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Exploring the relationship between posttraumatic stress disorder and deliberate self-harm: The moderating roles of borderline and avoidant personality disorders

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ABSTRACT

Despite increasing evidence for an association between posttraumatic stress disorder (PTSD) and deliberate self-harm (DSH), few studies have examined the factors that moderate this association or the impact of co-occurring personality disorders among individuals with PTSD on DSH frequency. Given the high rates of co-occurrence between PTSD and two personality disorders of particular relevance to DSH, borderline personality disorder (BPD) and avoidant personality disorder (AVPD), this study examined the moderating role of these personality disorders in the association between PTSD and DSH frequency among a sample of substance use disorder patients (N=61). Patients completed structured clinical interviews assessing PTSD, BPD, and AVPD and a questionnaire assessing DSH. Results revealed more frequent DSH among patients with (vs. without) PTSD and provided evidence for the moderating role of AVPD in this association. Specifically, results revealed heightened levels of DSH only among PTSD patients with co-occurring AVPD. Findings are consistent with past research demonstrating that the presence of co-occurring AVPD among patients with other Axis I and II disorders is associated with worse outcomes, and highlight the importance of continuing to examine the moderating role of AVPD in the association between PTSD and a variety of health-risk behaviors.

1. Introduction

Posttraumatic stress disorder (PTSD) is an anxiety disorder characterized by the development and persistence of re-experiencing, avoidant, and hyperarousal symptoms following direct or indirect exposure to a traumatic event (Blake et al., 1990). PTSD is a serious clinical concern, associated with considerable functional impairment (Kessler and Frank, 1997), high rates of co-occurring psychiatric disorders (Kessler et al., 1995), and heightened levels of numerous self-destructive and health-compromising behaviors, including suicide attempts (Nepon et al., 2010) and illicit substance abuse (Brady et al., 2004). One particularly clinically-relevant behavior receiving increasing attention among patients with PTSD is deliberate self-harm (DSH), defined as the deliberate, direct destruction of body tissue without conscious suicidal intent (Chapman et al., 2006). Indeed, rates of DSH among individuals with PTSD exceed 50% (Zlotnick et al., 1999; Sacks et al., 2008; Dyer et al., 2009), and there is evidence to support the role of PTSD symptoms in the development and maintenance of this behavior (Harned et al., 2006; Bornovalova et al., 2011).

Despite evidence for elevated rates of DSH within PTSD, few studies have examined the subset of PTSD patients most at-risk for this behavior. In particular, little research has examined the moderating role of personality pathology in the association between PTSD and DSH or the specific co-occurring personality disorders that may increase the risk for DSH among individuals with PTSD. However, emerging research on the phenomenon of complex PTSD (a multifaceted syndrome encompassing both trauma-related symptoms and personality disturbance; Herman, 1992) suggests that the co-occurrence of PTSD and personality disorders may be especially relevant to DSH. Specifically, complex PTSD includes engagement in self-destructive behavior as a key feature (Herman, 1992; Dyer et al., 2009) and has been found to evidence stronger associations with DSH than PTSD (Dyer et al., 2009). Thus, this literature highlights the importance of examining the intersection of trauma-related difficulties and personality disorders in the risk for DSH.

Two personality disorders that warrant particular consideration in this regard are borderline personality disorder (BPD) and avoidant personality disorder (AVPD), both of which are common among patients with PTSD (Southwick et al., 1993; Bollinger et al., 2000) and considered relevant to DSH. Indeed, BPD is the disorder most often associated with DSH (Chapman et al., 2006), with as many as 70–75% of individuals with BPD reporting a history of

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DSH (Gunderson, 2001). Moreover, emerging evidence highlights the relevance of AVPD to DSH, with studies finding an association between AVPD symptoms and DSH among both non-clinical young adult (Klonsky et al., 2003) and incarcerated adult (Haines et al., 1995) samples.

The relevance of BPD and AVPD to DSH is further supported by theoretical literature on the pathogenesis of these disorders. Specifically, both BPD and AVPD are considered to be strongly linked to an intolerance of emotional distress and related difficulties regulating distress (Linehan, 1993; Taylor et al., 2004)—two of the mechanisms implicated in the development and maintenance of DSH (Chapman et al., 2006; Gratz et al., 2010). Furthermore, there is some evidence to suggest that the co-occurrence of these personality disorders among individuals with PTSD is associated with a number of negative outcomes and maladaptive behaviors (Heffernan and Cloitre, 2000; Miller and Resick, 2007), including suicidal and other health-risk behaviors (Connor et al., 2002). Although no studies have examined the extent to which these disorders moderate the association between PTSD and DSH in particular, recent findings that BPD pathology moderates the association between DSH and emotional responding (Gratz et al., 2010) highlight the importance of examining the moderating role of personality disorders in the association between DSH and other factors.

In considering the moderating roles of BPD and AVPD in the association between PTSD and DSH, one population that may be especially important to study is patients with substance use disorders (SUD). SUD patients have elevated rates of both PTSD and BPD compared to the general population (Trull et al., 2000; Brady et al., 2004), and PTSD–SUD co-occurrence has been found to be associated with greater impairment and worse outcomes (Najavits et al., 1999; Back et al., 2000). Furthermore, there is some evidence to suggest heightened risk for DSH among PTSD–SUD patients (compared to those with either disorder alone; Harned et al., 2006).

Thus, the goal of the present study was to examine the moderating roles of BPD and AVPD in the association between PTSD and DSH frequency among SUD patients. We hypothesized significant main effects of PTSD, BPD, and AVPD diagnostic status on DSH frequency, such that the frequency of DSH would be higher among SUD patients with (vs. without) these disorders. Furthermore, we hypothesized significant interactions between PTSD and both BPD and AVPD, such that PTSD patients with co-occurring BPD or AVPD would report more frequent DSH than those with PTSD or these personality disorders alone.

2. Method

2.1. Participants

Participants were inpatient residents in a drug and alcohol abuse treatment center in Northeast Washington D.C. Data for this study were collected as part of a larger study focused on the functional relationship between PTSD and crack/cocaine use. To be eligible for the larger study, participants were required to: (1) be 18 to 65 years of age; (2) meet criteria for crack/cocaine dependence; (3) have been in residential treatment for at least 72 h (to limit the interference of withdrawal symptoms on responding); (4) exhibit no significant cognitive impairment; and (5) not meet criteria for a current manic episode or psychotic disorder.

Based on these criteria, 61 participants (54% male) were included in the study. Participants were primarily African-American (97%), low-income ($<$$10,000 income=79%), unemployed (89%), and single (75%), and ranged in age from 20 to 58 (mean age=44.45 $\pm$ 7.05).

2.2. Measures

2.2.1. Posttraumatic stress disorder

The *Clinician-Administered PTSD Scale* (CAPS; Blake et al., 1990), a widely used structured PTSD diagnostic interview (Weathers et al., 2001), was used to diagnose PTSD. It assesses the frequency and intensity of the 17 DSM-IV PTSD symptoms (plus eight associated symptoms). The CAPS has adequate inter-rater reliability (0.92–0.99), internal consistency (0.73–0.85), and convergent validity with other established measures of PTSD (Weathers et al., 2001). In addition, the robust psychometric properties of the CAPS have been supported in a variety of combat and civilian (including inpatient SUD) samples, as well as across different racial/ethnic groups (Weathers et al., 2001). The CAPS was administered by trained interviewers, and all interviews were reviewed by the principal investigator (MTT).

2.2.2. Co-occurring borderline and avoidant personality disorders

Participants were also interviewed using the BPD and AVPD modules of the *Diagnostic Interview for DSM-IV Personality Disorders* (DIPD-IV; Zanarini et al., 1996). The DIPD-IV has demonstrated good reliability (Zanarini et al., 2000), with inter-rater kappa coefficients ranging from 0.68 to 0.73 and test–retest kappa coefficients from 0.69 to 0.74. Interviews were administered by post-baccalaureate or doctoral-level clinical assessors trained to reliability with the investigators (KLG and MTT). All interviews were reviewed by the investigators, with diagnoses confirmed in consensus meetings. Of note, a discrepancy was evident in only three cases.

2.2.3. Deliberate self-harm

The *Deliberate Self-Harm Inventory* (DSHI; Gratz, 2001) is a 17-item self-report questionnaire that assesses lifetime history of various aspects of DSH, including frequency, duration, and type of DSH behavior (including cutting, burning, carving, bone-breaking, etc.). The DSHI asks participants whether and how often they have engaged in a variety of behaviors intentionally and without intending to kill themselves, and specifically instructs participants to exclude behaviors they engaged in with the sole purpose of delivering substances. The DSHI has demonstrated adequate test–retest reliability and construct, discriminant, and convergent validity among undergraduate student and patient samples (Gratz, 2001; Fliege et al., 2006). Consistent with past research using this measure (e.g., Gratz, 2001; Cerutti et al., 2011), a continuous variable measuring frequency of reported DSH was created by summing participants' scores on the frequency questions. Internal consistency in this sample was adequate (α=0.67).

2.2.4. Depression and anxiety symptoms

The depression and anxiety subscales of the *Depression Anxiety Stress Scales* (DASS; Lovibond and Lovibond, 1995) were also administered. The DASS is a self-report questionnaire designed to differentiate between the core symptoms of depression, anxiety, and stress. The DASS has been found to have good test–retest reliability (subscale rs $>$ 0.70; Brown et al., 1997) and adequate construct and discriminant validity, as evidenced by significant (and differential) associations with other established self-report and diagnostic assessments of depression and anxiety (Lovibond and Lovibond, 1995; Brown et al., 1997). The factor structure of the DASS has also been supported in clinical samples (Brown et al., 1997). The depression and anxiety subscales were examined as potential covariates in analyses. Their internal consistency in the current sample was excellent (αs=0.87).

2.2.5. Substance use severity

Consistent with past studies of inpatient substance users (Lejuez et al., 2007; Bornovalova et al., 2009), past year severity of alcohol and drug use was assessed through a self-report measure of the frequency of use of a variety of substances (e.g., alcohol, cannabis, cocaine, stimulants, opiates) in the past year. Modeled after other well-established, empirically supported measures (e.g., the Alcohol Use Disorders Identification Test; Saunders et al., 1993), this measure characterizes frequency of use in a manner consistent with the SUD module of the Structured Clinical Interview for DSM-IV (SCID-IV; First et al., 1996). Responses are summed to create an overall score representing past year substance use. In support of the measure's construct validity, scores on this measure have been found to be associated with a number of constructs theoretically and empirically linked to SUD, including impulsivity (Lejuez et al., 2007), emotion dysregulation (Bornovalova et al., 2009), and PTSD symptoms (Bornovalova et al., 2009). Further, scores on this measure demonstrate convergence with SCID-IV SUD diagnoses in associations with relevant outcomes (Lejuez et al., 2007). This variable was examined as a potential covariate in subsequent analyses. Internal consistency in the current study was adequate (α=0.73).

2.2.6. Demographics

All participants completed a demographics questionnaire assessing age, gender, racial/ethnic background, marital status, annual income, and employment status.

2.3. Procedure

All study procedures received approval by the institution's Institutional Review Board. Eligible participants were informed that involvement in the study was voluntary and refusal to participate would not affect their treatment status.