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Does Body Mass Index Moderate the Association between Posttraumatic Stress Disorder Symptoms and Suicidal Ideation in Iraq/Afghanistan Veterans?

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Abstract

Suicide, PTSD, and obesity co-occur at high rates among returning veterans, yet limited research exists regarding the relationship among these variables. Self-report and diagnostic interview data from a longitudinal study of Iraq and Afghanistan veterans ($N = 130$) enrolled in VA healthcare examined these inter-relations. As hypothesized, body mass index (BMI) significantly moderated the association between PTSD and suicidal ideation such that the association between PTSD and suicidal ideation was strongest among individuals with a high BMI. Programs that focus on health promotion, trauma treatment, and weight management should continue to monitor suicide risk.

1. Introduction

Despite concerted suicide prevention efforts by the Department of Veterans Affairs (VA), recent suicide data indicate that veterans of all eras are at increased risk for death by suicide (Department of Veterans Affairs, 2013). Rates of suicide among United States veterans who

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served in Iraq and Afghanistan are estimated to be as high as 33.1 per 100,000 veterans (Kang et al., 2015) compared to 13.0 per 100,000 in the general population (Xu et al., 2016). Multiple risk factors for suicidal behavior have been identified among veterans, including suicidal ideation (Jacupkak et al., 2009), posttraumatic stress disorder (PTSD), depression (Bryan and Corso, 2011; Kimbrel et al., 2014; Pietrzak et al., 2010), decreased social support (DeBeer et al., 2014), and physical health conditions, such as obesity (Henegan et al., 2010), all of which are significant problems that veterans returning from Iraq and Afghanistan face. Veterans of the wars in Iraq and Afghanistan represent 13% of all living veterans (Department of Veterans Affairs, 2014), making this a significant public health problem.

PTSD diagnosis and PTSD symptoms among Iraq and Afghanistan-era veterans are associated with high rates of suicidal ideation and suicide attempts (DeBeer et al., 2014; Jacupkak et al., 2009; Bryan and Corso, 2011; Marshall et al., 2008; Bryan, 2015). Indeed, Iraq and Afghanistan veterans diagnosed with PTSD are at a 4-fold risk of suicidal ideation (Jakcupkak et al., 2009), which is of great concern as veterans of these wars have elevated rates of PTSD. A recent meta-analysis of 33 studies examining more than 4.9 million Iraq and Afghanistan-era veterans established the prevalence of the PTSD among these veterans at 23% (Fulton et al., 2015), compared to 6.8% in the general population (Kessler et al., 2005). Given both the high incidence of PTSD among returning veterans, coupled with the increased risk for suicide among Iraq and Afghanistan-era veterans with PTSD, it is crucial to better understand factors that influence the association between PTSD and suicide risk, including physical health risk factors.

PTSD is linked to co-occurring physical health conditions, including obesity (body mass index (BMI) $> 30\text{kg/m}^2$; Dobie et al., 2004), which is a major public health concern, affecting 34.9% of the general population (Ogden et al., 2014). Slightly higher rates (36.2%) of obesity are observed in veteran populations, although rates elevate to 40.4% in the presence of co-occurring PTSD (Das et al., 2005; Nelson, 2006; Vieweg et al., 2007). Further, an additional 34.1% of male veterans are overweight (BMI 25 kg/m^2 to 29.99 kg/m^2 ; Das et al., 2005), and these individuals are at risk for developing obesity. PTSD is more strongly associated with obesity than depression (Scott et al., 2008; Pagoto et al., 2012). Male veterans across eras with PTSD have significantly higher BMI compared to veterans without PTSD (Vieweg et al., 2007). Other studies indicate that lifetime PTSD increases odds of obesity in veterans of all eras, and that this association is particularly strong in veterans over 60 years of age (Smith et al., 2015). PTSD results in alterations to the hypothalamic-pituitary-adrenocortical axis (HPA), which may be one possible mechanism by which obesity risk is increased (Mastorakos and Zupanti, 2004; Pagoto et al., 2012). Further, chronic exposure to stress may lead to metabolic syndrome, which is a cluster of symptoms that includes obesity (Heppner et al., 2009; Brunner et al., 2002). Veterans who have deployed to combat zones have no doubt experienced this chronic exposure to stress, thus increasing their risk of developing metabolic syndrome (Blanchard et al., 2006).

Currently, research investigating the relationship between BMI and suicide is mixed (see Klinitzke et al., 2012 for a review). The literature supports an increase in risk for suicidal ideation in obese men and women (Carpenter et al., 2000; Dutton et al., 2013). However, the

relationship between BMI and suicide attempts and death by suicide is more complex. Obese women, individuals with extreme obesity, and obese individuals with psychiatric illnesses, such as major depression and bipolar disorder, have increased risk of suicide attempts compared to normal weight individuals (Carpenter et al., 2000; Gomes et al., 2010; Dong et al., 2006). Elovainio and colleagues (2009) likewise found a positive relationship between BMI and suicide risk in men. However, adding to the complexity of these relationships, other studies have found no relationship (Stack & Lester, 2009), or an inverse relationship between BMI and suicide attempts in men (Carpenter et al., 2000) and BMI and death by suicide (Magnusson et al., 2006; Mukamal et al., 2007; 2010). Among veteran samples, a trend towards higher BMI being associated with lower incidence of death by suicide was reported in one sample (McCarthy et al., 2014).

Obese individuals with psychiatric disorders are at increased risk for suicidal ideation and attempts compared to normal weight individuals with the same disorders (Mather et al., 2009; Carpenter et al., 2000; Gomes et al., 2010). Thus, those with high BMI and PTSD may be at particularly high risk for suicide. The marked increase in risk for obesity in PTSD, combined with evidence that obesity increases risk for suicidal ideation in other psychiatric disorders, makes this an important area for further study, particularly among veterans who have elevated rates of obesity, PTSD and suicide risk. The Interpersonal-Psychological Theory of Suicidal Behavior (IPTSB; Joiner, 2005) may offer insight on the potential interaction between physical and mental health factors on suicide risk. This model suggests that thwarted belongingness (i.e., feeling as though one does not belong) and perceived burdensomeness (i.e., feeling as though one is a burden on others) may influence an individuals' contemplation of suicide (Joiner, 2005). Notably, PTSD is linked to increased burdensomeness and thwarted belongingness (Silva et al., 2015). Further, higher BMI can increase feelings of burdensomeness (Dutton et al., 2013), which in turn can increase suicidal ideation (Dutton et al., 2013; Van Orden et al., 2010). Those who are obese often face discrimination and stigma in their daily lives, even from medical professionals and close family and friends (Puhl et al., 2010). Research on other stigmatized groups (e.g., sexual or racial minorities) indicates that exposure to prejudice about one's group is associated with higher risk of suicidal ideation and attempts (Fergusson et al., 1999; Hatzenbuehler et al., 2014; Perry et al., 2012). Similarly, mortality risk increased by nearly 60% when individuals were faced with weight discrimination, and this increase was not better explained by other psychological or physical risk factors (Sutin et al., 2015). Military service members may be at increased risk for experiencing weight stigma due to unfavorable consequences for not meeting weight requirements (i.e., remedial fitness programs, discharge; Bartlett & Mitchell, 2015; Stewart et al., 2011). Due to the incidence of mental health stigma in military culture, veterans with PTSD may experience prejudice and decreased social support (Pietrzak et al., 2009), both of which can increase suicidal ideation and attempts (DeBeer et al., 2014; Fergusson et al., 1999; Perry et al., 2012).

Despite high co-occurrence and established connections among PTSD, BMI, and suicidal ideation in veterans, there is a dearth of research investigating the precise nature of the associations among these conditions. The aim of the current study was to investigate the potential impact of obesity on the association between PTSD and suicidal ideation in a sample of Iraq/Afghanistan veterans enrolled in VA health care. Understanding predictors of

suicidal ideation is important due to the often-proximal relationship between suicidal ideation and behavior (Schneider et al., 2001; Angst et al., 2002). Based on the extant literature, we hypothesized that high BMI would exacerbate the effect of PTSD symptoms on suicidal ideation among Iraq and Afghanistan-era veterans. Specifically, we hypothesized that BMI level would moderate the association between PTSD symptoms and suicidal ideation such that the hypothesized positive association between PTSD symptoms and suicidal ideation would be strongest at high levels of BMI.

2. Methods

2.1. Background

Project SERVE: Pilot was a longitudinal pilot study that assessed combat experiences and post-deployment adjustment across the course of one year for a regional sample of Iraq and Afghanistan-era veterans (N = 145), which began in 2009. This study is a secondary analysis of these data, focused on investigating psychiatric and functional outcomes among a sample of Iraq and Afghanistan-era veterans (N = 145) enrolled in VA health care in central Texas during the baseline assessment period.

2.2. Procedures

All procedures were approved by the Central Texas Veterans Healthcare System Institutional Review Board. Letters were mailed to a random sample of identified veterans of the wars in Iraq and Afghanistan who were enrolled at the Central Texas Veterans Healthcare System. Participants were also recruited using flyers and in-service presentations to clinical staff. Potential participants called the study team if they were interested in participating. Telephone screens were conducted by trained research assistants to determine initial eligibility; these screens assessed for Iraq/Afghanistan veteran status, suicidal or homicidal ideation warranting crisis intervention, and status of psychiatric treatment. Veterans were then scheduled for a face-to-face assessment, at the outset of which written informed consent was obtained. Final eligibility was confirmed after completing study procedures, including a semi-structured diagnostic interview conducted by a qualified assessor and self-report questionnaires. A total of 1800 recruitment letters were mailed, 272 calls were received from interested veterans, and 224 were initially deemed eligible during the phone screen. Of these, 145 enrolled in the study. The final sample of enrolled participants was demographically representative of the veteran population in Texas (Department of Veterans Affairs, 2014).

2.3. Participants

Participants were eligible if they were: (a) an Iraq and Afghanistan-era veteran; (b) able to provide informed consent; and (c) able to complete the full assessment battery. Exclusionary criteria included: (a) a diagnosis of bipolar or psychotic disorder; (b) recently began (i.e., had not reached stabilization) psychiatric medications or psychotherapy; or (c) suicidal or homicidal ideation, intent or plan that warranted crisis intervention (i.e., imminent threat to self; individuals experiencing suicidal ideation not warranting crisis intervention were not screened out). Although high-risk suicidal or homicidal ideation was an exclusion criterion, no participants were excluded due to this criterion. Based on the inclusion/exclusion criteria,

15 participants were ineligible (7 unable to complete baseline assessment, 6 bipolar disorder, and 2 with psychosis) resulting in a final sample of 130 participants.

2.4. Measures

2.4.1. PTSD Symptoms—PTSD symptoms were assessed with the Clinician Administered PTSD Scale for DSM-IV (CAPS-IV; Blake et al., 1995), a semi-structured interview designed to diagnose PTSD and assess PTSD symptom severity. The current study focused primarily on traumatic events occurring during an Iraq and Afghanistan-era deployment. In the event that the participant was unable to identify a traumatic event occurring during their deployment that met Criterion A (i.e., directly experiencing or witnessing an event involving actual or threatened death or serious injury, or a threat to the physical integrity of self or others (A1), and experiencing helplessness, fear, or horror in response to the event (A2)), the CAPS was completed using an event that met Criterion A1 that the participant identified as the worst event. On the rare occasions that no such event could be identified, the CAPS was conducted based on general Iraq and Afghanistan-era deployment stress. Veterans were asked about their PTSD symptoms within the past 30 days, and to identify the worst month in the past in which symptoms were most severe. The CAPS yields both a categorical PTSD diagnosis and a continuous symptom severity score. The continuous symptom severity score was used in analyses based on literature suggesting a positive, linear relationship between PTSD symptom severity score and suicidal ideation (Marshall et al., 2008; Bryan, 2015). Of the total sample, 116 participants (89.2%) met criterion A. Internal consistency of the CAPS in the current study was 0.98.

2.4.2 Suicidal Ideation—Current suicidal ideation was assessed with the Beck Scale for Suicidal Ideation (BSS; Beck et al., 1979), a 19-item self-report measure that quantifies suicidal ideation. The BSS generally has strong concurrent validity and good internal consistency (Beck et al., 1988). Internal consistency for the current study was 0.91.

2.4.3 Body Mass Index (BMI)—Participants self-reported current height and weight on a medical history form designed for this study. BMI was then calculated using the standard formula of weight in kilograms/height in meters squared (World Health Organization, 2006). The World Health Organization (WHO) categorizes BMI as underweight ($<18.5\text{kg/m}^2$), normal range ($18.5\text{--}24.99\text{kg/m}^2$), overweight ($25\text{--}29.99\text{kg/m}^2$), and obese ($>30\text{kg/m}^2$).

2.5. Data Analysis

Descriptive data were analyzed using univariate statistics, with frequencies, means, and standard deviations presented for continuous demographic, psychiatric or health variables. Moderated hierarchical linear regression was used to test the hypothesis that BMI would moderate the relationship between PTSD symptoms and suicidal ideation. BMI and CAPS scores were standardized prior to calculation of the interaction term. In addition, the BSS score was log transformed prior to running the regression analysis in order to account for skewness and kurtosis. Gender, education, and age were entered in the first step of the regression to control for differences in these characteristics across PTSD symptoms and suicidal ideation. Standardized BMI and PTSD symptom scores were entered in steps 2 and 3. Finally, a PTSD $\times$ BMI interaction term was entered in the final step. All analyses were

conducted within the Statistical Package for the Social Sciences (SPSS), version 21. The interaction was plotted and probed using Dawson's (2014) methods. To facilitate interpretation of the interaction, raw BSS values were used to plot the interaction and to conduct simple slope tests. Simple slopes were calculated at BMI = 25 and BMI = 35.

Results

Participant characteristics are listed in Table 1. The sample was primarily male (85.3%) and White (64.6%). The mean age of participants was 37.78 years ($SD = 10.92$). Fifty-two (40%) participants met criteria for PTSD within the last month. The mean BMI for the entire sample was 29.67 kg/m² ($SD = 4.80$; range = 19.66 – 45.73), which is classified as overweight by the World Health Organization (WHO; 2006). No veterans were classified as underweight (BMI < 18.5 kg/m²). The mean BMI for the veterans who met criteria for PTSD was 30.48 ($SD = 4.85$), which falls into the WHO obese category. Overall, 84.4% ($n = 109$) of the full sample, and 84.6% ($n = 44$) of the PTSD sample were categorized as overweight (BMI ≥ 25 kg/m²) or higher (i.e., obese). Further, 42.6% ($n = 55$) of the full sample and 52.9% ($n = 27$) of the PTSD sample were categorized as obese. Of the sample that was obese, 30.77% ($n = 40$) were obese class 1 (BMI between 30 kg/m² and 34.99 kg/m²), 9.23% ($n = 12$) were obese class 2 (BMI between 35 kg/m² and 39.99 kg/m²), and 3.08% ($n = 4$) were obese class 3 (BMI ≥ 40 kg/m²). The difference between obesity in the PTSD sample and the non-PTSD sample was not significant ($p = 0.267$). A significant minority (20.8%, $n = 27$) of the sample endorsed suicidal ideation in the past 30 days. Six participants (4.61%) reported a lifetime suicide attempt. Demographic comparisons between the PTSD and non-PTSD sample are listed in Table 2. Veterans who did not meet criteria for PTSD in the last month had slightly yet significantly higher levels of education ($M = 14.59$, $SD = 2.90$) compared to those who did meet criteria ($M = 13.49$, $SD = 1.72$, $t(125) = 2.47$, $p = 0.015$). The PTSD sample and non-PTSD sample did not differ significantly on any other demographic variables.

2.5. Moderated regression analysis

None of the demographic characteristics entered in step 1 significantly predicted suicidal ideation. However, as expected, both BMI and PTSD symptoms did predict suicidal ideation. The PTSD symptoms × BMI interaction term was also significant, indicating that BMI moderates the association between PTSD symptoms and suicidal ideation, $\beta = 0.27$, $p = 0.001$, $F = 7.13$, $R^2 = 0.07$. Overall, the model predicted 27% of the variance (Table 2). Post-hoc probing of the interaction revealed that the association between PTSD symptoms and suicidal ideation was strongest among individuals with higher BMI, whereas the association between PTSD symptoms and suicidal ideation was weakest among individuals with lower BMI (Figure 1). Simple slope tests indicated that the association between PTSD symptoms and suicidal ideation was not significant when BMI was in the healthy range (i.e., BMI = 25; slope = 0.026, $t = 0.063$, $p = 0.95$). In contrast, when BMI was in the obese range (i.e., BMI = 35), the association between PTSD symptoms and suicidal ideation was highly significant (slope = 1.893, $t = 4.444$, $p < 0.001$).

3. Discussion

The current study contributes to the literature by elucidating the association between PTSD symptoms, suicidal ideation, and self-reported BMI in a sample of Iraq/Afghanistan veterans seeking VA healthcare. In veterans who exhibited a higher BMI, there was a strong positive association between PTSD symptoms and suicidal ideation. When these veterans had a lower BMI, the association between PTSD symptoms and suicidal ideation was weaker. Results of the study suggest that BMI may increase risk for suicidal ideation, a proximal risk factor for suicide, in Iraq and Afghanistan-era veterans with PTSD, which is consistent with literature reporting that PTSD and BMI independently increase the risk of suicidal ideation among Iraq and Afghanistan-era veterans (Jakupcak et al., 2009; Carpenter et al., 2000),

Though both PTSD and BMI increase risk of suicidal ideation, this study suggests that the co-occurrence of severe PTSD symptoms and high BMI increases this risk even more for Iraq and Afghanistan-era veterans than either health problem separately. The mechanisms of this increase are unclear, but could be related to biological and social factors. One potential explanation is that health-promoting behaviors may buffer the relationship between PTSD symptoms and suicidal ideation. Health promoting behaviors are behaviors that promote physical activity, nutrition, stress management, health responsibility, spiritual growth, and interpersonal relationships (Walker et al., 1995). For example, it is possible that engaging in health promoting behaviors might moderate the relationship between PTSD symptoms and suicidal ideation, as lower participation in health promoting behaviors has been linked to higher BMI (Nies et al., 1998).

Another factor influencing the association among PTSD, BMI, and suicidal ideation may be social support. Similar to health promoting behaviors, research suggests that social support buffers the relationship between PTSD and depressive symptoms and suicidal ideation (DeBeer et al., 2014). Iraq and Afghanistan-era veterans with PTSD may have low perceived social support due to mental health stigma (Pietrzak et al., 2009), PTSD symptoms (i.e., irritability, avoidance, detachment; Kotler et al., 2001; King et al., 2006), and post-deployment reintegration problems (Khaylis et al., 2011). Further, individuals who are obese may also struggle with low social support due to stigma related to obesity (Puhl et al., 2010) as well as perceived burdensomeness and thwarted belongingness (Dutton et al., 2013). Thus, Iraq and Afghanistan-era veterans who suffer from both PTSD and obesity may perceive particularly low levels of social support related to both conditions (Dutton et al., 2013; Tsai et al., 2012), which may compound, thus increasing the risk for suicide.

Biological factors also likely play a role in this complex relationship. Allostatic load is the “wear and tear” on the brain and the body due to overuse of the body’s adaptive systems in response to chronic stress (McEwen, 1998). Evidence indicates that individuals with PTSD have a high allostatic load (Friedman and McEwen, 2004), which can lead to physical health problems, including obesity (Friedman and McEwen, 2004). Exposure to chronic stress also increases the risk of metabolic syndrome, a cluster of symptoms including obesity. Metabolic syndrome has been shown to increase incidence of suicide attempts in individuals with bipolar disorder, a psychiatric condition with an already high risk of suicide (Fagioli

et al., 2005). Metabolic syndrome and high allostatic load may have a similar effect on veterans with PTSD, increasing the already present risk for suicide.

Medications used to treat PTSD may also be implicated in the increase of BMI among individuals with PTSD. Selective serotonin reuptake inhibitors (SSRIs) are the first line pharmacological treatment for PTSD (Asnis et al., 2004; Mohamed and Rosenheck, 2008). Though SSRIs have a lower incidence of weight gain than other antidepressants, weight gain is still a common side effect of SSRIs (Fava, 2000). Antipsychotics are also frequently prescribed for PTSD in veterans receiving treatment from the VA, especially when SSRIs are ineffective (Mohamed and Rosenheck, 2008), and antipsychotics are well-known for causing significant weight gain (see Allison and Casey, 2001 for a review). Studies of pharmacotherapy in the VA healthcare system indicate that of the 80% of patients with PTSD treated with medication, 89% were prescribed SSRIs, and 34% were prescribed antipsychotics (Mohamed and Rosenheck, 2008). These medications may contribute to the increased BMI among veterans with PTSD.

3.1. Implications

These findings suggest that VA and veteran-specific community programs and interventions that target suicide prevention may need to target health more holistically, including the role of high BMI and health-related behaviors. VA has made tremendous strides in developing obesity reduction programs, such as the MOVE weight management program and nutrition consultations. However, participating in these programs is not typically coordinated with PTSD treatment or suicide prevention programs. Further, there may be stigma associated with seeking mental health treatment, especially among veterans (Pietrzak et al., 2009; Kim et al., 2011). Veterans may be more willing to seek medical help for physical health problems such as obesity. Given the evidence from this and other studies that suggest that psychological and physical health risk factors for suicide are linked, coordination between PTSD clinical teams, nutritionists, the MOVE program, and suicide prevention programs may be useful by offering a more holistic approach to both mental and physical health.

4.2. Limitations

This study has several limitations. BMI was calculated using self-reported weight and height, which may be subject to self-presentation bias and participant error. When asked to self-report weight, participants typically underestimate their weight by 1.1 to 9.9lbs (Gorber et al., 2007; Cash et al., 1989). Ideally, future studies not rely on self-report but will measure weight and height, even though many studies in the existing literature (e.g., Carpenter et al., 2000; Dobie et al., 2004; Dong et al., 2006; Dutton et al., 2013; Mukamal et al., 2007; Stunkard and Albaum, 1981) have used self-reported height and weight. Additionally, all participants were enrolled in VA healthcare in central Texas, which may limit generalizability to veterans who are not receiving VA healthcare. Though gender was included in the regression analyses and the proportion of females in the sample was similar to the overall proportion of female Iraq and Afghanistan veterans (17%; Department of Veterans Affairs, 2014), the small proportion of the sample that was female limits these analyses. There is research indicating that the effect of BMI on suicidal ideation may differ by gender (e.g., Carpenter et al., 2000). Future studies should investigate this association

among females. Finally, the current study was cross-sectional, and future research should examine these factors prospectively and longitudinally. Of the utmost importance, further research is needed to determine whether participation in programs that address obesity such as the MOVE program or nutrition programs decrease suicidal ideation in veterans. Despite these limitations, this study sheds light on the association among suicidal ideation, PTSD, and obesity, and furthers our understanding of the link between physical and psychological health problems as risk factors for suicide.

4.3. Conclusions

Given the high prevalence of suicide, PTSD, and obesity in the Iraq/Afghanistan veteran population, increasing the interdisciplinary nature of health and mental health care for veterans is of utmost importance. Programs that focus on health promotion, trauma treatment, and obesity reduction should continue to monitor suicide risk. Obesity is a modifiable risk factor that has far reaching impacts on improving health and wellbeing among this generation of returning veterans.

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Figure 1.

Plot of BMI and PTSD Symptoms Interaction Predicting Suicidal Ideation among Iraq and Afghanistan-era Veterans (N=130)

NOTE: BMI = Body Mass Index; BSS = Beck Scale for Suicidal Ideation; PTSD Posttraumatic stress disorder symptoms (measured using the Clinician Administered PTSD Scale). Please note that log-transformed BSS scores were used in the primary analysis (Table 3); however, raw BSS scores are presented here in order to facilitate interpretation of the interaction.

Table 1

Participant Characteristics of Iraq and Afghanistan-era Veterans (N=130)

Demographics	M (SD)	N (%)
Age	37.78 years (<i>SD</i> = 10.62)	
Gender	Male	110 (85.3%)
	Female	19 (14.7%)
Years of Education	14.14 years (<i>SD</i> = 2.49)	
Race	White	82 (64.6%)
	Black	24 (18.9%)
	Asian	5 (3.9%)
	American Indian/ Alaska Native	3 (2.4%)
	Hawaiian/Pacific Islander	1 (0.8%)
	Other	12 (9.4%)
Ethnicity	Hispanic or Latino	34 (26.6%)
BMI	29.50 (<i>SD</i> = 4.87)	
CAPS Total Score	45.20 (<i>SD</i> = 30.19)	
Past 30 Days		
BSS Total Score	0.02 (<i>SD</i> = 0.07)	
Log Transformed		

Note: BMI = body mass index; CAPS = Clinician Administered PTSD Scale; BSS = Beck Scale for Suicidal Ideation

Table 2
Participant Demographics Comparison Between Veterans with and without PTSD Diagnoses

Demographics	Met PTSD Criteria in Last Month (N=52)		Did not Meet PTSD Criteria in Last Month (N=78)		p-values
Age	M (SD)	N (%)	M (SD)	N (%)	0.172
	36.48 years (8.83)		39.08 years (11.66)		
Gender					0.412
Male		48 (88.9%)		62 (79.49%)	
Female		6 (11%)		13 (16.67%)	
Years of Education	13.49 years (1.72)		14.59 years (2.90)		0.015 *
Race					0.620
White		35 (64.8%)		47 (60.26%)	
Black		11 (20.4%)		13 (16.67%)	0.640
Asian		2 (3.7%)		3 (3.84%)	0.729
American Indian/Alaskan Native		2 (3.7%)		1 (1.28%)	0.373
Hawaiian/Pacific Islander		0 (0%)		1 (1.28%)	0.397
Other		4 (7.4%)		8 (10.26%)	
Ethnicity					0.006 **
Hispanic or Latino		21 (38.9%)		13 (16.67%)	
BMI	30.25 (4.85)		29.28 (4.77)		0.267
CAPS Total Score Past 30 Days	74.33 (15.71)		23.95 (17.94)		<0.001 ***
BSS Total Score Log Transformed	0.040 (0.08)		0.005 (0.03)		0.002 **

Note: BMI = body mass index; CAPS = Clinician Administered PTSD Scale; BSS = Beck Scale for Suicidal Ideation

* $p < 0.05$

** $p < 0.01$

*** $p < 0.001$

Table 3

Summary of the Regression Model Predicting Suicidal Ideation (N=130)

	R^2	β
Step 1	0.030	
Gender		-0.02
Age		-0.16
Education Level		-0.03
Step 2	0.116	
BMI		0.35 **
Step 3	0.057	
CAPS		0.25 *
Step 4	0.070	
CAPS $\times$ BMI		0.27 **

Note: BMI = body mass index; CAPS = Clinician Administered PTSD Scale; BSS = Beck Scale for Suicidal Ideation; Regression coefficients are standardized.

*
 $p < 0.05$

**
 $p < 0.01$