Published in final edited form as:

Psychiatry Res. 2014 November 30; 219(3): 550–555. doi:10.1016/j.psychres.2014.06.016.

PTSD and Reasons for Living: Associations with Depressive Symptoms and Alcohol Use

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Abstract

Posttraumatic stress disorder (PTSD) is associated with suicidal ideation and behavior, and is found to frequently co-occur with other conditions that exacerbate the risk for suicidal behavior. Despite these findings, few individuals with PTSD engage in suicidal acts, and there has been little research to examine those factors that protect against such behaviors. The current study used path analysis to examine the association between PTSD, depression, hazardous alcohol consumption, and beliefs about suicide (i.e., reasons for living) among a community sample with motor vehicle accident related-PTSD ($N = 50$). Reasons for living were inversely associated with PTSD, depression, and alcohol use. Further, depression symptom severity accounted for the association between PTSD symptom severity and reasons for living. In contrast, hazardous alcohol consumption only demonstrated a trend for accounting for the association between PTSD and reasons for living. Our findings highlight the importance of clinicians assessing co-occurring depression symptoms and suggest the potential use of interventions that promote adaptive cognitions about suicide among people with PTSD.

Keywords

PTSD; Trauma; Depression; Alcohol Use; reasons for living

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1. Introduction

Posttraumatic stress disorder (PTSD) is a debilitating condition that is associated with suicidal ideation (Jakupcak et al., 2009), self-harming behaviors (Dyer et al., 2009), and suicide attempts (Sareen et al., 2005; Panagioti et al., 2012). The prevalence of suicidal ideation has been estimated to be as high as 40% among those with PTSD and the prevalence of suicide attempts is approximately 20% in this population (Cougle et al., 2009). In addition, PTSD is highly comorbid with other psychological disorders, such as depression and alcohol use disorders (AUDS), which are independently associated with increased risk for suicidal ideation and behaviors (e.g., Bolton et al., 2010; Blanco et al., 2013). Despite the increased risk for suicidal ideation and behavior among those with PTSD and comorbid conditions, a significant proportion of these individuals never engage in suicidal behavior. Previous research has primarily focused on those factors that further exacerbate risk for suicide. However, it also is important to examine factors that may protect against suicide among this group to fully inform intervention and prevention efforts.

Identified protective factors against suicide encompass a variety of domains including, but not limited to, access to clinical care, social factors, positive coping skills, and religious beliefs (U.S. Public Health Service, 1999). In particular, cognitions about the nature and consequences of suicide have been highlighted as a protective factor against suicidal ideation and behavior in community and inpatient samples (Linehan et al., 1983). Linehan and colleagues (1983) developed the Reasons for Living Inventory (RFL), which assesses life-sustaining beliefs that may deter one from engaging in suicidal acts. The measure indexes six types of beliefs/reasons for living including: survival and coping beliefs, responsibility to family, child related concerns, fear of suicide, fear of social disapproval, and moral objections. Several cross sectional investigations have replicated Linehan and colleagues (1983) original findings of negative associations between these reasons for living and suicidal ideation and behavior (e.g., Mann et al., 1999; Osman et al., 1999; Lizardi et al., 2007; Malone et al., 2000). In addition, prospective research has shown that greater reasons for living are inversely associated with later suicidal behavior (Lizardi et al., 2007). Taken together, these findings suggest these identified beliefs about suicide/reasons for living may be a significant set of cognitions that mitigate against the experience of suicidal ideation and engagement in suicidal behavior. Thus, it may be particularly important to increase our understanding of factors that contribute to alterations in these beliefs, which may be a key treatment target and mechanism for enhancing resilience to suicide.

Few studies have examined the role of these protective cognitions among individuals who have posttraumatic symptoms. One study examined the relationship between trauma exposure and reasons for living among women. Degree of sexual victimization was found to be inversely related to overall reasons for living, such that those who were subjected to sexual coercion or attempted rape reported fewer reasons for living compared to those who experienced no victimization (Segal, 2009). Furthermore, among individuals with comorbid PTSD and substance dependence, reasons for living including: concerns about children, a wish to survive, and one's belief in their ability to cope differentiated those individuals who had engaged in self-harming behaviors or attempted suicide from those who had not (Harned et al., 2006). These findings suggest the presence of PTSD symptoms may be associated

with alterations in cognitions that protect against engaging in suicidal behaviors. However, the aforementioned studies failed to address the role of comorbid psychiatric conditions (e.g., depression) that may better account for the observed relationships.

As previously stated, depression and alcohol use disorders (AUDs) are highly comorbid with PTSD, with comorbidity estimates ranging from 30–50% for depression (e.g., Breslau et al., 1991; Kessler et al., 1995; Blanchard et al., 1998; Blanco et al., 2013) and as high as 24% for AUDs (Keane et al., 1998). Furthermore, depression and AUDs are both independently associated with increased suicidal ideation and behavior (e.g., Bolton et al., 2010; Panagioti et al., 2012; Stevens et al., 2013). The presence of co-occurring depressive and AUDs among individuals with PTSD may interfere with their ability to generate adaptive coping beliefs that prevent them from engaging in suicidal behavior. For instance, cognitive models of depression suggest that depression is characterized by a pervasive systematic negativity of cognitive processes, including hopelessness (Beck, 2002). The presence of such a cognitive style may limit one's ability to generate adaptive beliefs about suicide. Moreover, previous research has suggested that alcohol use can impair cognitive processing by limiting attention and restricting thought processes, whereby, the most immediate parts of one's experience influence behavior and emotions (Steele & Josephs, 1990). Alcohol use may, therefore, create a state of cognitive constriction (e.g. intense thoughts of suicide that cannot be dismissed) that inhibits the ability to generate and implement effective coping strategies that may prevent one from engaging in suicidal behaviors. Taken together, PTSD, depression and AUDs may each negatively influence adaptive coping beliefs. Given the high proportions of co-occurrence for these disorders, depression and AUDs should also be examined to better elucidate the unique association between PTSD and adaptive beliefs about suicide behaviors.

The aim of the current study is to examine the association between PTSD, depression, hazardous alcohol consumption, and adaptive coping beliefs about suicide. Based on prior findings (e.g., Harned et al., 2006), we predicted reasons for living would be inversely associated with PTSD symptom severity, depression symptom severity, and hazardous alcohol consumption. Additionally, we expected that the association between PTSD symptom severity and reasons for living would be accounted for by depressive symptom severity and hazardous alcohol consumption.

2. Methods

2.1 Procedure

Participants were recruited from the larger community for a treatment study, the results of which are described elsewhere (Sloan et al., 2012). Inclusion criteria for the treatment study included a primary diagnosis for motor vehicle accident (MVA)-related PTSD, being at least 18 years of age, and having a MVA that occurred at least three months prior. Participants were excluded if they had a current psychotic disorder, current substance dependence diagnosis, or unstable bipolar disorder. Individuals who were deemed to be potentially eligible for the study based upon a brief telephone screen presented in person for an initial assessment.

Upon arrival to the baseline assessment session, participants provided informed consent and then completed semi-structured diagnostic interviews and self-report measures. Although a variety of measures were completed, only measures relevant to this study are presented here. The diagnostic clinical interviews were conducted by doctoral-level psychologists. All interviews were recorded for interrater reliability ratings, with 15% of the interviews randomly selected for independent review. The study was approved by local Institutional Review Boards.

2.2 Measures

PTSD symptoms were assessed using the Clinician Administered PTSD Scale (CAPS; Blake et al., 1995), a measure widely regarded as the gold-standard for assessing PTSD. The CAPS has been shown to have strong reliability and validity (Weathers et al., 2001). The CAPS is a structured clinical interview that assesses 17 core symptoms of PTSD, as defined by DSM-IV (American Psychiatric Association, 1994) and allows the interviewer to rate the frequency (e.g., 4 = daily or almost daily) and intensity (e.g., 3 = severe, considerable distress) of each symptom along five-point ordinal scales. The CAPS was used in this study to index both presence of PTSD and overall symptom severity. Presence of PTSD was established using the original scoring method (Blake et al., 1995), which requires the presence of one or more re-experiencing symptoms, three or more avoidance symptoms, and two or more hyperarousal symptoms. This scoring method is consistent with the *DSM-IV* diagnostic criteria for PTSD (American Psychiatric Association, 1994). Each symptom must receive a frequency score of one or more and an intensity score of two or more in order to count towards diagnostic status. This scoring method has demonstrated excellent validity (Weathers et al., 1999). Total symptom severity was calculated by summing the frequency and intensity scores for all 17 symptoms. The interrater reliability for PTSD diagnosis was high (0.93) and total CAPS score ranged from 42 to 110.

The Structured Clinical Interview for DSM IV Disorders (SCID-IV) was used in the current study to assess for the exclusion criteria of psychotic or organic mental disorder, as well as to assess for current and past substance use disorders and mood and anxiety disorders (First et al., 2002). The SCID is a semi-structured, clinician-administered measure of Axis-I disorders per the *DSM-IV* (American Psychiatric Association, 1994). The interrater reliability of the SCID diagnoses was high (0.82 to 0.98).

The Reasons for Living Inventory (RFL; Linehan et al., 1983) is a 48-item self-report measure of beliefs posited to buffer against suicidal ideation; survival and coping beliefs (e.g., I believe I can find other solutions to my problems), responsibility to family (e.g., It would hurt my family too much and I would not want them to suffer), child-related concerns (e.g., The effect on my children could be harmful), fear of suicide (e.g., I am afraid that my method of killing myself would fail), fear of social disapproval (e.g., Other people would think I am weak and selfish), and moral objections (e.g., I consider it morally wrong). Each item is dichotomously scored (i.e. no/yes) with higher total scores indicating the presence of protective beliefs against suicidal ideation. The total score scale reflects a sum of all items and has demonstrated strong internal consistency in both clinical and non-clinical samples (Linehan et al., 1983; Osman et al., 1993; Osman et al., 1999; Malone et al., 2000).

The original measure is composed of the six sub-scales described above, each examining a unique factor of resilience to suicidal ideation. Psychometric data support a six-factor solution and the calculation of individual subscale scores (Range & Antonelli, 1990; Osman et al., 1999). However, findings also suggest utility for a one-factor solution and calculation of a total scale score (e.g., Malone et al., 2000; Lizardi et al., 2007). Given existing findings, only the total score was the examined in the current study. Total scores for the current sample ranged from 9 to 36. Alpha for RFL total was high for the current sample ($\alpha = 0.95$).

The Beck Depression Inventory (BDI-II; Beck et al., 1996) was administered to assess depressive symptoms in the current study. The BDI is a widely used 21-item, self-report measure that has demonstrated reliability as a measure of depressive symptom severity (Quilty et al., 2010). Internal reliability for the current sample was high ($\alpha = 0.90$) and scores ranged from 0 to 31.

The Alcohol Use Disorders Identification Test (AUDIT; Saunders et al., 1993) is a 10-item self-report measure of hazardous alcohol consumption. The AUDIT uses a five-point Likert-type scale that is summed to create a total scale value ranging from 0 to 40, with higher scores representing greater hazardous alcohol consumption. The AUDIT has demonstrated strong internal, external, and test-retest reliability, as well as strong sensitivity and specificity compared to other self-report measures of AUDs (Reinert & Allen, 2002). Total scores for the current sample ranged from 0 to 36 and internal reliability was high ($\alpha = 0.92$).

2.3 Data Analyses

Zero-order correlations were computed to examine the association among PTSD symptom severity, depressive symptom severity, hazardous alcohol consumption, and reasons for living. Path analyses were conducted in SPSS (Preacher & Hayes, 2008) to test the hypothesis that depression symptoms and hazardous alcohol consumption would account for an observed association between PTSD symptoms and reasons for living. Bootstrapping (Preacher & Hayes, 2008) was used to examine these associations due to its ability to rigorously examine indirect paths in small samples (Shrout & Bolger, 2002; MacKinnon et al., 2004; Preacher et al., 2007) and produce bias-corrected 95% confidence intervals for indirect paths. The model was set to the program's capacity of 20,000 samples (Preacher & Hayes, 2008).

3. Results

3.1 Participants

As illustrated in Table 1, the sample of 50 participants was diverse in terms of age, race, education, socioeconomic status, and marital status. The mean age of the sample was 40.96 ($SD=13.24$), and 60% of the sample were women. Twenty-four percent ($n = 12$) of the sample had a current diagnosis of unipolar depressive disorder, 12% ($n = 6$) had a current diagnosis of alcohol abuse, and 8% ($n = 4$) had a current anxiety disorder diagnosis. In addition, 26% of the sample had a history of either alcohol abuse ($n = 10$) or alcohol dependence ($n = 3$).

Although all of the participants met diagnostic criteria for PTSD resulting from a motor vehicle accident, a large number of other traumatic events were also reported. Specifically, the participants reported a median of 12.4 traumatic events that met DSM-IV PTSD Criterion A for a traumatic stressor (American Psychiatric Association, 1994). Approximately 85% of the sample reported a history of physical assault (17 men, 25 women), and approximately 60% (10 men, 20 women) reported a history of sexual assault.

It is important to note that this PTSD sample is consistent with other PTSD clinical trial samples (e.g., Kolassa et al., 2010; Resick et al., 2008). Most PTSD treatment studies do not provide the number of trauma events, but rather the percentage of the sample reporting the experience of particular types of trauma (e.g., physical assault, childhood sexual assault). For instance, McDonagh et al. (2005) and Resick et al. (2008) reported that approximately 82% of their sample had histories of physical assault and approximately 75% of their samples had sexual assault trauma histories in addition to the sexual assault trauma history meeting criteria for their study. These rates are consistent with the 85% rate of physical assault and 60% rate of sexual assault reported in our sample. Resick et al. (2008) reported that approximately 47% of her sample reported at least 10 childhood trauma events and approximately 48% of the sample reported at least 10 adult trauma events. In terms of sexual assault history, Van Ameringen et al. (2008) found that approximately 7% of men who met diagnostic criteria for PTSD met criteria resulting from a sexual assault or sexual molestation. In the National Comorbidity Survey (Kessler et al., 1995), approximately 7% of men who met diagnostic criteria for PTSD met criteria resulting from rape or molestation. In the current sample, half of the men (10 out of 20) reported a history of sexual assault (childhood, adulthood, or both). Taken together, the rates and types of other trauma events observed in our sample are consistent with data reported for other PTSD samples recruited within the United States.

3.2 Zero Order Correlations

Correlation results are displayed in Table 2. Consistent with our hypotheses, reasons for living were significantly inversely associated with PTSD symptom severity ($r = -0.38, p < .01$), depression symptom severity ($r = -0.45, p < .01$), and greater hazardous alcohol consumption ($r = -0.38, p < .01$).

3.3 Indirect Effects

The overall model examining predictors of reasons for living as measured by the RFL total score was significant $F(3,43) = 5.68, p < .01, R^2 = 0.28$. As anticipated, PTSD symptom severity was associated with depressive symptom severity and hazardous alcohol consumption (Figure 1). Both depressive symptoms and hazardous alcohol consumption were significantly inversely associated with reasons for living. There was a significant unadjusted association between PTSD symptom severity and reasons for living ($b = -0.15, p < .05$), however this association was reduced to non-significance ($b = -.004, p = .49$) when depression symptom severity and hazardous alcohol use were included in the model, indicating that depression symptoms and alcohol use account for the initial observed association between PTSD symptoms and reasons for living. When looking at the role depression symptoms and hazardous alcohol use play in the the association between PTSD

symptoms and reasons for living individually, we found that the confidence interval for the association between PTSD symptoms and reasons for living through depression symptoms ranged from $(-0.0062, -0.1440)$, indicating that depression significantly accounts for the observed association between PTSD symptoms and reasons for living. When looking at hazardous alcohol consumption, the confidence interval ranged from $(0.0059, -0.1273)$. This interval includes 0, and therefore indicates that hazardous alcohol consumption does not play a statistically significant role in the association between PTSD symptoms and reasons for living in the current study.

4. Discussion

This study examined the association between PTSD symptom severity, depressive symptoms, hazardous alcohol consumption, and reasons for living among a community sample with MVA-related PTSD. Zero order correlations revealed that reasons for living (i.e., adaptive beliefs/cognitions about the negative nature and consequences of suicide) were inversely associated with depressive symptoms, hazardous alcohol consumption, and PTSD symptom severity, as predicted. Path analyses further demonstrated that depressive symptom severity accounted for the observed association between PTSD symptom severity and reasons for living. Our findings did not support the hypothesis that hazardous alcohol consumption would account for a significant portion of the association between PTSD symptoms and reasons for living; however, the confidence interval used to make this determination bordered on statistical significance, suggesting that hazardous alcohol use may play a role in this association that is worthy of additional examination in future research. Furthermore, the study's relatively small sample size may have precluded our ability to detect significance for this association.

Our findings extend existing literature focused on factors that protect against suicidal ideation and behavior following trauma (Harned et al., 2006; Segal, 2009). Specifically, study results showed that co-occurring depressive symptoms account for the association between PTSD and reasons for living. Although outside the scope of the current investigation, these results are broadly consistent with prior research examining the impact of depression and PTSD symptoms on suicidal ideation and suicide attempts (Panagioti et al., 2012; Stevens et al., 2013) and may suggest a possible mechanism of action underlying these associations. Together these findings underscore the importance of assessing for depression in individuals diagnosed with PTSD, as these individuals may have fewer adaptive beliefs which have been shown to buffer against concurrent and prospective experience of suicidal ideation and engagement in suicidal behavior (Linehan et al., 1983; Mann et al., 1999; Osman et al., 1999; Lizardi et al., 2007; Malone et al., 2000). In addition, findings suggest that it may be important to target co-occurring depressive symptoms in treatment to enhance adaptive cognitions about the negative nature and consequences of suicide to promote resilience to suicide among individuals with PTSD.

It also may be important to gain additional information related to whether specific depression symptoms play key roles in the association between PTSD and reasons for living. For instance, symptoms of hopelessness might be critical in decreasing adaptive beliefs that may prevent engagement in suicidal ideation and behavior. Similarly, amotivation and lack

of energy may serve as protective factors against suicidal ideation and behavior and thus also affect beliefs about suicide in PTSD samples (e.g., McGirr et al., 2007). Future research also should investigate the relation between specific PTSD symptom clusters and reasons for living. For example, greater emotional numbing, anhedonia, and dysphoria symptoms (e.g., sleep disturbance) may impair individuals' ability to recognize or challenge maladaptive cognitions about suicide, resulting in elevated suicide risk. Future studies also should examine factors that influence the relationship between hazardous alcohol consumption and reasons for living. In the path model, we found a trend level relationship between hazardous alcohol consumption and deficits in adaptive beliefs about suicide. It is possible that this relationship may be most strongly observed in the context of alcohol intoxication, or when salient cues, such as suicidal thoughts are present and they are unable to disengage from this thought process.

Additional research also is needed to examine the relationships among PTSD, depression, AUDs and specific types of adaptive beliefs about suicide (i.e., subscales of the RFL). The current study only examined the total score for the measure rather than investigating specific subscales. The Reasons for Living Questionnaire was developed to measure a range of beliefs that are potentially important protective factors with regard to committing suicide. Although the measure's subscales reflect various domains of protective beliefs, psychometric analyses of the measure are supportive of a one-factor solution and use of a total score for the scale (e.g., Lizardi et al., 2007; Malone et al., 2000). Therefore, findings suggest that the total score represents a unified construct which is composed of a range of adaptive beliefs/reasons for living. Research further suggests that this unified construct is clinically relevant with demonstrated current and prospective associations with suicidal ideation and behavior (e.g., Lizardi et al., 2007). The current study extends existing literature by examining the relative contributions of PTSD, depression, and AUDs to the broader construct of reasons for living, a set of cognitions which may promote resilience to suicidal ideation and behavior among individuals with PTSD. Nonetheless, it may be clinically meaningful to examine individual beliefs/reasons for living using the RFL in future research. Although the current investigation makes a significant contribution to our understanding of the association between depression and beliefs about suicide among individuals with PTSD, several limitations of the study should be noted. First, the construct assessed by the Reasons for Living scale is not a direct measure of suicidal ideation or behavior, thereby limiting the conclusions that can be drawn about suicidal ideation and behavior from the present findings. However, research suggests that reasons for living may be a crucial, potentially modifiable treatment target with clinical significance as a mechanism for enhancing resilience to suicide (e.g., Linehan et al., 2006). Thus, it is important to understand factors that contribute to alterations in these beliefs in and of themselves.

Another potential limitation of the current study is that the influence of co-occurring anxiety disorders was not investigated. We did not include anxiety disorders in the current study for several reasons. First, we focused on co-occurring depressive symptoms and hazardous drinking as rates of co-occurrence between depression and AUDs and PTSD are among the largest observed in the literature (e.g., Breslau et al., 1991; Keane et al., 1998; Kessler et al., 1995). In addition, theory and research support hypothesized associations between

depression and AUDs and reasons for living as well as suicidal ideation/behavior (e.g., Bolton et al., 2010; Harned et al., 2006). Notably, there was a low rate (8%) of any comorbid anxiety disorder diagnosis among individuals included in the current study. In addition, anxiety disorder diagnoses are more heterogeneous and numerous than depressive and AUD diagnoses. Thus, it is more difficult to examine general anxiety comorbidity in small samples (APA, 1994; Antony, Orsillo, & Roemer, 2001). Nevertheless, it might be useful for future larger studies to examine the impact of specific comorbid anxiety disorders on reasons for living among individuals with PTSD.

Future research should also examine the influence of PTSD, depressive symptoms, and hazardous alcohol use in conjunction with reasons for living and measures of suicidal ideation and behaviors. The data in this study were cross-sectional. Consequently, conclusions about causal relationships cannot be inferred, and our results should be interpreted with that limitation in mind. Lastly, the current investigation had a relatively small sample size. Thus, larger studies are needed to better interpret trend level associations observed in this study.

Despite these limitations, study findings add to existing literature and suggest that depression symptom severity is associated with decreased reasons for living among a sample of individuals diagnosed with PTSD. These results underscore the importance of considering depression symptom severity when assessing and treating cognitions related to suicide and suicide risk among PTSD patients. Enhancing our understanding of the impact of treatments for depression (e.g. cognitive therapy, medication) on reasons for living is particularly important as a clinical target because these cognitions are a protective factor associated with decreases in suicidal ideation and engagement in suicidal and parasuicidal behaviors (e.g., Linehan et al., 1983; Lizardi et al., 2007). Future studies should examine whether protective factors associated with suicidal risk are increased as a result of PTSD treatment or whether additional interventions are needed. In sum, the high risk of suicidal ideation and behavior among people with PTSD (Sareen et al., 2005; Cougle et al., 2009) warrants additional research to identify and better understand protective factors and targets for intervention to prevent those with PTSD from engaging in suicidal behaviors.

Acknowledgments

This study was supported by a National Institute of Mental Health grant (R34MH077658-02) awarded to the last author.

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Highlights

- The study investigated the association between PTSD, depression, hazardous alcohol consumption, and beliefs about suicide
- Reasons for living were inversely associated with PTSD, depression, and alcohol use
- Depression symptoms accounted for the association between PTSD symptom severity and reasons for living
- Findings suggest the importance of assessing for co-occurring depression among PTSD patients to detect suicidal risk

Figure 1.

Path Analysis of PTSD symptom severity, depression symptoms and hazardous alcohol consumption predicting Reasons for Living. AUDIT = Alcohol Use Disorders Identification Test; BDI-II = Beck Depression Inventory Second Edition; RFL = Reasons for Living Inventory; CAPS = Clinician Administered PTSD Scale. * $p < .05$, ** $p < .01$.

Table 1

Demographic Characteristics of the Sample

Demographic	N (%)
Gender	
Female	30 (60)
Male	20 (40)
Race/Ethnicity	
White (non-Hispanic)	19 (38)
African American (non-Hispanic)	18 (36)
Asian	2 (4)
Hispanic	5 (10)
Other	6 (12)
Education	
Less than high school	4 (8)
High school graduate or equivalent	25 (50)
College graduate	16 (32)
Graduate/professional degree	5 (10)
Income	
\$25,000 or less	29 (58)
\$25,001 to \$50,000	16 (32)
\$50,001 or more	5 (10)
Marital Status	
Married/Cohabiting	14 (28)
Widowed/Separated/Divorced	16 (32)
Single/never married	20 (40)

Table 2

Summary Statistics and Correlations among PTSD Symptom Severity, Depressive Symptom Severity, Hazardous Alcohol Consumption, and Reasons for Living Total Score

	CAPS	BDI-II	AUDIT	RFL Total
CAPS	-	0.56***	0.36**	-0.38**
BDI-II	-	-	0.28	-0.45**
AUDIT	-	-	-	-0.38**
Mean (SD)	63.03 (16.8)	15.12 (8.9)	4.34 (6.7)	27.44 (6.6)

Note. AUDIT = Alcohol Use Disorders Identification Test; BDI-II = Beck Depression Inventory Second Edition; CAPS = Clinician Administered PTSD Scale; RFL = Reasons for Living Inventory;

**
 $p < .01$;

 $p < .001$.