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Longitudinal associations of friend-based social support and PTSD symptomatology during a cannabis cessation attempt

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ABSTRACT

Research supports bidirectional associations between social support and posttraumatic stress disorder (PTSD), whereby social support may buffer against PTSD, and individuals with PTSD may experience decreasing support over time. Research examining contexts that may affect these relations is needed. This study examined the longitudinal associations between PTSD and social support from friends over a 6-month period in 116 veterans with cannabis dependence who had recently initiated an attempt to quit cannabis use. A cross-lagged autoregressive model revealed a significant, negative relation between earlier PTSD symptoms and later support. An exploratory multigroup analysis comparing those with and without a relapse in the first month after their quit attempt revealed that the significant negative association between PTSD and future support was present only in those who relapsed. Although this analysis was limited by a small sample size, results suggest that substance use may be an influential contextual variable that impacts the longitudinal associations between PTSD and support.

1. Introduction

Military personnel are among the most at-risk populations for exposure to traumatic events and subsequent onset of posttraumatic stress disorder (PTSD; Schlenger et al., 2002). In fact, among all veterans served across the Veterans Health Administration (VHA) the percentage of individuals diagnosed with PTSD has increased by 60% between 2001 and 2007 (VHA Office of Public and Environment Hazards, 2009), with this rate continuing to increase. Indeed, the prevalence of PTSD has reached a new high among veterans returning from Iraq and Afghanistan, with approximately 300,000 (18%) of the 1.64 million recent returnees meeting diagnostic criteria for PTSD. Given these rates and the often chronic PTSD symptoms (Douglas, Southwick, Darnell, & Charney, 1996), understanding risk and protective factors associated with the development and maintenance of PTSD is a pressing need in this population.

Social support is a protective factor that has consistently been shown to be relate to PTSD. Multiple meta-analyses have confirmed a strong, inverse association between social support and PTSD in both military and civilian populations (Brewin, Andrews, & Valentine, 2000; Ozer, Best, Lipsey & Weiss, 2008). There are multiple theories that attempt to account for this association. One conceptualizes social support as a protective factor against PTSD, likely by offering a safe and supportive environment in which survivors can disclose their experiences and reactions to their experiences. In this manner, higher social support provides a buffer against the development and maintenance of PTSD symptoms over time (e.g., Pietrzak, Johnson, Goldstein, Malley, & Southwick, 2009). Another theory posits the opposite direction of effects, whereby PTSD symptoms themselves lead to an erosion of social support over time, either by survivors withdrawing from social contact over time, or by survivors' symptoms leading to burnout in their support network, or both (e.g., Lui, Glynn, & Shetty, 2009). Finally, some researchers have integrated these viewpoints, speculating that social support functions as a buffer against the development of PTSD shortly after a traumatic event, but over time, chronic levels of PTSD then lead to an erosion of social support (Hall, Bonanno,

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Bolton, & Bass, 2014; Kaniasty and Norris, 2008; Robinaugh et al., 2011).

Most of the few existing longitudinal studies that have examined these relations are consistent with the erosion theory, with greater symptoms of PTSD predicting future decreases in social support, but not vice versa (Hall et al., 2014; Kaniasty and Norris, 2008; King, Taft, King, Hammond, & Stone, 2006; Laffaye, Cavella, Drescher, & Rosen, 2008). The lone exception we identified was a study by Dirkzwager, Bramsen, and van der Ploeg (2003), which revealed that baseline social support had a significantly negative association with subsequent PTSD. These authors, however, did not include an analysis of the reverse pathway. It is important to note, however, that most of these studies have evaluated participants who have had PTSD for some time, consistent with the integrative theory that more chronic PTSD is likely to lead to an erosion of social support.

Given the small amount of research in this area to date, further longitudinal research of this nature is needed. Moreover, it is important to begin considering contextual factors that may influence the associations of PTSD symptoms and social support. Substance use may be one critical context to consider. Veterans with long-term PTSD symptoms have high rates of substance use, often starting shortly after their traumatic experience (Douglas et al., 1996). Therefore, veterans who have served in previous conflicts and are reporting current PTSD symptoms may have a long-standing history with substance use (Petrakis, Rosenheck, & Desai, 2011). Substance use has been shown to moderate the relationship between social support and depression in non-military samples (Kane et al., 2014) and may similarly impact the association between social support and PTSD. The presence of substance use has an association with PTSD and social support (Nickerson et al., 2014; Saladin, Brady, Dankey, & Kilpatrick, 1995), and substance use and the social environment are heavily intertwined (e.g., Owens and McCrady, 2014). As many individuals utilize substances in order to self-medicate, reducing substance use may directly increase PTSD symptoms, particularly hyperarousal (Jacobsen, Southwick, & Kosten, 2001). Research to date has not directly addressed the influence of substance use on the characteristics of social support, but substance use remission and persistence is related to smaller social network sizes (Min et al., 2013; Mowbray and Scott, 2015), and the frequency of cessation attempts of cigarette smokers has been positively associated with number of social contacts with non-smokers (Ferron et al., 2011). Considering the often long-standing substance use for veterans and the impacts of substance use reduction or cessation on both PTSD and social support, it may be clinically important to assess how ceasing substance use may impact the association between PTSD and social support.

The first aim of the present study was to evaluate the longitudinal associations of PTSD symptoms and friend-based social support among veterans with a substance use disorder. As cannabis use is the most common illicit drug utilized by veterans with PTSD (Bonn-Miller and Rousseau, 2015), we focused on a sample of veterans with cannabis dependency for the current study. The second aim of the study was to examine whether the PTSD-social support association varied as a function of a successful cessation of cannabis use. We selected a sample of veterans who were initiating a self-guided attempt to quit using cannabis and compared those who did and did not maintain abstinence in the 30-day period after their quit attempt. Given that our sample consisted of veterans who had not deployed recently, we hypothesized that PTSD would be significantly and negatively related to later social support, but that social support would not prospectively predict PTSD. As our second aim was exploratory, no a priori hypotheses were made.

2. Material and method

2.1. Participants

The current sample was comprised of 123 cannabis dependent military veterans. Overall, 20 participants reported complete marijuana abstinence during the 30 days post, 59 participants reported using marijuana at least once, and 44 participants did not provide valid data. The sample was primarily male (81%), with an average age of 50.98 years (SD = 9.88). The majority of participants had at least achieved a high school diploma (92%). Forty-three percent reported being divorced or separated; 28% were never married; 24% were married or living with a partner; and 5% were widowed. Of the 103 participants who supplied data about their race/ethnicity, 37% were Caucasian, 36% were Black, 15% were Hispanic, 1% were Asian, and 12% were Other. Veterans had served between 1967 and 2011, with the majority (59%) serving during the Vietnam era.

2.2. Measures

2.2.1. Posttraumatic stress symptom severity

The PTSD Checklist – Military Version (PCL-M; Weathers, Litz, Herman, Huska, & Keane, 1993) is a 17-item, self-report scale of PTSD symptoms that corresponds to the 17 criteria for PTSD as specified in the Diagnostic and Statistical Manual for Mental Disorders – Fourth Edition (DSM-IV; American Psychiatric Association, APA, 2000). Responses use a Likert scale ranging from 1 (*not at all*) to 5 (*extremely*). It is a well-established measure with strong psychometric properties (e.g., Blanchard, Jones-Alexander, Buckley, & Forneris, 1996). The internal reliability of the PCL-M in the current sample was excellent ($\alpha = .96$). The PCL-M was scored as a continuous measure with the total score indicating global PTSD symptom severity. Within our analyses, we utilized an average score. However, in Table 1, total scores are reported to facilitate comparisons to prior studies. On average, participants reported moderate levels of total PTSD symptoms ($M = 39.98$; SD = 18.94), with 56% scoring at or above the score of 34, which was found by Bliese et al. (2008) to maximize specificity and sensitivity for diagnosis of PTSD in primary care clinics.

2.2.2. Social support

Social support from friends was assessed by the Life Stressors and Social Resource Inventory for Adults (LISRES-A; Moos, Fenn, & Billings, 1988). This interview-based measure assesses stressors (5 items) and resources (6 items) in the domains of work, spouse, extended family, and friends. Responses use a Likert scale ranging from 1 (*never*) to 5 (*often*), with total scores ranging from 6 to 30. The LISRES was normed on 1884 adults (1181 men and 703 women), and has established reliability and both concurrent and predictive validity (Moos et al., 1988). The interpersonal resources subscales consist of items assessing perceived available support in the context of each set of relationships (e.g., "Can you count on your friends to help when you need it?"). Thus, the present research focused on resources in the friend domain, as this element provided the most data (e.g., the majority of respondents had no current spouse). The LISRES friend resources subscale exhibited good internal consistency in the current sample ($\alpha = .72$ at baseline).

2.2.3. Cannabis use

Self-reported use of cannabis was assessed at each time-point using the timeline follow-back (TLFB) procedure (Sobell and Sobell, 1992). During baseline, the TLFB was administered by asking participants to rate the amount of marijuana use day-by-day for the previous 90 days. During each subsequent follow-up appointment (i.e., weekly for one month, then monthly for six months), the TLFB was administered to assess mean cannabis use since the