Examining the Link Between Intolerance of Uncertainty and Positive and Negative Urgency in Veterans with Comorbid PTSD and Substance Use Disorders

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ABSTRACT
Posttraumatic stress disorder (PTSD) and substance use disorders (SUD) are highly comorbid among the veteran population. Impulsivity, particularly negative and positive urgency, are prevalent within this dual diagnosis population and associated with negative outcomes. One possible correlate of negative/positive urgency is intolerance of uncertainty (IU). IU is associated with exacerbated PTSD symptom severity and increased risk for substance use. However, few studies have examined the link between IU and negative/positive urgency in dual diagnosis populations. This study aimed to examine whether there was a significant association between trait IU and baseline negative and positive urgency in veterans seeking treatment for both PTSD and SUD. In a sample of 114 veterans from a 6-week residential treatment program, IU was significantly associated with higher negative and positive urgency. Further research is warranted to extend these findings and examine whether IU plays an important role in negative/positive urgency for dual diagnosis populations.

KEYWORDS
intolerance of uncertainty; urgency; dual diagnosis; substance use disorder; PTSD; impulsivity

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Posttraumatic stress disorder (PTSD) and substance use disorders (SUD) co-occur at a high rate among veterans and past studies have shown there are significant consequences to this dual diagnosis (Seal et al., 2011). For example, individuals with co-occurring PTSD and SUD are more likely to be unemployed, have less education, and more severe medical and psychiatric illnesses compared to those with a single diagnosis (Drapkin et al. 2011; Bowe & Rosenheck, 2015). Broadly speaking, both PTSD and SUD are associated with maladaptive emotion regulation strategies. These maladaptive strategies are problematic because they are linked to several negative outcomes such as deliberate self-harm (Gratz & Tull, 2009), aggression (Gratz et al., 2009), and risky behaviors (Weiss et al., 2015). Additionally, some strategies serve to perpetuate this comorbidity. For example, consistent with the negative reinforcement model, substances may be used to self-medicate or cope with distressing PTSD symptoms (Baker et al., 2004; Khantzian, 1997). This can result in the maintenance of PTSD symptoms and increased likelihood that trauma reminders will serve as triggers for substance use craving (Tull et al., 2017). Therefore, this paper aimed to explore factors of emotion regulation— specifically, intolerance of uncertainty and impulsivity—in a sample of veterans with a dual diagnosis.

One important emotion regulation strategy that is particularly relevant to this dual diagnosis is impulsivity. Impulsivity is defined as a construct that is made up of four facets which include urgency, (lack of) premeditation, (lack of) perseverance, and sensation seeking (Whiteside & Lynam, 2001). Those with high levels of emotion dysregulation are more likely to engage in impulsive behavior to alleviate feelings of anger, fear, or shame. For example, the temporary and short-term pleasure that results from impulsive behavior may distract someone from a distressing emotional experience (Weiss et al., 2012). It is important to note that impulsivity in response to strong emotions can be separated into negative and positive urgency. Negative urgency is defined as the tendency to act impulsively when experiencing extreme negative emotions (Cyders & Smith, 2008; Whiteside & Lynam, 2001); whereas positive urgency is the tendency to act impulsively when experiencing extreme positive emotions (Cyders & Smith, 2008; Whiteside & Lynam, 2001). Past studies found that both positive and negative urgency are positively correlated with PTSD symptoms within a SUD population (Weiss et al., 2015). Given the frequency and predisposition toward emotional reactivity associated with PTSD, and the risky behaviors related to SUD, this clinical population is at risk for maladaptive emotion regulation strategies that can lead to negative outcomes and perpetuate both disorders. Therefore, research is needed to expand our understanding of the predictors and correlates of positive and negative urgency in this population.

One potential correlate is intolerance of uncertainty (IU). IU is defined as the propensity of a person to experience significant discomfort in reaction to unknown future encounters, regardless of the likelihood of its occurrence (Carleton et al. 2007). This discomfort with uncertainty can influence decision-making such that people who are high on IU are more likely to engage in behaviors that are immediately rewarding or quickly alleviate uncertainty, rather than making decisions with delayed, long-term benefits (Luhmann et al., 2011). It is suggested that IU is a transdiagnostic risk factor that contributes to the maintenance of anxiety and emotional disorders, including PTSD symptoms (Raines et al., 2018). As shown in previous research, IU was associated with overall PTSD symptom severity along with specific symptom clusters, including reexperiencing and arousal symptoms (Banducci et al., 2016). Consistent with theories of negative reinforcement, another study also found that those with high IU may use

substances to cope with uncertainty of the future and reduce behavioral avoidance when encountering an uncertain situation (Oglesby et al., 2014), which in turn may lead to greater risk of development of problematic substance use.

Apart from Banducci and colleagues (2016), few studies have examined the relevance of IU in dual diagnosis populations. Furthermore, few studies have explored the link between IU and negative or positive urgency in people suffering from both PTSD and SUD. One study found a positive association between IU and general impulsivity in patients diagnosed with opioid dependence, but no significant association in a healthy control group (Garami et. al., 2017); thus, IU could bear relevance to a clinical population that struggles with impulsive behaviors and substance use. Because this study focused on SUD exclusively, it is largely unknown whether IU and impulsivity, particularly positive and negative urgency, are related in the context of comorbid PTSD symptoms.

Addressing this gap in the literature could be crucial given that someone with a dual diagnosis is at risk for engaging in impulsive behaviors following strong emotions (i.e., urgency associated with substance use), and at the same time, they are at risk for experiencing frequent and severe emotional distress affiliated with PTSD. If high IU is related to both disorders, and if it predisposes people to use methods or behaviors that quickly decrease the distress associated with uncertainty, perhaps IU could be an important correlate of positive and negative urgency in those with a dual diagnosis. In this brief report, we aimed to address these gaps with a preliminary examination of veterans with a dual diagnosis who were seeking treatment for both PTSD and SUD. Specifically, we set an exploratory aim to examine whether there is a significant association between trait IU and baseline negative and positive urgency, respectively.

Method

Participants

All participants were drawn from a larger ongoing study of a 6-week residential day-treatment program in a PTSD/SUD clinic within a Veterans Affairs Medical Center (VAMC). Participants were recruited at the time of enrollment into the day-treatment program and met diagnostic criteria for both PTSD and SUD as assessed by the Mini-International Neuropsychiatric Interview (Sheehan et al., 1998). This study was approved and monitored by the local Institutional Review Board and all participants provided written informed consent.

The final sample size for this cross-sectional analysis was 114 veterans (M_{age} = 49.1, *SD* = 11.5; 96.5% men; 67.4% Black; 31.9% White). Most veterans served in the Army (65.2%), followed by Navy (9.2%), Marine Corps (8.5%), National Guard (8.5%), and Air Force (7.8%). The largest proportion of veterans served in the post-Vietnam era (38.3%), followed by Vietnam (28.4%), Persian Gulf (16.3%) and Iraq and Afghanistan (16.3%). Combat-related trauma was the most commonly endorsed index trauma (48.2%), followed by physical assault (10.6%), and military sexual trauma (9.2%). Regarding diagnoses for substance use, the most common substance use disorders included alcohol (61.7%), cannabis (29.1%), and cocaine use (27.7%).

Measures

The PTSD Checklist – Specific (PCL-S; Weathers et al., 1993) is a 17-item questionnaire based on DSM-IV criteria that assessed PTSD symptoms over the past month in reference to the most distressing traumatic event. Items were rated on a 1 (*not at all*) to 5 (*extremely*) scale and summed with higher scores indicating greater symptom severity. The PCL-S has demonstrated validity and reliability in past work (Wilkins et al., 2011) and this study (α = .91).

The Intolerance of Uncertainty Scale – Short Form (IUS-SF; Carleton et al., 2007) is a 12-item measure of a person's ability to tolerate uncertainty about ambiguous future events. Items were rated on a 1 (*not at all characteristic of me*) to 5 (*entirely characteristic*) scale and summed with higher scores indicative of more intolerance of uncertainty. The IUS-SF demonstrated adequate reliability in past studies (Carleton et al., 2007) and this study ($\alpha = .87$).

The UPPS-P Impulsive Behavior Scale (UPPS-P; Lynam et al., 2006) assessed the tendency to act impulsively, which provides subscales for acting impulsively in response to negative and positive emotions, or negative and positive urgency. Items were rated on a 1 (*strongly agree*) to 4 (*strongly disagree*) scale and summed to create two subscales scores for negative (12 items) and positive urgency (14 items). Higher scores indicate greater impulsive behavior in response to either negative or positive emotions. Previous studies found acceptable internal consistency with these subscales (Deckam & Nathan Dewall, 2011). Cronbach's α for negative urgency and positive urgency in this study was .77 and .85, respectively.

Data Analysis

Linear regression analysis with IBM SPSS Statistics Version 24 was used to test two separate models in which positive urgency (Y_1) and negative urgency (Y_2) were set as the dependent variables. In both models, we added IU as the independent variable and PTSD symptom severity as a covariate to assess the unique association between IU and urgency outcomes.

Results

On average, participants endorsed high levels of PTSD symptom severity based on PCL-S scores ($M = 64.99$, $SD = 12.67$, range = 25 to 85). The average score on the IUS-SF was 43.75 ($SD = 9.56$, range = 13 to 60). Participants reported an average positive urgency score of 32.63 ($SD = 9.24$, range = 15 to 53) and negative urgency score of 34.06 ($SD = 7.09$, range = 14 to 47) on the UPPS-P. In the first model with PCL-S and IU scores as the independent variables, IU was significantly associated with higher negative urgency ($B = 0.30$, $SE = 0.06$, $t = 4.85$, $p \leq .001$) above and beyond the effects of PCL-S scores. In the second model, IU was significantly associated with higher positive urgency ($B = 0.41$, $SE = 0.08$, $t = 5.12$, $p \leq .001$) above and beyond the effects of PCL-S scores.

Discussion

This brief report examined the association between trait IU and baseline negative and positive urgency in a veteran sample seeking treatment for both PTSD and SUD. Results indicated that higher levels of IU were significantly associated with both positive and negative urgency in this sample. To the extent of our knowledge, this is one of the first studies to examine the relation between IU and negative and positive urgency in a dual diagnosis population. The current findings are not intended to suggest causality, but to highlight the need for further investigation.

Because this is a preliminary examination with cross-sectional data, there are several notable limitations that point to areas of future research. First and foremost, the cross-sectional design limits our ability to make any causal references about IU as a predictor of prospective negative and positive urgency. Future studies should utilize longitudinal designs to answer this question. Additionally, collecting multiple measurements over time would allow researchers to assess whether trait IU is related to the variability in positive and negative urgency, given that

impulsivity in response to emotions is likely to vary depending on a wide range of contextual factors. Although we can hypothesize the potential implications of positive and negative urgency in this population, we did not directly test relevant antecedents and consequents of urgency. For example, the extent to which these veterans engage in impulsive behaviors in direct responses to trauma-related emotions versus general emotional distress is unclear and should be tested. Answering that question would help identify a specific treatment target for dual diagnosis populations with PTSD and help clarify whether IU plays a role in response to trauma-related emotional reactivity. Second, it is assumed that urgency will lead to risky behaviors, including increased substance use, but we did not assess any behavioral outcomes to indicate self-reported urgency in this sample is in fact problematic. Future studies should aim to examine whether urgency mediates an association between IU and negative outcomes by directly measuring substance use and other maladaptive behavioral responses that can perpetuate both PTSD and SUD. Last, this sample primarily consisted of male veterans who were already enrolled in the VA Healthcare System and seeking treatment. The degree to which the findings generalize to other veterans who are not actively seeking treatment, or those who do not have immediate access to treatment, is unknown. Future studies should consider expanding the sample to be more inclusive of all genders and non-treatment seeking veterans.

Overall, this study extends the current literature of IU and impulsivity and offers a preliminary examination of the links between IU and negative and positive urgency. The results indicate high levels of IU are significantly related to both negative and positive urgency in veterans with a dual diagnosis of PTSD and SUD. As the field aims to expand our understanding of important mechanisms within this comorbidity, future research should extend these findings and further examine whether IU plays a critical role in negative/positive urgency for dual-diagnosis populations.

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