA, United States

ARTICLE INFO

Article history:
Received 9 February 2010
Received in revised form 25 August 2010
Accepted 1 September 2010

Keywords:
PTSD
Distress tolerance
Panic attacks
Anxiety

ABSTRACT

The current study investigated the main and interactive effects of a nonclinical panic attack history and distress tolerance in relation to PTSD symptoms. The sample consisted of 91 adults (62.6% women; M_{age} = 23.45, SD = 9.56) who met DSM-IV criteria for trauma exposure, 53.8% of whom met criteria for a recent (past 2 years) history of nonclinical panic attacks. Results indicated that distress tolerance, as measured by the Distress Tolerance Scale (Simons & Gaher, 2005), was significantly related to all PTSD symptom clusters, and a nonclinical panic attack history was significantly related to PTSD re-experiencing and hyperarousal symptoms. The interaction of a nonclinical panic attack history and distress tolerance significantly predicted unique variance in only PTSD hyperarousal symptoms. Implications and future directions are discussed for the role of nonclinical panic attacks and distress tolerance in PTSD symptom expression.

Panic attacks, which reflect a discrete fear response (Barlow, 2002), play an important role in understanding various anxiety and other psychological disorders. For example, in addition to being a defining feature of panic disorder (American Psychiatric Association, 1994), panic attacks are a risk marker for a relatively broad range of psychopathological conditions, such as anxiety disorders (Reed & Wittchen, 1998), major depressive disorder (Bittner et al., 2004), substance use disorders (Baillie & Rapee, 2005), and psychotic disorders (Goodwin, Fergusson, & Horwood, 2004). Furthermore, panic attacks, even those that are "nonclinical" (i.e., experienced out of the context of panic disorder), can be personally distressing and are associated with significant levels of life disruption (Norton, Cox, & Malan, 1992).

One growing line of scientific inquiry has sought to explicate the role of panic attacks in regard to posttraumatic stress disorder (PTSD) sequale (Falsetti & Resnick, 1997). Specifically, numerous scholars have suggested that trauma exposure can result in an increased propensity to experience panic attacks, which in turn, may play a formative role in the maintenance of arousal and development of posttraumatic stress disorder (PTSD; Falsetti & Resnick, 2000; Falsetti, Resnick, Dansky, Lydiard, & Kilpatrick, 1995; Hinton, Hofmann, Pitman, Pollack, & Barlow, 2008; Jones & Barlow, 1990). The empirical literature is consistent with a panic attack–PTSD association. For example, 69% of individuals with PTSD met criteria for panic attacks among a treatment-seeking sample (Falsetti & Resnick, 1997). Similarly, Resnick, Falsetti, Kilpatrick, and Foy (1994) found that 90% of rape victims assessed within 72 h after the assault met full criteria for panic attacks during that same time frame; a finding consistent in individuals who experienced non-sexual trauma (e.g., Bryant & Panasetis, 2001). Other work has found significant relations between heightened anxious arousal during trauma exposure and increased frequency of panic attacks post-trauma (Nixon, Resick, & Griffin, 2004). Similarly, panic attacks experienced during traumatic events have been found to be associated with an increased risk of more intense PTSD symptoms post-trauma exposure (Galea et al., 2002).

Despite empirical evidence of a panic attack–PTSD association, a number of formative limitations characterizes this corpus of work. First, little is known about the specific PTSD symptoms to which panic attacks may be related. Understanding links between panic attacks and specific PTSD symptom clusters may be important in understanding the potential underlying processes linking these clinical problems. For example, integrative theories regarding panic-PTSD symptom co-occurrence suggest that panic attacks may be linked to specific PTSD symptoms due to a fear conditioning process (e.g., Hinton et al., 2008). For instance, panic attack symptoms (e.g., increased heart rate) may become interoceptive triggers

* Corresponding author at: The University of Vermont, Department of Psychology, 2 Colchester Avenue, John Dewey Hall, Burlington, VT 05405-0134, United States. Tel.: +1 802 656 8994; fax: +1 802 656 8783.
E-mail address: Michael.Zvolensky@uvm.edu (M.J. Zvolensky).

0887-6185/$ – see front matter © 2010 Elsevier Ltd. All rights reserved.
doi:10.1016/j.janxdis.2010.09.001

for PTSD symptoms, such as re-experiencing and hyperarousal, due to associations developed during traumatic events (Hinton et al., 2008; Jones & Barlow, 1990). According to this type of perspective, panic attacks may be particularly relevant to the re-experiencing and hyperarousal symptoms among trauma exposed persons; and yet, empirical work documenting this putative association is lacking.

Second, there has been a lack of integration of other relevant risk candidates in the panic-trauma context. In one relevant study, Vujanovic, Zvolensky, and Bernstein (2008) found significant relations between anxiety sensitivity (the fear of anxiety and related sensations) lower order factors and both panic symptoms and PTSD symptoms; however, these factors were not integrated into one overarching model. Distress tolerance, defined as the perceived and/or actual behavioral capacity to withstand exposure to aversive or threatening experiential states (e.g., negative emotions, uncomfortable physical sensations; Brown, Lejuez, Kahler, Strong, & Zvolensky, 2005; Simons & Gaher, 2005), is one promising cognitive-affect factor for better understanding the nature of the panic-PTSD co-occurrence. Lower levels of perceived distress tolerance for negative emotional states are related to greater levels of PTSD symptoms (Vujanovic, Bonn-Miller, Potter, Marshall, & Zvolensky, submitted for publication), even when considered in the context of other measures of behavioral and self-reported distress tolerance constructs (Marshall-Berenz, Vujanovic, Bonn-Miller, Bernstein, & Zvolensky, in press). With regard to panic attack–trauma relations, individuals with lower levels of distress tolerance who also have a panic attack history may be more likely to manifest PTSD symptoms. That is, lower levels of perceived tolerance for emotional distress, including trauma-related distress, in conjunction with a higher overall relative risk for anxious hyperarousal (i.e., history of panic attacks), may increase the probability of more severe PTSD symptoms. Individuals experiencing intense episodes of negative emotion (i.e., panic attacks) who perceive that they cannot tolerate such distress may interpret distressing symptoms as more severe, thereby increasing reactivity to such symptoms (e.g., greater hyperarousal) and increasing sensitivity to such symptoms (e.g., greater likelihood of re-experiencing symptoms). Conversely, higher levels of an actual or perceived ability to tolerate negative emotional states may attenuate relative risk for more severe PTSD symptoms.

Together, the current study investigated the main and interactive effects of a recent (past 2 years) unexpected, nonclinical panic attack history (i.e., panic attacks were experienced as "out of the blue" and did not qualify for panic disorder) and distress tolerance, as assessed by the Distress Tolerance Scale (DTS; Simons & Gaher, 2005), in relation to PTSD symptom severity (total symptoms, as well as 4-factor symptom clusters) among individuals with a history of trauma exposure. This study was predicated on three interrelated sets of hypotheses. First, it was hypothesized that the main effect of DTS – total score would be significantly related to PTSD symptom clusters, a finding that would be consistent with past empirical work (Marshall-Berenz et al., in press; Vujanovic et al., submitted for publication). Second, it was hypothesized that the main effect of a nonclinical panic attack history would be significantly related to re-experiencing and hyperarousal PTSD symptom clusters, a finding that would be consistent with existing theory but would provide a novel contribution to the panic-PTSD literature (Hinton et al., 2008). Finally, it was hypothesized that the significant main effects would be qualified by a significant interaction between the DTS – total score and a nonclinical panic attack history in terms of re-experiencing and hyperarousal PTSD symptom clusters, a finding that would provide a novel contribution to the literature. In all instances, the hypothesized significant effects were expected to be evident above and beyond the variance accounted for by the number of experienced traumas.

1. Method

1.1. Participants

Advertisements for a study on emotion were distributed via fliers in commonly visited areas of Burlington, VT (e.g., downtown, college campuses) and local newspaper advertisements. Participants were 91 adults (62.6% women; M_{age} = 23.45, SD = 9.56) who met the *DSM-IV-TR* PTSD Criterion A1 (the event "involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others"; APA, 2000, p. 467) and Criterion A2 (the trauma response "involved intense fear, helplessness, or horror"; APA, 2000, p. 467). Consistent with the Vermont state population (State of Vermont, Department of Health, 2007), approximately 96.7% of the sample identified as white/Caucasian, 1.1% as Hispanic/Latino, 1.1% as Asian, and 1.1% as Biracial. With regard to educational status, approximately 63.7% reported completing some college, 19.8% reported completing high school/GED, 8.8% reported completing college, 5.5% reported attaining a graduate degree, and 2.2% reported attaining less than a high school degree.

1.2. Measures

Structured Clinical Interview for DSM-IV – Non-patient Version (SCID-I/NP; First, Spitzer, Gibbon, & Williams, 1994). The SCID-I/NP was administered (1) to assess whether participants met criteria for a recent (past 2 years) nonclinical history of unexpected panic attacks (i.e., panic attacks outside of the context of panic disorder that are perceived as occurring "out of the blue"), as well as current (past month or past 6 months for substance dependence) psychopathology, and (2) to assess for current suicidal ideation. The SCID-I/NP has evidenced adequate inter-rater and test-retest reliability for anxiety and mood diagnoses (Zanarini et al., 2000). In the present study, each SCID-I/NP administration was reviewed by the PI to ensure inter-rater agreement on symptom coding and diagnoses.

Clinician-Administered PTSD Scale (CAPS; Blake et al., 1995). The CAPS was employed to measure the frequency and intensity of current (past month) PTS symptoms as well as to assess current (past month) PTSD diagnostic status. All individuals met the *DSM-IV-TR* PTSD Criterion A1 (the event "involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others"; APA, 2000, p. 467) and Criterion A2 (the trauma response "involved intense fear, helplessness, or horror"; APA, 2000, p. 467). The CAPS Life Events Checklist was used to index number of traumatic events; all degrees of exposure (i.e., "happened to me," "witnessed it," "learned about it") were included to comprise a comprehensive index of perceived past life traumatic stressors (i.e., number of past traumas variable). All events endorsed on the Life Events Checklist are not assessed for Criterion A status. Past work has found that the Life Events Checklist has good test–retest reliability, good convergent validity with the Traumatic Life Events Checklist (Kubany et al., 2000), and significant relations with PTSD symptom severity (Gray, Litz, Hsu, & Lombardo, 2004). Consistent with prior research (e.g., Monson et al., 2006), symptom severity was defined as the sum of the frequency and intensity items on the CAPS. The CAPS is considered a "gold standard" for indexing PTSD diagnostic status as well as symptom severity and has demonstrated excellent psychometric properties (Weathers, Keane, & Davidson, 2001). In the present study, each CAPS administration was conducted by trained clinical assessors and reviewed by the PI to ensure agreement on PTSD symptom ratings and diagnosis.

Distress Tolerance Scale (DTS; Simons & Gaher, 2005). The DTS is a 15-item self-report measure, on which respondents indicate, on