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Interactive effects of stress and individual differences on alcohol use and posttraumatic stress disorder among personnel deployed to Guantanamo Bay☆

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ABSTRACT

This study examines the role of factors such as perceived stress, neuroticism, beliefs in psychotherapy stigma, resilience, and demographics in understanding posttraumatic stress disorder (PTSD) and alcohol use disorder (AUD) among deployed military personnel. Results show that personnel who screened positive for PTSD were more likely to screen positive for AUD (versus those who did not screen positive for PTSD). Perceived stress, neuroticism, and psychotherapy stigma all have direct multivariate relationships with PTSD symptoms. Moderated regression analyses show that the positive relationship between perceived stress and PTSD symptoms is significantly stronger among those scoring high on neuroticism and psychotherapy stigma. The positive relationship between perceived stress and AUD symptoms is only significant among those scoring high on psychotherapy stigma. Given the moderating role of psychotherapy stigma in the relationship between perceived stress and PTSD symptoms and the relationship between perceived stress and AUD symptoms efforts to reduce the stigma associated with mental health care in the military should be expanded. Also, the current research adds to the literature highlighting the role of neuroticism as a key variable in understanding PTSD.

1. Introduction

1.1. PTSD definition and prevalence

Posttraumatic stress disorder (PTSD) is a reaction to a traumatic event resulting in various symptom clusters. Based on the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition, Text Revision (DSM-IV-TR), the symptom clusters consist of re-experiencing the traumatic event, avoidance, and hyperarousal. The more recent publication of DSM-5 (2013) conceptualizes PTSD as having four symptom clusters that include intrusion, avoidance, negative changes in mood or thought, and changes in activity or arousal. For a diagnosis of PTSD, symptoms must be present for more than one month and must impact daily functioning (American Psychiatric Association, 2013). In a nationally representative study, the prevalence rate of PTSD among civilians was estimated at 7.8% (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995) this result was later replicated with a slightly larger representative civilian sample (Kessler et al., 2005). In comparison, the prevalence of PTSD among veterans of the Gulf War and Operation Enduring Freedom/Operation Iraqi Freedom was 10.1% (Kang, Natelson, Mahan, Lee, & Murphy, 2003) and 13.8% (Tanielian & Jaycox, 2008), respectively. Further, a review study found that 5% to 12% of military respondents screened positive for PTSD, while prevalence rates of PTSD among returning service members from Iraq/Afghanistan seeking mental health treatment ranged from as low as 4.2% to much higher rates at 50.0% (Ramchand et al., 2010); however, higher rates have been found with convenience samples or among those with PTSD symptoms prior to deployment.

1.2. Alcohol use disorder definition and prevalence

Alcohol use disorder (AUD) is the result of continued consumption of alcohol despite negative consequences to one's life and daily functioning. To meet the diagnostic criteria for AUD, at least two symptoms indicative of problematic use must be present in the last 12 months (American Psychiatric Association, 2013). Several examples of symptoms of problematic alcohol use include: drinking more than intended, failed attempts to reduce alcohol consumption, devoting a great deal of time to alcohol consumption, allowing alcohol use to interfere with other important aspects of life, use of alcohol in inappropriate or dangerous contexts, building up tolerance to alcohol, and experiencing withdrawal symptoms when abstaining from alcohol (American Psychiatric Association, 2013). Among civilian populations,

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the lifetime prevalence of AUD is 17.8% (Hasin, Stinson, Ogburn, & Grant, 2007). The prevalence of alcohol abuse among military samples is estimated between 15% and 20% (Bray & Hourani, 2007).

1.3. Comorbid PTSD and AUD

Research has shown that PTSD often occurs along with AUD; for example, in a sample of 5800 individuals, 52% of men and 28% of women with PTSD met criteria for lifetime alcohol misuse/dependence (Kessler et al., 1995). Further, the National Vietnam Veterans Readjustment Study (NVVRS) showed that for those suffering from PTSD, 22% had a current diagnosis of alcohol misuse/dependence and 75% had a lifetime diagnosis of alcohol misuse/dependence (Kulka et al., 1988).

Researchers investigating the comorbidity of PTSD and AUD have hypothesized that PTSD and AUD may share many causal or explanatory factors. Brady, Back, and Coffey (2004); McCauley, Killeen, Gros, Brady, and Back (2012) provide a useful review of theoretical and empirical work on comorbid PTSD and AUD. Theories such as the "common factors hypothesis", the "high-risk hypothesis", and the "susceptibility hypothesis" suggest that environmental conditions and individual predispositions interact in such a way to bring about comorbid PTSD and AUD (Brady et al., 2004; McCauley et al., 2012). Environmental conditions such as being exposed to numerous stressors or a particularly intense stressful event have been linked to both PTSD and AUD (Brady et al., 2004). Anxiety related personality variables (Reich, 1990) and attitudes toward mental health (Hoge et al., 2004) have also been identified as important correlates of PTSD and/or AUD symptoms. For example, those scoring high on neuroticism tend to experience a greater number of PTSD symptoms (Casella & Motta, 1990) and AUD symptoms (Carney, Armeli, Tennen, Affleck, & O'Neil, 2000) than those scoring low in neuroticism. In addition, attitudes toward psychotherapy relates to PTSD severity among military personnel (Hoge et al., 2004), and civilians who hold negative or pessimistic views of mental health care treatment are more likely to screen positive for AUD (Ten Have et al., 2010).

The goal of the present study is to generally identify shared factors that help to explain both PTSD and AUD symptoms. Given the current study focuses on deployed military personnel, variables previously found to be relevant in this context were included in the study. Additional details on the variables examined in the study follows.

1.4. Perceived stress relates to PTSD and alcohol abuse

Perceived stress is a construct that reflects the extent to which an individual has experienced aversive events believed to be overwhelming, unpredictable, or uncontrollable (Cohen, Kamarck, & Mermelstein, 1983). Past research shows that perceived stress is a key variable in understanding PTSD or AUD. For example, combat exposed military personnel who were later diagnosed with PTSD reported significantly higher levels of perceived stress than combat exposed military personnel who later screened negative for PTSD (Solomon, Mikulincer, & Hobfoll, 1987). In a large study of military personnel, increases in perceived stress increased the likelihood of respondents engaging in heavy drinking (Bray, Fairbank, & Marsden, 1999). Among civilians exposed to rocket and mortar fire, those who scored high on perceived stress were more likely to report a higher number of PTSD symptoms (Besser, Neria, & Haynes, 2009). Also, civilians who score high on perceived stress also tend to experience a greater number of alcohol-related problems (Tomaka, Morales-Monks, & Shamaley, 2012).

1.5. Neuroticism as a moderator of the stressor–strain relationship

The emotionally sensitive nature of the neuroticism personality construct plays a key role in explaining PTSD and substance abuse. A rich body of literature exists documenting the moderating role of neuroticism and negative emotionality in the stressor–strain response process (Enns, Cox, & Clara, 2005). For example, the relationship between trauma exposure and PTSD symptoms is significantly stronger among people scoring high on neuroticism (versus those scoring low on neuroticism) (Casella & Motta, 1990). Also, the relationship between stressors and alcohol consumption is stronger among individuals scoring high on neuroticism (versus individuals scoring low on neuroticism) (Carney et al., 2000). Research with Vietnam War veterans found that negative emotionality mediated the positive relationship between PTSD and alcohol related problems (Miller, Vogt, Mozley, Kaloupek, & Keane, 2006).

1.6. Psychotherapy stigma moderates the stressor–strain relationship

Negative or pessimistic attitudes regarding psychotherapy can negatively impact the efficacy of treatment (Addis & Jacobson, 2000). Negative attitudes or stigmas that individuals commonly endorse regarding psychotherapy treatment tend to center around psychotherapy not being helpful, psychotherapy making problems worse, and that psychotherapy is a sign of weakness (Bystritsky et al., 2005). While no study has systematically compared psychotherapy stigma between civilian and military samples, it is apparent that this phenomenon exists in both spheres. For example, primary care patients with a range of anxiety disorders who endorsed psychotherapy stigmas were less likely to use psychotherapy treatment (Bystritsky et al., 2005). Additionally, military service members who screen positive for mental health symptoms endorse more mental health stigma and barriers to mental health care (Hoge et al., 2004). Military stigma is likely more prevalent due to the warrior ethos culture and active duty service members' have more to lose in terms of damages to one's career or opportunity for promotion.

At present, there are no published studies specifically investigating the moderating role of psychotherapy stigma in the relationship between perceived stress and mental health outcomes such as PTSD or AUD. However, related research suggests psychotherapy stigma could play a role in how people respond to stressors and mental health symptoms. For example, those who endorse psychotherapy stigma are less likely to use psychotherapy treatment (Bystritsky et al., 2005). Given the well-documented effects of psychotherapy on both PTSD symptom reduction (Sherman, 1998) and in reducing alcohol abuse (Emrick, 1975), personnel who endorse psychotherapy stigma may not utilize effective resources available to deal with stressors and thus may be more susceptible to the development of various types of psychological strain (PTSD and/or AUD).

1.7. Resilience moderates the stressor–strain relationship

Research demonstrates that resilience moderates the relationship between stressful events and the development of psychological strain among civilians (Campbell-Sills, Cohan, & Stein, 2006) and moderates the relationship between occupational stress and psychological health among military personnel (Dolan & Adler, 2006). Those who score high on resilience tend to engage in more proactive and healthy forms of coping and are less likely to engage in avoidant forms of coping (Johnson et al., 2008). Typically, those scoring higher on resilience employ adaptive coping strategies in the face of stress, are able to "bounce back" from stressors and develop fewer stress outcomes such as PTSD symptoms (Agaibi & Wilson, 2005) and/or alcohol related problems (Kumpfer, 2002) than those who score low on resilience.

2. Hypotheses

Given the literature reviewed thus far, we anticipate that personnel who screen positive for PTSD will be more likely to also screen positive for AUD. We also expect perceived stress, neuroticism and psychotherapy stigma to positively relate to PTSD and AUD symptoms. We expect resilience to negatively relate to PTSD and AUD symptoms. Further, we