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The Role of Anxiety Sensitivity in Reactivity to Trauma Cues in Treatment-Seeking Adults with Substance Use Disorders

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Abstract

Background—Exposure to traumatic events and posttraumatic stress disorder (PTSD) are common among individuals with substance use disorders (SUDs). Although the presence of trauma exposure and/or PTSD among those with SUDs is associated with a range of negative outcomes, much remains to be understood about the factors contributing to these outcomes. Anxiety sensitivity (the tendency to respond fearfully to the signs and symptoms of anxiety) has been linked to greater PTSD symptoms and the use of substances to cope with PTSD symptoms, and is a promising factor for understanding the negative outcomes associated with co-occurring PTSD and SUDs.

Methods—This study examined the association between anxiety sensitivity and trauma cue reactivity among 194 trauma-exposed patients with SUDs (27.3% met criteria for current PTSD). Participants completed ratings of negative affect and substance cravings prior to and after exposure to a personally-relevant trauma cue.

Results—Results indicated that anxiety sensitivity was associated with greater emotional reactivity (but not craving reactivity) to the trauma cue. PTSD symptom severity was associated with greater emotional and craving reactivity to the trauma cue; neither PTSD symptom severity nor PTSD diagnosis moderated these associations.

Conclusions—Results highlight the potential utility of targeting anxiety sensitivity in treatments for trauma-exposed patients with SUDs with and without PTSD.

Keywords

Co-occurring Disorders; Emotion; Experimental Psychopathology; Posttraumatic Stress Disorder; Substance Dependence; Trauma Exposure

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1. Introduction

Exposure to traumatic events is common among those with substance use disorders (SUDs) [1, 2], with studies finding that more than 95% of patients with a SUD report a history of trauma exposure [3, 4]. Consequently, it is not surprising that posttraumatic stress disorder (PTSD) is also highly prevalent in this population [5, 6]. For example, almost half of the participants in a large SUD treatment study either met full criteria for PTSD (25%) or had subthreshold PTSD (23%) [7]. The co-occurrence of PTSD and SUDs is also associated with a range of negative consequences, including SUD treatment dropout [8], quicker relapse to substance use following treatment [3], more severe substance use [9, 10], greater PTSD symptom severity [11], additional psychiatric disorders [6, 9], suicidal and non-suicidal self-injurious behaviors [6, 12], and risk-taking behavior [13]. Furthermore, these findings are not necessarily unique to the presence of a PTSD diagnosis; trauma exposure has also been strongly associated with both problematic substance use [14, 15] and negative SUD treatment outcomes [16]. In recent years, great progress has been made in enhancing outcomes in this population, particularly through the use of integrated treatments that concurrently target symptoms of both PTSD and SUDs [17–19]. However, much remains to be understood about the specific factors that increase risk for negative outcomes among trauma-exposed individuals with SUDs.

One factor that warrants attention in this regard is anxiety sensitivity, or the tendency to respond fearfully to the signs and symptoms of anxiety [20]. Anxiety sensitivity is prospectively associated with the onset of anxiety disorders [21, 22], as well as the experience of PTSD symptoms [23–25]. In addition, individuals with PTSD exhibit elevated levels of anxiety sensitivity [26], and higher anxiety sensitivity is linked to greater PTSD symptom severity and posttraumatic distress following trauma exposure [27, 28].

Anxiety sensitivity is also associated with negative reinforcement expectancies (i.e., the belief that using substances will relieve distress) [29] and the use of substances to cope with negative affect [30, 31], including among those with PTSD [32, 33]. Higher anxiety sensitivity has also been linked to greater PTSD severity in cocaine-dependent adults [34] and worse treatment outcomes among those with co-occurring PTSD and alcohol dependence [25]. Furthermore, although much of the research on anxiety sensitivity and substance use has utilized nonclinical or unselected samples, anxiety sensitivity has been linked to a number of negative substance use-related outcomes, including alcohol problems among current drinkers [35], treatment dropout among patients with cocaine dependence [36], and benzodiazepine misuse in patients with opioid use disorder [37]. Thus, anxiety sensitivity appears to be a pertinent risk factor across an array of substances of abuse.

Taken together, findings that anxiety sensitivity is associated with greater PTSD symptom severity, poorer outcomes, and the use of substances to cope with negative affect suggest that anxiety sensitivity may be an important vulnerability for negative outcomes among trauma-exposed adults with SUDs. These findings are consistent with the perspective that anxiety sensitivity may serve to amplify affective responding to stressors. Anxiety sensitivity is associated with greater emotional reactivity to stressors (e.g., repeated exposure to CO₂-enriched air) [38] and the development of psychiatric symptoms following a stressor [39].

However, it is unknown whether anxiety sensitivity is associated with amplified emotional or craving reactivity to traumatic cues among those with SUDs. Among those with SUDs who have been exposed to trauma, reminders of the trauma increase both negative affect and substance cravings [40–42]. If indeed anxiety sensitivity is a risk factor for heightened reactivity to such cues, it would provide a promising therapeutic target among trauma-exposed adults with SUDs. Although anxiety sensitivity is a stable and trait-like construct [43], it is modifiable with both behavioral and pharmacological treatment [44, 45]. Thus, better understanding of the role of anxiety sensitivity in negative outcomes among those with co-occurring SUD and PTSD may aid in the identification of at-risk patients, as well as inform the development and refinement of treatment approaches for this population.

Therefore, the aim of this study was to examine the association between anxiety sensitivity and reactivity (both emotional and craving-related) to trauma cue exposure among trauma-exposed patients with SUDs. We hypothesized that anxiety sensitivity would be associated with 1) greater emotional reactivity (i.e., increase in negative affect) and 2) greater craving reactivity (i.e., increase in substance cravings) in response to a personally-relevant trauma cue. In addition, given evidence that PTSD symptom severity may moderate the association between anxiety sensitivity and alcohol coping motives [32], we examined whether PTSD symptom severity moderated the association between anxiety sensitivity and trauma cue reactivity. Specifically, we hypothesized that the association between anxiety sensitivity and trauma cue reactivity would be stronger among those with more severe PTSD symptoms.

2. Material and Methods

2.1. Participants

Participants were recruited for this study from a residential SUD treatment facility. Standard treatment at this facility involves a mix of strategies from Alcoholics Anonymous and Narcotics Anonymous, as well as a variety of groups focused on relapse prevention, social skills, and coping skills. The center requires complete abstinence from drugs (including nicotine) and alcohol. Methadone maintenance is not available. Drug testing is done, and any use results in immediate dismissal from the facility. Aside from scheduled activities, residents are not permitted to leave the treatment facility. Contract durations for the treatment facility average 30 days.

Eligibility criteria included: (1) age 18–65 years, (2) a history of traumatic event exposure consistent with Criterion A for PTSD as defined in the *Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV)* [46], and (3) a current diagnosis of *DSM-IV* alcohol and/or cocaine dependence. Potential participants were excluded if they exhibited significant cognitive impairment (Mini-Mental State Exam score <24) [47] or were diagnosed with a current psychotic disorder.

The study sample included 202 participants who were eligible for the study and completed the experimental sessions. Of this sample, 8 participants did not complete the measure of anxiety sensitivity and were thus excluded from analyses. This resulted in a final sample of 194 participants (50% female). The mean age of the sample was 34.3 years ($SD = 10.0$). Participants identified their race/ethnicity as: 60.3% White, 36.6% Black/African American,

and less than 2% each of Asian/Southeast Asian, Hispanic/Latino, and Native American. Educational attainment was heterogeneous: 27.8% less than high school, 34.5% high school graduate (or equivalent), 21.6% some college, 6.2% technical school, and 9.7% college graduate or graduate school. The majority of the sample was unemployed (66%), followed by employed full-time (21.1%).

The sample consisted of 27.3% participants with a diagnosis of PTSD, 26.3% with cocaine dependence, 33.0% with alcohol dependence, and 40.7% with both cocaine and alcohol dependence.

2.2. Procedures

The current study is a secondary analysis of data from a study of trauma cue reactivity and risk-taking propensity among trauma-exposed cocaine-and alcohol-dependent patients receiving residential treatment for SUDs. Participants were recruited for a multi-session study.

All procedures were reviewed and approved by the relevant Institutional Review Boards. Eligible participants were recruited for this study no sooner than 72 hours after entry into the facility (to limit the possible interference of withdrawal symptoms on study engagement). Patients dependent on cocaine and/or alcohol were provided with information about the study. Those who provided informed consent were then further screened for eligibility.

Eligible participants completed a 3-session protocol. These sessions were scheduled approximately 2 days apart. In the first session, participants completed a series of diagnostic interviews, including the Clinician-Administered PTSD Scale [48, 49, 50] for PTSD diagnosis and the Structured Clinical Interview for *DSM-IV* Diagnoses [51] for other psychiatric diagnoses (including SUDs). Participants also completed a battery of self-report questionnaires (see below). Finally, participants were asked to complete a brief interview about their most traumatic event to create a personalized trauma script that would be used for cue exposure in a later session. For those with PTSD, participants were asked about their index traumatic event (i.e., the event from which their PTSD diagnosis stemmed). Participants without a current diagnosis of PTSD were asked to describe the potentially traumatic event that was currently associated with the most distress. The second and third sessions consisted of the cue exposure, with presentation of either the personalized trauma cue or a neutral cue (the order of these sessions was counter-balanced). Participants were provided monetary reimbursement for their participation.

The trauma cue protocol consisted of the development of a personally relevant script that was audio-recorded by a member of the research team and played to the participant during the cue exposure. To generate the script, participants were asked to picture the situation in their mind and try to remember as vividly as possible what the event entailed and their feelings at the time. Participants were then asked to describe the incident in as much detail as possible. The interviewer probed for key aspects of the event (e.g., time and place of the event, as well as emotions, thoughts, and bodily sensations experienced during the event). This interview was recorded, transcribed, and then used to create a 1-minute audio recording of the event in first-person present-tense. During the trauma cue exposure, participants

listened to the trauma script recording for 1-minute, followed by a 1-minute visualization of the event. These procedures were adopted from previous studies, and have been found to reliably induce emotional responses in trauma-exposed populations [52, 53]. Self-reported negative affect and substance cravings were assessed immediately before and after presentation of the trauma cue (see Measures below).

2.3. Measures

The Clinician-Administered PTSD Scale for *DSM-IV* (CAPS) [50, 54] was used to assess current PTSD symptoms. The CAPS is a structured clinician-administered measure of PTSD diagnosis and symptom severity, and is widely used in both research and clinical settings. It assesses the frequency and intensity of the 17 *DSM-IV* PTSD symptoms (plus eight associated symptoms). Frequency items are rated from 0 (never or none/not at all) to 4 (daily or almost every day or more than 80%). Intensity items are rated from 0 (none) to 4 (extreme). Given evidence that PTSD is best represented as a dimensional construct [55–60], we utilized overall CAPS severity scores in the primary analyses. However, the *Item Severity 4 (ISEV4)* rule, which requires that at least one re-experiencing, three avoidance/emotional numbing, and two hyperarousal symptoms have a severity rating (frequency + intensity) of 4, was also used to establish current PTSD diagnoses. The CAPS has demonstrated strong psychometric properties, including strong internal validity and concurrent validity with other measures [54]. The internal consistency of the CAPS total score in this sample was excellent (Cronbach's alpha = .96).

The Anxiety Sensitivity Index 3 (ASI-3) [61] is an 18-item self-report measure of anxiety sensitivity, revised from the Anxiety Sensitivity Index [20, 62]. The ASI-3 has demonstrated strong psychometric properties, including strong reliability and validity in both clinical and nonclinical samples [61]. The internal consistency reliability of the ASI-3 in this sample was excellent (Cronbach's alpha = .93).

Reactivity to the trauma cue was assessed using two measures. The primary outcome for the current study was self-reported state negative affect on the Positive and Negative Affect Schedule (PANAS) [63], administered immediately before and after the trauma script. The PANAS is a 20-item self-report measure that includes subscales for both positive and negative affect; however, only the negative affect subscale was administered in this study. The internal consistency of the PANAS negative affect scale was strong (Cronbach's alpha = .85 at all time points). Additionally, severity of cravings for substances was assessed prior to and following the presentation of the trauma script. Specifically, and consistent with past research (e.g., [64–66]; see also [67]), participants were asked to rate the intensity of their cravings for substances “at this very moment” using an 11-point Likert-type scale ranging from 0 (no cravings) to 10 (very strong cravings).

2.4. Data Analysis

All variables of interest were first screened using descriptive statistics to identify the appropriate statistical approach. Manipulation checks were conducted to examine the validity of the experimental manipulation and ensure that the trauma cue elicited sufficient distress and cravings; separate repeated-measures ANOVAs were used to examine self-

reported emotional and craving reactivity to the trauma script. Effect sizes are reported as Cohen's d . To examine whether anxiety sensitivity was associated with reactivity to the trauma script, we conducted linear regressions with post-script negative affect and craving variables serving as the dependent variable and the ASI-3 as the focal independent variable, controlling for pre-script negative affect and craving variables (respectively), age, gender, diagnosis of cocaine dependence, diagnosis of alcohol dependence, and PTSD symptom severity (CAPS total score). To determine whether the relation of anxiety sensitivity to trauma cue reactivity was stronger among those with greater PTSD severity, we added the CAPS by ASI-3 interaction term to these analyses to investigate the moderating role of PTSD. These interaction terms were added as a second step in the regression analyses to examine their contribution to the model (R^2 change). Variables included in the interaction term were mean-centered. Standardized estimates are reported for these regression models.

3. Results

Sample demographic and clinical characteristics are presented in Table 1. Consistent with previous studies [27, 28], ASI-3 was significantly positively associated with PTSD symptom severity ($r = .25$, $p < .001$) and higher among those with a current diagnosis of PTSD (27.3%) than those without (mean difference = -6.99 , $t[192] = -2.71$, $p = .007$). ASI-3 was not associated with SUD group ($F[2, 191] = 0.50$, $p = .55$). The SUD groups differed with respect to gender (higher representation of women in the cocaine dependence group) and race (higher representation of White participants in the alcohol dependence group), but did not differ with respect to other socio-demographic variables or PTSD severity (see Table 1).

Manipulation checks indicated a significant increase in self-reported negative affect ($F[1, 193] = 150.24$, $p < .001$) and substance cravings ($F[1, 189] = 35.57$, $p < .001$) from pre- to post-trauma cue among all participants. The magnitude of effect for these changes was large for negative affect ($d = 0.92$) and small for cravings ($d = .23$).

Results of the regression analysis examining the association between ASI-3 and self-reported emotional reactivity are presented in Table 2. Results revealed a significant association between ASI-3 and post-script negative affect ($Beta = 0.20$, $t = 3.31$, $p < .001$), such that higher anxiety sensitivity was associated with greater post-script negative affect. PTSD symptom severity was also associated with greater post-script negative affect ($Beta = 0.26$, $t = 4.21$, $p < .001$). The PTSD symptom severity by ASI-3 interaction was not significant ($p = .48$).¹

Results of the regression analysis examining craving reactivity to the trauma cue are presented in Table 3. ASI-3 was not associated with post-script cravings ($Beta = 0.04$, $t = -0.92$, $p = .36$). PTSD symptom severity was modestly associated with post-script cravings ($Beta = 0.09$, $t = 2.09$, $p = .04$). Once again, the interaction between PTSD symptom severity and ASI-3 was not significant ($p = .12$).²

¹Results did not change when PTSD diagnosis was included in the model instead of PTSD symptom severity.

²When PTSD diagnosis was included in the model instead of PTSD symptom severity, neither the main effects of ASI-3 and PTSD diagnosis nor their interaction were significantly associated with post-script craving. Exploratory analyses investigating the anxiety sensitivity by symptom cluster interaction similarly yielded no significant moderation effects for negative affect or substance cravings.

4. Discussion

This secondary analysis examined the association between anxiety sensitivity, PTSD symptoms, and trauma cue reactivity in a sample of trauma-exposed patients with alcohol and/or cocaine dependence. Our results supported the hypothesis that anxiety sensitivity would be associated with trauma-cue reactivity. Specifically, anxiety sensitivity was associated with greater self-reported emotional reactivity to the trauma script. This finding suggests that elevated anxiety sensitivity may exacerbate distress reactions to trauma cues following exposure to a traumatic stressor. Notably, the type of substance use disorder (alcohol, cocaine, or both) did not have a significant impact on findings, providing further support for the applicability of anxiety sensitivity across substances of abuse, including stimulants [34, 36, 68].

Contrary to hypotheses, although exposure to the trauma cue resulted in a significant increase in cravings, anxiety sensitivity was not significantly associated with greater cravings in response to the trauma cue above and beyond the contribution of PTSD symptom severity. However, it is important to note that the increase in cravings reported following the trauma cue, although statistically significant, was relatively small, which may have limited our power and interfered with our ability to detect significant relations. Future research utilizing more powerful trauma cues is needed to clarify the relation of anxiety sensitivity to trauma-cue related cravings reactivity within this population.

Notably, and also contrary to hypotheses, neither PTSD symptom severity nor PTSD diagnosis moderated the relation of anxiety sensitivity to trauma-cue reactivity. The absence of a significant interaction between PTSD symptom severity and anxiety sensitivity in either model suggests that the severity of PTSD symptoms did not modulate the association between anxiety sensitivity and self-reported reactivity to trauma cues. Overall, the results of this study suggest that interventions aimed at targeting heightened anxiety sensitivity among trauma-exposed individuals with SUDs – regardless of PTSD severity – may help decrease emotional reactivity in response to cues or reminders of the traumatic event, potentially reducing risk for a variety of negative outcomes observed within this population (e.g., relapse).

PTSD symptom severity was also associated with greater self-reported emotional and craving reactivity to the trauma cue. This finding is consistent with past findings of heightened emotional reactivity to personally-relevant trauma cues among substance-dependent individuals with PTSD [40–42] and suggests that trauma-exposed individuals who go on to develop greater PTSD symptoms may be more reactive to reminders of the traumatic event. Moreover, the finding that greater PTSD symptom severity was associated with greater cravings for substances following trauma cue exposure is consistent with theories emphasizing a functional relationship between PTSD symptoms and substance use [69]. Nonetheless, it is important to note that the design of this study precludes determining the precise nature of the relation between PTSD and trauma cue reactivity, and it is unclear if this reactivity preceded or followed the development of PTSD symptoms. Future longitudinal research is needed to clarify the role of emotional reactivity in the development and maintenance of PTSD among trauma-exposed patients with SUDs.

These findings have implications for the treatment of trauma-exposed substance users. Anxiety sensitivity has long been a core therapeutic target for panic disorder [70, 71], which shares both phenotypic [72, 73] and genotypic [74] overlap with PTSD. Cognitive-behavioral therapies have been shown to effectively decrease anxiety sensitivity [45], including in the context of PTSD [75]. Even an ultra-brief (i.e., single session) treatment aimed at reducing anxiety sensitivity has shown promise among trauma-exposed individuals [76], and anxiety sensitivity-targeted interventions have been associated with reductions in PTSD symptoms [77]. Given that much of this research has been conducted among individuals without SUDs, replication of these findings in samples of trauma-exposed adults with SUDs is needed to understand the potential impact of treating anxiety sensitivity in this population.

There are several limitations to this study. First, given the cross-sectional nature of the study, we cannot establish that the observed level of anxiety sensitivity was consistent with the level prior to the traumatic event. Moreover, it is not possible to determine if either trauma exposure or the development of PTSD was associated with an increase in anxiety sensitivity. However, findings that anxiety sensitivity predicts the onset of anxiety disorders [21, 22] and PTSD symptoms [23–25], and is relatively stable over time [78, 79] somewhat mitigate this concern. It also warrants consideration that our diagnostic interview for PTSD was designed to assess *DSM-IV* diagnostic criteria for PTSD. The symptoms associated with PTSD and the criteria for determining a PTSD diagnosis changed with the publication of the *DSM-5* [80]. Future studies are needed to examine these relations among patients meeting *DSM-5* criteria for PTSD. In addition, this sample consisted of adults receiving residential treatment for substance dependence and, thus, reflects a relatively severe subset of those with SUDs. Replication of these findings in samples with greater heterogeneity of SUD severity is needed to establish their generalizability. Additionally, less than 30% of the sample met criteria for a current diagnosis of PTSD. Thus, it is possible that associations unique to those with PTSD (relative to those with exposure to trauma but no PTSD) may have been obscured in the current sample. The absence of interaction effects somewhat mitigate this concern; nonetheless, consideration of the association between anxiety sensitivity and trauma cue reactivity in samples with greater PTSD symptoms and a higher proportion of PTSD is needed to better understand the contribution of PTSD diagnosis to this association. Finally, the sample was heterogeneous with respect to the primary substance of abuse. Although no differences based on SUD diagnosis were detected in our analyses, consideration of the role of anxiety sensitivity in trauma-cue reactivity and other negative outcomes across different substance types is an important topic for further study.

Anxiety sensitivity has been found to be associated with PTSD diagnosis, symptom severity, and the use of substances to cope with negative affect [24, 26, 27, 33, 81]. Among those with a SUD, both the presence of trauma exposure and a PTSD diagnosis are associated with greater SUD severity [7, 9, 15] and may contribute to ongoing substance use to relieve PTSD-related negative affect and somatic distress. The results of this study provide support for the hypothesis that anxiety sensitivity amplifies emotional reactivity to stress. As such, anxiety sensitivity may be a key therapeutic target among trauma-exposed individuals with SUDs to reduce risk for negative clinical outcomes commonly observed within this population (e.g., relapse, treatment dropout).

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Table 1

Participant Demographic and Clinical Characteristics and Descriptive Data

	PTSD Diagnosis			SUD Diagnosis			Total Sample
	No (n=141)	Yes (n=53)	χ^2	Cocaine (n=51)	Alcohol(n=64)	Cocaine/Alcohol (n=79)	
Age (mean, SD)	33.9 (10.2)	35.4 (9.6)	0.31	33.5 (9.9)	34.1 (10.2)	35.0 (10.0)	34.3 (10.0)
Gender (%female)	48.9%	52.8%	0.23	70.60%	48.4%	38.0%	50.0%
Race (%)			0.95				
White	62.4%	54.7%		47.1%	70.3%	60.8%	60.3%
Black/African American	35.5%	39.6%		49.0%	28.1%	35.4%	36.6%
Hispanic/Latino	2.1%	0.0%		3.9%	0.0%	1.3%	1.5%
Education			1.03				
< High School	27.0%	30.2%		33.3%	28.1%	24.1%	27.8%
High School or GED	37.6%	26.4%		41.2%	28.1%	35.5%	34.5%
Some College	22.7%	18.9%		17.6%	25.0%	21.5%	21.6%
Technical School	4.3%	11.3%		2.0%	7.8%	7.6%	6.2%
College Graduate	8.5%	13.2%		5.9%	11.0%	11.4%	9.7%
Employment			2.93				
Full-time Employed	20.6%	22.6%		19.60%	18.8%	24.1%	21.1%
Part-time Employed	9.9%	1.9%		9.80%	14.1%	1.3%	7.7%
Unemployed	62.4%	75.5%		66.70%	60.9%	69.6%	66.0%
ASI-3 Total (mean, SD)	20.3 (15.6)	27.3 (17.1)	2.71 *	20.6 (15.2)	21.8 (16.4)	23.5 (16.9)	22.2 (16.3)
CAPS Total (mean, SD)	8.3 (12.6)	71.0 (22.4)	24.45 **	21.6 (31.3)	21.0 (30.8)	31.8 (33.3)	25.6 (32.2)

Note.

* p<.05

**

p<.001; ASI-3 = Anxiety Sensitivity Index 3; CAPS = Clinician Administered PTSD Scale

Table 2

Regression Examining the Association between Anxiety Sensitivity and Post-Script Negative Affect

	B	t	p	R²
Step 1. Main Effects				0.39
Age	0.12	2.01	.046	
Gender	−0.02	−0.39	.70	
Alcohol Use Disorder	−0.08	−1.24	.22	
Cocaine Use Disorder	−0.04	−0.63	.53	
Pre-Script Negative Affect	0.40	6.57	<.001	
PTSD Symptom Severity (CAPS)	0.26	4.21	<.001	
Anxiety Sensitivity Index (ASI)	0.20	3.31	<.001	
Step 2. Interaction Effects				0.39
ASI × PTSD	0.05	0.71	0.48	

Note. Step 1 presents results prior to inclusion of the interaction effect. PTSD = posttraumatic stress disorder, CAPS = Clinician Administered PTSD Scale. B = standardized coefficient.

Table 3

Regression Examining the Association between Anxiety Sensitivity and Post-Script Craving

	B	t	p	R²
Step 1. Main Effects				0.70
Age	−0.12	−2.74	.007	
Gender	0.02	0.46	.65	
Alcohol Use Disorder	0.04	0.76	.45	
Cocaine Use Disorder	0.05	1.11	.27	
Pre-Script Craving	0.78	18.13	<.001	
PTSD Symptom Severity (CAPS)	0.09	2.09	.04	
Anxiety Sensitivity Index (ASI)	0.04	0.92	.36	
Step 2. Interaction Effect				0.70
ASI × PTSD	0.07	1.55	.12	

Note. SUD = substance use disorder, PTSD = posttraumatic stress disorder, CAPS = Clinician Administered PTSD Scale