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The Moderating Role of Experiential Avoidance in the Relationship between Posttraumatic Stress Disorder Symptom Severity and Cannabis Dependence

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Abstract

The relationship between cannabis use and posttraumatic stress disorder (PTSD) has received increased scientific scrutiny in recent years. Consistent with this research, studies provide evidence that many individuals with PTSD use cannabis to reduce negative affect and other unpleasant internal experiences associated with PTSD. However, no research to date has explored factors that may be associated with an increased likelihood of cannabis misuse among individuals with PTSD. Consequently, this study explored the moderating role of experiential avoidance (EA; defined as the tendency to engage in strategies to reduce unpleasant private experiences) in the PTSD-cannabis dependence relationship among a sample of 123 Criterion A trauma-exposed patients in residential substance abuse treatment. Moderation analyses indicated an interactive effect of PTSD symptom severity and EA on current cannabis dependence. Specifically, results revealed a conditional effect of PTSD symptom severity on cannabis dependence only when EA was average or higher, with higher levels of PTSD symptom severity associated with a greater risk of cannabis dependence. These findings are consistent with evidence that cannabis use may serve an avoidant function among some individuals with PTSD and suggest that acceptance-based behavioral approaches might be effective in targeting both cannabis use and PTSD-related impairment.

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Keywords

cannabis misuse; comorbidity; emotion regulation; marijuana dependence; substance use disorders; trauma

Posttraumatic stress disorder (PTSD) is characterized by the presence of re-experiencing, avoidance, negative alterations in cognition and mood, and hyperarousal symptoms following exposure to a traumatic event (American Psychiatric Association [APA], 2013). The symptoms of PTSD can be debilitating, increasing risk for functional impairment across multiple domains (Rodriguez, Holowka, & Marx, 2012) and the development of other psychiatric disorders (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995), particularly substance use disorders (SUD; Chilcoat & Menard, 2003). Although most studies exploring the relation between PTSD and substance use have focused on alcohol or cocaine use (e.g., Coffey, Schumacher, Brady, & Cotton, 2007; Jakupcak et al., 2010; Waldrop, Back, Verduin, & Brady, 2007), there is an emerging body of literature exploring the connection between PTSD and cannabis use (the most commonly used illicit substance in the United States and worldwide; SAMHSA, 2012; UNODC, 2012).

This body of research has demonstrated that PTSD is associated with increased risk for cannabis use. In a large subsample of the National Comorbidity Survey, lifetime PTSD symptoms were uniquely associated with increased rates of lifetime cannabis use, past year cannabis use, and past year daily cannabis use (Cogle, Bonn-Miller, Vujanovic, Zvolensky, & Hawkins, 2011). Furthermore, the relation between PTSD and cannabis use is clinically relevant. For example, among a sample of Veterans with PTSD, Bonn-Miller, Boden, Vujanovic, and Drescher (2013) found that a pretreatment diagnosis of a cannabis use disorder was associated with weaker response to residential PTSD treatment, even when taking into account other relevant factors (e.g., trauma severity). This research is consistent with extant research on problematic cannabis use in general, which reveals robust associations between cannabis misuse and an array of poor mental and physical health outcomes (Degenhardt, Hall, & Lynskey, 2003; Hall & Degenhardt, 2009; Moore et al., 2007). Given both its relatively high prevalence (compared to other illicit substances) and its demonstrated relations to a number of negative outcomes, additional research aimed at elucidating the relation between cannabis use and PTSD has great public health significance.

Existing literature suggests that cannabis use within the context of PTSD may function to ameliorate negative affect and other distress associated with PTSD symptoms (albeit at the longterm cost of continued experiencing and exacerbation of symptoms; see Boden, Babson, Vujanovic, Short, & Bonn-Miller, 2013; Bonn-Miller et al., 2007, 2010). This literature is consistent with both the negative reinforcement model of substance use (which proposes that the primary motive for substance use is the avoidance of or escape from emotional distress; Baker, Piper, McCarthy, Majeskie, & Fiore, 2004) and research suggesting that individuals with PTSD may use substances to regulate emotional distress (e.g., Tull, McDermott, Gratz, Coffey, & Lejuez, 2011; Waldrop et al., 2007). Cannabis use motives related to reducing negative affect (i.e., coping motives) have been found to be more common in individuals with (vs. without) PTSD (Boden et al., 2013; Bonn-Miller, Babson, & Vandrey, 2014) and

positively associated with PTSD symptom severity among individuals exposed to a traumatic event (Bonn-Miller, Vujanovic, Boden, & Gross, 2011; Bonn-Miller et al., 2010). Moreover, higher levels of emotion regulation difficulties and lower levels of non-judgmental acceptance have been found to mediate the relationship between PTSD symptom severity and cannabis use coping motives (Bonn-Miller et al., 2011; Bonn-Miller et al., 2010).

Despite evidence for a robust association between PTSD and cannabis use, not all individuals with PTSD rely on cannabis as a method for regulating distress. Consequently, research is needed to clarify factors that may moderate this association and increase the likelihood of cannabis misuse among individuals with PTSD. One factor that may be central to understanding the relation between PTSD and cannabis misuse is experiential avoidance (EA), defined as efforts to eliminate or alter the frequency, intensity, or other dimensions of unwanted thoughts, feelings, or bodily sensations (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). Research indicates a robust association between EA and a broad range of psychopathology and distress, including PTSD (Meyer, Morissette, Kimbrel, Kruse, & Gulliver, 2013; see Ruiz, 2010 for a general review). EA has also been found to account for the relationship between social anxiety and coping motives for cannabis use (Buckner, Zvolensky, Farris, & Hogan, 2013). In addition, treatments targeting EA have been found to result in reductions in substance use in general (Hayes et al., 2004; Lanza & Menendez, 2013) and cannabis use in particular (Twohig, Shoenberger, & Hayes, 2007).

The purpose of the current investigation was to explore the role of EA in the relationship between PTSD symptom severity and cannabis dependence within a sample of SUD patients in residential substance abuse treatment – a patient population at high-risk for PTSD, EA, and cannabis dependence (Chen et al., 2011; Gratz, Bornovalova, Delany-Brumsey, Nick, & Lejuez, 2007). To accomplish this aim, a moderation analysis was used to examine whether the relationship between PTSD symptoms and cannabis dependence varies as a function of EA. Given that higher EA is associated with greater unwillingness to experience negative internal events (such as those consistent with PTSD symptoms), it was hypothesized that the relationship between PTSD symptom severity and cannabis use would be strongest when EA is high, and not necessarily present when EA is low.

Methods

Participants

Participants were 123 SUD patients (*mean age* = 35.72 ± 9.72) reporting at least one Criterion A traumatic event and at least one current symptom of PTSD (see Measures). The most common Criterion A traumatic events were the unexpected death or injury of another (26.8%), sexual assault (24.4%), and physical assault (13.8%). Most participants (84.6%) met current substance dependence criteria for one or more substances and 67.5% met criteria for at least one additional (non-SUD) current psychiatric diagnosis. On average, the most recent period of abstinence from any substance reported by participants was 19 months ago (*SD* = 28.77), and the number of times participants had received treatment for substance use problems in the past was three (*SD* = 4.47). Demographic and diagnostic characteristics are presented in Table 1 for both the overall sample and by cannabis dependence classification.

Measures

Clinician Administered PTSD Scale—The CAPS (Blake, Weathers, Nagy, & Kaloupek, 1995) is a widely used structured clinical interview for DSM-IV PTSD symptoms and Criterion A traumatic exposure. The CAPS separately assesses the frequency and severity of symptoms on a 4-point rating scale, with higher scores indicating greater frequency/severity. Specifically, frequency items are rated from 0 (never/none/not at all) to 4 (daily or almost every day or more than 80%), and intensity items are rated from 0 (none) to 4 (extreme). A total PTSD symptom severity score was calculated for the current study by summing the frequency and severity ratings of the 17 criterion B–D symptoms (range = 0–136). There is extensive support for the reliability and validity of the CAPS (see Weathers, Keane, & Davidson, 2001). Prior to administering the CAPS, participants complete the *Life Events Checklist* (LEC; Blake et al., 1995), a self-report instrument developed concurrently with the CAPS that assesses the occurrence of 17 potentially traumatic events.

Structured Clinical Interview for DSM-IV Axis I Disorders—The SCID-I (First, Spitzer, Gibbon, & Williams, 2002) is the gold standard semi-structured assessment instrument for psychiatric disorders. The interview has been found to yield valid and reliable current and lifetime diagnoses across a variety of common psychiatric disorders, including current cannabis dependence. A recent assessment of inter-rater reliability of the SCID-I found evidence of moderate to excellent reliability across major diagnostic categories, including a kappa of .75 across drug abuse/dependence diagnoses (Lobbetael, Leurgans, & Arntz, 2011).

Both the CAPS and SCID-I interviews were conducted by bachelors- or masters-level clinical assessors trained to reliability with the principal investigator (MTT) and co-investigator (KLG). All interviews were reviewed by the principal investigator, with diagnoses confirmed in consensus meetings.

Cannabis withdrawal symptoms—Following completion of the SCID-I, participants were asked to complete a self-report measure assessing 28 withdrawal symptoms associated with the discontinuation of a variety of different substances (e.g., sedatives, alcohol, opioids, cocaine). The severity of each withdrawal symptom was rated on a 5-point Likert-type scale from 0 (not at all) to 4 (extremely severe). Six of these items were used to create a composite score reflecting the severity of DSM-5 (APA, 2013) current cannabis withdrawal symptoms (e.g., sleep problems, depression, restlessness, nervousness, physical symptoms, etc.). This score was used to evaluate and confirm the absence of current cannabis withdrawal symptoms among participants.

Acceptance and Action Questionnaire—The AAQ (Hayes et al., 2004) is a 9-item measure of EA, with higher scores indicating greater EA. Sample items include “anxiety is bad,” “when I feel depressed or anxious, I am unable to take care of my responsibilities,” and “I’m not afraid of my feelings [reverse-scored].” Evidence for the construct validity of this measure has been provided, with a single factor solution consistently displaying good model fit across confirmatory factor analyses on independent samples (Hayes, Strosahl, et al., 2004). The AAQ is associated with theoretically-related constructs (e.g., thought

suppression; Hayes, Strosahl, et al., 2004; Hayes, Luoma, Bond, Masuda, & Lillis, 2006), as well as behavioral indicators of EA (Gratz, Rosenthal, Tull, Lejuez, & Gunderson, 2006). In the original validation sample, the AAQ was found to have adequate internal consistency ($\alpha = .70$) and test-retest reliability ($r = .64$; Hayes, Strosahl, et al., 2004). Internal consistency in the current study was low ($\alpha = .47$), which is consistent with findings from several recent studies employing this measure in clinical samples (see Bond et al., 2011 for a discussion of this limitation).

Procedure

All procedures were reviewed and approved by the institution's Institutional Review Board. Data for this study were drawn from a larger study examining emotion-related factors associated with residential substance abuse treatment dropout among SUD patients with and without PTSD (see Tull, Gratz, Coffey, Weiss, & McDermott, 2013). To be eligible for inclusion in the larger study, participants were required to have: 1) obtained a Mini-Mental Status Exam (Folstein, Folstein, & McHugh, 1975) score of ≥ 24 ; and 2) exhibited no current psychotic disorders (as determined by the SCID-I). Eligible participants were recruited no sooner than 72 hours after entry in the facility (to limit the interference of withdrawal symptoms on study engagement). Those meeting inclusion criteria were provided with information about study procedures and associated risks, following which informed consent was obtained. To be included in the present study, participants needed to report at least one Criterion A traumatic event on the LEC (the CAPS is not completed in the absence of endorsement of a Criterion A traumatic event), and at least one current symptom of PTSD (i.e., a CAPS total PTSD symptom severity score of one or greater). On average, participants took part in the study 8.62 days (range of 3 to 42 days) following treatment entry ($SD = 6.41$).

Analytic Strategy

Analyses were conducted using SPSS version 22, and PROCESS version 2.10 (Hayes, 2013) was used to test the potential moderating role of experiential avoidance (AAQ) in the relationship between PTSD symptom severity (CAPS) and cannabis dependence. An ANOVA for age and a series of chi-squared tests of independence for other demographic variables were used to identify significant differences between participants with and without a diagnosis of cannabis dependence. Pearson product-moment, point-biserial, and phi correlation coefficients were used to assess relationships between study variables. AAQ and CAPS scores were mean centered prior to analysis to allow for meaningful interpretation of conditional effects. The Johnson-Neyman regions of significance analysis (Johnson & Neyman, 1936) was planned as the primary follow up tool to explore the hypothesized interaction. In addition, the pick-a-point technique (Rogosa, 1980) at the AAQ mean and one standard deviation below and above the mean was planned to provide a visual depiction of the interaction.

Results

Participants reported negligible cannabis withdrawal symptoms (*mean* item rating = 0.14, $SD = .46$). Preliminary analyses revealed that participants meeting criteria for cannabis

dependence were significantly more likely to be male, of lower educational attainment, and court-mandated to treatment ($p < .05$; see Table 1). Thus, these demographic variables were retained as covariates in the following analyses.

See Table 2 for means, standard deviations, and correlations among study variables. The overall logistic regression model predicting current cannabis dependence using identified covariates, CAPS, AAQ, and $AAQ \times CAPS$ as predictors was significant, $\chi^2(6, N = 123) = 41.27, p < .001$, Nagelkerke $R^2 = .46$. In addition, the classifications made by the overall model were a good fit to the obtained data, Hosmer & Lemeshow $\chi^2(8) = 2.44, p = .96$. Both the conditional effect of PTSD symptom severity (CAPS) and the interactive effect of EA and PTSD symptom severity ($AAQ \times CAPS$) were significant predictors of current cannabis dependence (see Table 3). These findings indicate that EA moderated the relationship between PTSD symptom severity and current cannabis dependence.

The Johnson-Neyman regions of significance analysis revealed that PTSD symptom severity was significantly associated with current cannabis dependence when AAQ scores were greater than or equal to 37.52 (0.27 standard deviations below the AAQ mean). The pick-a-point follow-up analysis revealed a significant conditional relationship between PTSD symptom severity and current cannabis dependence when AAQ scores were held to one standard deviation above the mean (47.27), $B = 0.050, z = 3.072, p = .002$, and at the mean (39.61), $B = 0.026, z = 2.504, p = .012$. The conditional relationship between PTSD symptom severity and current cannabis dependence was non-significant when AAQ scores were held at one standard deviation below the mean (31.95), $B = 0.017, z = 0.143, p = .867$. Predicted logit values of current cannabis dependence as estimated by the pick-a-point follow-up analysis are presented in Figure 1.

Discussion

Findings from this study provide evidence for the moderating role of EA in the relationship between PTSD symptom severity and cannabis dependence within a sample of patients in residential substance abuse treatment. Consistent with extant theoretical literature, there was a significant relationship between PTSD symptom severity and current cannabis dependence only when EA was average or higher. With regard to the direction of the relationship in the moderated region, high PTSD symptom severity was associated with greater likelihood of cannabis dependence whereas low PTSD symptom severity appeared to be a protective factor for cannabis dependence. These findings are consistent with previous research that has found an association between higher PTSD symptom severity and increased frequency of cannabis use (Bonn-Miller, Vujanovic, & Drescher, 2011).

Negative affect reduction has consistently been found to be a major motive for cannabis use among individuals with PTSD (Bonn-Miller et al., 2007, 2010, 2011, 2014). Findings from this study extend this literature by demonstrating that the tendency to avoid aversive internal experiences interacts with PTSD symptoms to increase the likelihood of cannabis dependence. In particular, increased likelihood of cannabis dependence was found to be conditional on both high severity of PTSD symptoms and average or higher levels of EA, suggesting that it is both the presence of PTSD symptoms and the unwillingness to

experience internal states perceived as aversive that relates to problematic cannabis use. Findings that PTSD symptom severity and EA alone were not associated with cannabis dependence in the current sample provide further support that it is the confluence of PTSD symptoms and an unwillingness to experience internal sensations that is essential for understanding the PTSD-cannabis misuse relationship. Results also add to the broader literature on the negative consequences associated with a co-occurring PTSD-SUD diagnosis. Specifically, recent studies have demonstrated that the negative outcomes observed among PTSD-SUD patients may be most prominent among those who exhibit difficulties effectively regulating emotional experiences. For example, Tull et al. (2012) demonstrated that substance abuse treatment non-completion was greatest among male substance dependent patients with PTSD and low distress tolerance. Likewise, Dixon-Gordon, Tull, and Gratz (2014) found that the relationship between PTSD and deliberate self-harm was stronger among substance dependent patients with greater emotion regulation difficulties. Finally, coping drinking motives (i.e., drinking to alleviate negative emotions) has been found to moderate the relationship between PTSD and alcohol consumption, such that, among individuals high (vs. low) on coping drinking motives, increased PTSD symptoms were associated with a greater consumption of alcohol (Simpson, Stappenbeck, Luterek, Lehavot, & Kaysen, 2014).

Although coping motives were not directly assessed in the current study, the obtained findings are suggestive of the function of cannabis misuse within the context of PTSD. Findings from this study suggest that problematic cannabis use may at least partially serve an EA function in the current sample, consistent with past findings linking increased coping (i.e., avoidance) motives for cannabis use to both difficulties in emotion regulation and difficulties in adopting a non-judgmental stance toward experiences (Bonn-Miller et al., 2011; Bonn-Miller et al., 2010). Given that avoidance is also considered to be a core mechanism underlying the maintenance and negative outcomes associated with PTSD (Kashdan, Morina, & Priebe, 2009; Plumb, Orsillo, & Luterek, 2004; Tull, Gratz, Salters, & Roemer, 2004), treatment approaches that target acceptance of or a nonjudgmental stance towards unwanted internal experiences (e.g., Acceptance and Commitment Therapy [Hayes, Stroschall, & Wilson, 2012] or Mindfulness-Based Stress Reduction [Grossman, Niemann, Schmidt, & Walach, 2004]) may be effective in reducing problematic cannabis use in individuals with PTSD, as well as PTSD-related functional impairments.

Although promising, it is important to evaluate our findings in the context of limitations present. Most notably, the low internal consistency of the AAQ in the current sample limits the confidence in the measure of EA. Poor reliability of this instrument has been found in numerous other samples and it could be the case that the relatively low level of educational achievement in the current sample (28.5% reported some high school or less) may have contributed to low internal consistency (Bond et al., 2011). Nonetheless, the AAQ has demonstrated clinical and research utility across a variety of samples (see Hayes et al., 2006; Ruiz, 2010) and appears to provide valuable insight in this study despite its poor internal consistency. Future studies should consider employing more psychometrically sound measures of EA, such as the Acceptance and Action Questionnaire-II (AAQ-II; Bond et al., 2011) or the substance use specific variant of the AAQ (AAQ-SA; Luoma, Drake, Kohlenberg, & Hayes, 2011). Behavioral measures may also hold promise in this regard

(e.g., the Computerized Paced Auditory Serial Addition Task; Gratz et al., 2006, 2007). Other limitations include the cross-sectional nature of the data and the lack of direct assessment of cannabis use motives. Future inquiry into this area should consider employing longitudinal designs and measures of cannabis use motives (e.g., the Comprehensive Marijuana Motives Questionnaire; Lee, Neighbors, Hendershot, & Grossbard, 2009, or Marijuana Motives Measure; Simons, Correia, Carey, & Borsari, 1998). Finally, findings require replication in other PTSD populations (e.g., Veterans, civilian outpatient PTSD samples).

Despite limitations, findings highlight the role of EA in the relationship between PTSD symptom severity and cannabis dependence within a high-risk clinical sample. Findings also suggest that it is not simply the presence of PTSD symptoms *per se*, but the experience of PTSD symptoms in the context of an unwillingness to experience internal sensations perceived as aversive that predicts problematic cannabis use. Consequently, results from this study highlight a particular subset of patients that may be especially at risk for cannabis misuse, as well as a potential target for PTSD-SUD interventions.

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Highlights

- Examined moderating role of experiential avoidance (EA) in PTSD-cannabis relation.
- PTSD and cannabis dependence associated only when EA was average or higher.
- Results support cannabis may be used to reduce negative affect in PTSD.
- Results suggest utility of acceptance-based treatment for this population.

Figure 1.

Predicted logit values of current cannabis dependence as a function of scores fixed at the mean, one standard deviation above the mean, and one standard deviation below the mean on the Clinician Administered Posttraumatic Stress Disorder Scale (CAPS) and Acceptance and Action Questionnaire (AAQ), respectively. Covariates in the model included gender, educational attainment, and court-mandated status. Larger logit values indicate a greater likelihood of current cannabis dependence.

Table 1

Demographic Variables and Current Disorder Diagnostic Classifications for the Overall Sample and by Cannabis Dependence Classification

Characteristic	Cannabis Dependence			χ^2 (1)
	Overall N = 123 n (%)	Present n = 23 n (%)	Absent n = 100 n (%)	
Gender				6.69**
Male	61(50%)	17 (74%)	44 (44%)	
Female	62 (50%)	6 (26%)	56 (56%)	
Race/Ethnicity				0.01
White	70 (57%)	13 (57%)	57 (57%)	
Non-white	53 (43%)	10 (43%)	43 (43%)	
Educational Obtainment				17.32**
High school diploma/GED or less	70 (57%)	22 (96%)	48 (48%)	
Some college or more	53 (43%)	1 (4%)	52 (52%)	
Income				0.03
\$9,999 a year or less	66 (54%)	12 (52%)	54 (54%)	
\$10,000 a year or greater	57 (46%)	11 (48%)	46 (46%)	
Occupational Status				0.10
Employed	29 (24%)	6 (26%)	23 (23%)	
Unemployed	94 (76%)	17 (74%)	77 (77%)	
Court-mandated for treatment				4.52*
Yes	41 (33%)	12 (52%)	29 (29%)	
No	82 (67%)	11 (48%)	71 (71%)	
Current psychotropic medication				3.48
Yes	59 (48%)	7 (30%)	52 (52%)	
No	64 (52%)	16 (70%)	48 (48%)	
Alcohol Dependence ^a				1.85
Present	53 (43%)	7 (30%)	46 (46%)	
Absent	70 (57%)	16 (70%)	54 (54%)	
Cocaine Dependence ^a				0.67
Present	41 (33%)	6 (26%)	35 (35%)	
Absent	82 (67%)	17 (74%)	65 (65%)	
Major Depressive Disorder ^a				0.04
Present	30 (24%)	6 (26%)	24 (24%)	
Absent	93 (76%)	17 (74%)	76 (76%)	
Generalized Anxiety Disorder ^a				0.45
Present	46 (37%)	10 (44%)	36 (36%)	
Absent	77 (63%)	13 (57%)	64 (64%)	
Panic Disorder ^a				0.19

Characteristic	Cannabis Dependence			χ^2 (1)
	Overall N = 123 n (%)	Present n = 23 n (%)	Absent n = 100 n (%)	
Present	32 (26%)	5 (22%)	27 (27%)	2.40
Absent	91 (74%)	18 (78%)	73 (73%)	
Posttraumatic Stress Disorder ^b				
Present	57 (46%)	14 (61%)	43 (43%)	
Absent	66 (54%)	9 (39%)	57 (57%)	

Note: Current Axis I disorders assessed by the SCID-I are reported for all diagnoses with a prevalence of 15% or greater in the study sample. Disorders assessed but not reported above, with sample prevalence in parentheses, include: Social Phobia (14.6%), Stimulant Dependence (13.8%), Opioid Dependence (13.0%), Specific Phobia (13.0%), Bipolar I Disorder (8.1%), Sedative Dependence (7.3%), Dysthymic Disorder (4.9%), Obsessive-Compulsive Disorder (4.9%), Polysubstance Dependence (3.3%), Bipolar II disorder (2.4%), Substance-Induced Mood Disorder (2.4%), Substance-Induced Anxiety Disorder (2.4%), and Hallucinogen/Phencyclidine(PCP) Dependence (0.8%).

^aCurrent disorder assessed by the Structured Clinical Interview for DSM-IV (SCID-I);

^bCurrent disorder assessed by the Clinician Administered Posttraumatic Stress Disorder Scale (CAPS)

*
p < .05,

**
p < .01

Table 2

Means, Standard Deviations, and Correlations Among Variables

Variable	M	SD	1	2	3	4	5	6
1. PTSD Symptoms (CAPS)	49.61	32.56	--	.30*	.12	-.18*	.05	.08
2. Experiential Avoidance (AAQ)	39.61	7.66	--	--	-.03	-.16	-.10	-.12
3. Cannabis Dependence (Yes = 1)	18.7%	dependent	--	--	--	.23**	-.38**	.19*
4. Gender (Male = 1)	49.6%	male	--	--	--	--	-.17	-.05
5. Education (Some College = 1)	43.1%	some college	--	--	--	--	--	-.13
6. Court-mandated (Mandated = 1)	33.3%	mandated	--	--	--	--	--	--

Note: CAPS = Clinician Administered Posttraumatic Stress Disorder Scale; AAQ = Acceptance and Action Questionnaire; Cannabis Dependence assessed by the Structured Clinical Interview for DSM-IV. Pearson product-moment correlation coefficient used for correlations between continuous variable, point-biserial correlation coefficients used for correlations between continuous and dichotomous variables, and phi coefficient used for correlations between dichotomous variables.

* $p < .05$,
** $p < .01$

Table 3
Conditional and Interaction Effects Estimating Current Cannabis Dependence (Current Dependence = 1)

	ln(odds)	SE	Wald	p	Exp(B)
Constant	-2.531	0.667	14.41	<.001	0.080
PTSD Symptoms (CAPS)	0.026	0.010	6.27	.012	1.026
Experiential Avoidance (AAQ)	-0.052	0.042	1.54	.215	0.949
CAPS × AAQ	0.003	0.001	6.13	.013	1.003
Gender (Male = 1)	1.754	0.677	6.71	.010	5.78
Education (some college = 1)	-3.510	1.137	9.53	.002	0.030
Court-mandated (Mandated = 1)	0.671	0.587	1.31	.253	1.955