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Depression, posttraumatic stress, and alcohol misuse in young adult veterans: The transdiagnostic role of distress tolerance

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ABSTRACT

Background: Alcohol misuse is common among young adult veterans, and is commonly associated with depression and posttraumatic stress disorder (PTSD). In fact, rates of comorbid depression, PTSD, and problem drinking are high in this population. Although distress tolerance, the capacity to experience and withstand negative psychological states, has been examined as a potential transdiagnostic factor that accounts for the development of mental health disorders, problem drinking, and the comorbidity between these presenting concerns, its role has not been evaluated in a veteran population.
Methods: Young adult veterans were recruited for an online survey related to alcohol use. Participants ($n = 783$) completed self-report measures of alcohol use, depression and PTSD symptoms, and distress tolerance. Mediation models were conducted to examine whether distress tolerance mediated the relationship between (1) probable PTSD, (2) probable depression, and (3) comorbid probable PTSD and depression with alcohol misuse. Moderated mediation models were conducted to examine gender as a moderator.
Results: Significant bivariate associations were observed among mental health symptoms, distress tolerance, and alcohol misuse. Distress tolerance significantly mediated the relationship between probable depression and PTSD (both alone and in combination) and alcohol misuse. Evidence of moderated mediation was present for probable PTSD and probable comorbid PTSD and depression, such that the indirect effect was stronger among males.
Conclusions: These results suggest that distress tolerance may be a transdiagnostic factor explaining the comorbidity of depression and PTSD with alcohol misuse in young adult veterans. These findings may inform screening and intervention efforts with this high-risk population.

1. Introduction

1.1. Alcohol use, PTSD, depression, and their co- and tri-morbidity among young adult veterans

Heavy alcohol use, depression, and posttraumatic stress disorder (PTSD) are among the most common mental health problems among young adult veterans. Estimated rates of alcohol misuse in veterans from Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) range from 13–39% (Burnett-Zeigler et al., 2011; Eisen et al., 2012; McDevitt-Murphy et al., 2010). Moreover, there is evidence that the highest rates of alcohol misuse occur among the youngest veterans. Younger veterans and service members are most likely to engage in heavy weekly drinking (Jacobson et al., 2008) and binge drinking (Bray and Hourani, 2007; Jacobson et al., 2008; Ramchand et al., 2011), experience alcohol-related problems (Jacobson et al., 2008), and meet criteria for alcohol misuse (Burnett-Zeigler et al., 2011; Seal et al., 2011).

Depression and PTSD are frequently comorbid with problem drinking in veterans (Petrakis et al., 2011). Seal et al. (2011) found that among OEF/OIF veterans diagnosed with an alcohol use disorder (AUD), 63% were also diagnosed with PTSD and 54% with depression. There is evidence that a diagnosis of PTSD or depression increases the likelihood of alcohol misuse among OEF/OIF veterans, possibly due to attempts to avoid or numb oneself from the symptoms of hyperarousal or negative affect (Burnett-Zeigler et al., 2011; Jakupcak et al., 2010). However, it is important not to overlook the high rates of comorbid depression and PTSD in this population. In

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a representative sample of OEF/OIF veterans, roughly two-thirds of those who screened positive for PTSD also screened positive for depression (Schell and Marshall, 2008). Given the independent association of each diagnosis with problem drinking, it is perhaps unsurprising that the co-occurrence of PTSD and depression would be associated with alcohol misuse. In fact, a study of OEF/OIF veterans referred to Department of Veterans Affairs (VA) medical clinics found that 7% of veterans screened positive for PTSD and alcohol misuse and 4% screened positive for depression and alcohol misuse; however, even more striking is that 19% screened positive for depression, PTSD, *and* alcohol misuse, suggesting much higher rates of trimorbidity than would be assumed based on chance co-occurrence (Seal et al., 2008).

Veterans with AUDs and co-occurring depression and/or PTSD symptoms experience poor functioning in several areas of their lives, such as poor family relationships, homelessness, employment difficulties, low life satisfaction, suicidality, and physical health complaints (McDevitt-Murphy et al., 2010; Britton et al., 2015; Carter et al., 2011; Possemato et al., 2010; Yoon et al., 2015). Although OEF/OIF veterans are in general difficult to engage in needed mental health care services (Burnett-Zeigler et al., 2011; Schell and Marshall, 2008; Seal et al., 2010), veterans with comorbid problems are even less likely to seek care to address their drinking or comorbid mental health problems (Erbes et al., 2007). Therefore, it is critical to understand the factors that may explain the comorbidity of these mental health concerns with alcohol misuse in veterans. This effort has the potential to guide screening, prevention, and intervention efforts designed to reduce mental health problems, problem drinking, and their comorbidity.

1.2. Role of distress tolerance in psychiatric and substance use comorbidity

Distress tolerance – "the capacity to experience and withstand negative psychological states" (Simons and Gaher, 2005) – is one factor that may link mental health and substance use. Low distress tolerance is associated with a range of mental health disorders, including PTSD (Marshall-Berenz et al., 2010; Vujanovic et al., 2011a) and depression (Peterson et al., 2014; Williams et al., 2013). Low distress tolerance has also been associated with increased alcohol use (Buckner et al., 2007; Wolitzky-Taylor et al., 2015) and more serious cannabis-related problems (Bujarski et al., 2012), and implicated in poor treatment outcomes among individuals who misuse substances, including shorter durations of recent abstinence attempts (Daughters et al., 2005b) and early treatment dropout (Daughters et al., 2005a).

Although some research has examined the role that distress tolerance plays in the relationship between co-occurring mental health disorders and substance use, these studies have varied widely in their focus and methods. These studies have examined a range of outcomes, such as alcohol and substance use frequency (e.g., Duranceau et al., 2014), alcohol and substance use motives (e.g., Marshall-Berenz et al., 2011; Vujanovic et al., 2011b), and treatment success (e.g., Daughters et al., 2005a). They have also differed with respect to statistical methods, examining both moderation (e.g., Ali et al., 2015; Tull et al., 2012) and mediation (e.g., Potter et al., 2011; Wolitzky-Taylor et al., 2015) models.

Despite this variability, there is increasingly theoretical support for the examination of distress tolerance as a statistical mediator that empirically accounts for the covariance between mental health problems and substance use. The rationale is that low distress tolerance may be a common risk factor that gives rise to both mental health problems and substance use, and may be a shared etiological factor that underlies the comorbidity. Low distress tolerance promotes maladaptive coping responses to distress from mental health problems. In turn, these maladaptive coping responses paradoxically exacerbate the intensity and frequency of distress because they may promote avoidance behaviors, thereby disrupting the process of habituation that might otherwise diminish the negative affect provoked by aversive internal or external stimuli (Leventhal and Zvolensky, 2015; Leyro et al., 2010). Such processes may lead to a variety of symptoms and behaviors that could promote both PTSD and depression, such as reduced access to certain rewards for which the pursuit of may be distressing at times (e.g., learning difficult new skills for career advancement), which could diminish opportunities for positive affect and produce anhedonia. Low distress tolerance may also directly promote substance use as one maladaptive means to avoid or delimit the experience of distress via the negative reinforcing effects of substance use (Leventhal and Zvolensky, 2015), regardless of severity of the manifested affect. That is, it is not how much distress one experiences, but how one responds to distress that could give rise to substance use as a maladaptive response to distress that promotes avoidance among people with low distress tolerance who lack the capacity to endure negative affect states (Brown et al., 2005).

There is some empirical support for this hypothesis. Distress tolerance has been identified as an explanatory factor in the relationship between PTSD symptoms and substance use motives in trauma-exposed community members (Potter et al., 2011; Vujanovic et al., 2011b), and in the relationship between depression and substance use-related problems in undergraduate students (Buckner et al., 2007) However, other studies have not found a significant mediating effect (e.g., Wolitzky-Taylor et al., 2015). Given the limited body of literature, there is a need to better explore the transdiagnostic role of distress tolerance.

1.3. Present study

Research on distress tolerance and substance use to date has not studied veterans. Given that young adult military veterans are at highest risk for problem drinking (Bray and Hourani, 2007; Burnett-Zeigler et al., 2011; Jacobson et al., 2008; Ramchand et al., 2011; Seal et al., 2011), a focus on alcohol misuse in young adult veterans is particularly needed. In addition, no studies to our knowledge have examined factors that may explain why people with both PTSD and depression are at increased risk of alcohol problems. The young veteran population provides a unique opportunity to examine such patterns of "tri-morbidity" concerns that could yield insights into other populations suffering from such problems.

Consequently, the current cross-sectional study examined the interrelations between distress tolerance, depression and PTSD symptoms, and alcohol misuse in a sample of young adult U.S. military veterans. More specifically, we examined distress tolerance as a statistical mediating factor to test whether it may serve as a transdiagnostic mechanism underlying both mental health symptoms and alcohol use (Leventhal and Zvolensky, 2015).

We expected that distress tolerance would significantly mediate the relationship between each mental health problem (depression, PTSD) and problem drinking. In addition, some previous research has examined gender as a moderator of the relationship between mental health, distress tolerance, and substance use (Ali et al., 2015; Bujarski et al., 2012; Tull et al., 2012; Wolitzky-Taylor et al., 2015). The results of these studies were mixed, with some results suggesting the mediating role of distress tolerance is stronger among males (Tull et al., 2012), others suggesting the effect is stronger among females (Ali et al., 2015), and still others suggesting no moderating effect (Wolitzky-Taylor et al., 2015). Given significant efforts to connect women veterans with needed mental health services (U.S. Department of Veterans Affairs, 2013), as well as evidence for gender differences in rates of mental health diagnoses and alcohol use in veterans (Haskell et al., 2010; Maguen et al., 2010), we examined the effect of gender on the mediated relationship between mental

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