Direct and Indirect Effects of Mindfulness, PTSD, and Depression on Self-Stigma of Mental Illness in OEF/OIF Veterans

Blinded for review1,3
Blinded for review1,4
Blinded for review1
Blinded for review1,3
Blinded for review5

Author Affiliations

1 Blinded for review
2 Blinded for review
3 Blinded for review
4 Blinded for review
5 Blinded for review

Word count: 2,748

Highlights:
- This the first article to model associations between mindfulness, symptoms of PTSD and depression, and self-stigma of mental illness in military veterans.
- Most veterans who leave service with symptoms of PTSD and depression do not seek treatment, and self-stigma is a key barrier.
- Results of the present study showed that mindfulness was directly associated with less PTSD and depression and indirectly associated with less self-stigma via its effect on PTSD.
- Mindfulness may be a promising intervention target for improving mental health outcomes in military veterans

Disclosure: The authors have no conflicts of interest to disclose.
Abstract

Objective: Two of the most common and costly mental health diagnoses among military veterans who served in the post 9/11 conflicts in Afghanistan and Iraq are posttraumatic stress disorder (PTSD) and depression, but over half of veterans who screen positive for these problems do not seek treatment. A key barrier is self-stigma of mental illness. Mindfulness has shown promise as an explanatory variable in context of mental health symptoms and self-stigma, but these associations are underexplored in the veterans’ literature. This study examines direct and indirect effects among mindfulness, PTSD and depression, and self-stigma in post 9/11 era military veterans. Method: A sample of 577 veterans from three large American cities completed surveys capturing mindfulness, symptoms of PTSD and depression, and self-stigma. A structural equation modeling approach was used to examine direct and indirect effects among study variables. Results: Mindfulness was associated with less PTSD and depression and indirectly with less self-stigma through the PTSD pathway. PTSD was associated with more depression and self-stigma, and depression was not significantly associated with self-stigma. Conclusion: PTSD is strongly associated with self-stigma in military veterans, many of whom do not seek mental health treatment. Findings show that mindfulness is a promising intervention target for reducing symptoms of PTSD directly and reducing associated self-stigma of mental illness indirectly. Additional investigation of links between mindfulness, PTSD and depressive symptoms, and self-stigma in military veterans is warranted.

Key Words: Veterans, mindfulness, PTSD, depression, stigma

Clinical impact statement:
Veterans of the post 9/11 military conflicts in Afghanistan and Iraq are at elevated risk for PTSD and depression, but the majority of veterans who screen positive for these disorders do not
Mindfulness, PTSD and Depression, and Self-Stigma in Veterans

pursue mental health treatment. Self-stigma of mental illness is a core barrier. This study explored associations between PTSD and depression, self-stigma of mental illness, and mindfulness. Results showed that mindfulness had negative direct associations with PTSD and depression, and negative indirect associations with self-stigma via lowered PTSD. Mindfulness may represent a fruitful intervention target for military veterans who struggle with symptoms of PTSD and depression as well as self-stigma.

Introduction

Two of the most common and costly mental health diagnoses among military veterans who served in the recent conflicts in Afghanistan (Operation Enduring Freedom; OEF) and Iraq (Operation Iraqi Freedom; OIF) are posttraumatic stress disorder (PTSD) and depression (Bruce, 2010; Kang et al., 2015; Seal et al., 2009). Longitudinal research shows that PTSD and depression are highly comorbid in military service members and veterans (Stander, Thomsen, & Highfill-McRoy, 2014). One key barrier to an adaptive transition to civilian life for OEF/OIF veterans who separate from the military with symptoms of PTSD, depression, or other mental health problems, is self-stigma. Prior research has noted that self-stigma among military veterans is associated with a myriad of difficulties including reduced likelihood of seeking help for mental health problems and poor mental health treatment outcomes (Acosta et al., 2014; Deviva et al., 2016). Understanding pathways that mitigate self-stigma for military veterans with mental health problems can aid practitioners and agencies in facilitating appropriate and directed mental health services.

Perceived self-stigma is defined as negative judgments, attitudes, and beliefs that inform an individual’s view of for example, seeking treatment for mental health problems (N. B. Brown
Mindfulness, PTSD and Depression, and Self-Stigma in Veterans
& Bruce, 2016; Corrigan & Watson, 2002). Self-stigma related to mental illness is evident
among veterans, where internalized concerns about mental health service use are also grounded
in the military’s historical record of institutional stigma around mental health problems (Acosta
et al., 2014). While the military has made attempts to destigmatize help-seeking for mental
health problems at the institutional level, concerns persist among many military service members
that seeking help for mental health problems will affect how they are perceived by peers and
leadership (Acosta et al., 2014). In fact, studies have demonstrated that veterans who met criteria
for a mental health problem were substantially more likely to endorse internalized mental health
stigma (Hoge et al., 2004; Kim, Britt, Klocko, Riviere, & Adler, 2011).

In this context, recent research has noted the importance of investigating protective
factors that may mitigate self-stigma related to mental health problems (Acosta et al., 2014). One
psychological factor that has received increased attention in the military behavioral health
literature mindfulness. Mindfulness is defined as bringing complete attention to present
experience (Marlatt & Kristeller, 1999) and paying attention on purpose to present moment
experiences without judgment or elaboration (Kabat-Zinn, 2003). Theoretically, it is posited that
mindful attention applied to present-moment experiences, regardless of their agreeable or
aversive nature, may decrease risk for developing mental health symptoms and facilitate adaptive
coping behaviors following adverse experiences (Thompson, Arnkoff, & Glass, 2011;
Vujanovic, Niles, Pietrefesa, Schmertz, & Potter, 2011). Because mindfulness is characterized by
attention control, nonjudgment, and acceptance, it may buffer against self-stigma of mental
illness, which reflects an attitude of judgment and nonacceptance towards internal experiences.
Recently, empirical research examining this possibility has noted that trait mindfulness may play
a role in mitigating both the development of mental health symptoms and self-stigma of mental
Mindfulness, PTSD and Depression, and Self-Stigma in Veterans

illness (Gonzalez et al., 2016). Others findings note that more mindful individuals may experience less severe PTSD and depressive symptoms (Vujanovic et al., 2011) as well as less self-judgment related to unpleasant cognitions and emotions (Baer, Lykins, & Peters, 2012; Luoma & Platt, 2015). Among non-military samples, evidence suggests that psychological constructs related to mindfulness, including nonjudgment (Ciesla, Reilly, Dickson, Emanuel, & Updegraff, 2012) and cognitive flexibility (Moore & Malinowski, 2009), can reduce mental health stigma and improve rates of mental health service use (Corrigan, Watson, & Barr, 2006; Masuda et al., 2007). While few studies have investigated similar associations among military samples, a recent study found that lower mindfulness was a significant predeployment predictor of postdeployment distress, anxiety, and arousal in a study of combat deployed National Guard soldiers (Call, Pitcock, & Pyne, 2015). Thus, mindfulness may exert direct effects on symptoms of PTSD and depression as well as direct and indirect effects on self-stigma. Taken together, these findings suggest that mindfulness may be an important factor in helping to explain associations between mental health symptoms and self-stigma of mental illness in military veterans.

**Current Study**

The literature reviewed above suggests that links between mindfulness, PTSD, depression and self-stigma of mental illness merit additional investigation in OEF/OIF era military veterans. While previous studies have examined associations between mental health problems and stigma in veteran samples, no study has investigated the direct and indirect effects of mindfulness on PTSD and depressive symptoms and self-stigma. The present study addresses this gap in the literature by employing a structural equation modeling (SEM) approach to investigate the following hypotheses: 1. mindfulness will be negatively associated with PTSD (path A),
Mindfulness, PTSD and Depression, and Self-Stigma in Veterans
depressive symptoms (path B), and self-stigma (path C); 2. PTSD will be positively associated
with depression (path D) and self-stigma (path E); 3. depression will be positively associated
with self-stigma (path F); and finally, there will be a negative indirect effect for mindfulness on
self-stigma through the 4a. PTSD and 4b. depression pathways. Consistent with common
practice in the military behavioral health literature, the control variables age, gender,
race/ethnicity, marital status and education were included in statistical models (Dedert et al.,
2009; Vasterling et al., 2010; Vujanovic et al., 2011). In addition, previous research has
demonstrated positive associations between stigma of mental illness and male gender, minority
race, and lower educational attainment (Corrigan & Watson, 2002; Byrne, 2000). A conceptual
model of hypothesized associations between study constructs is presented in Figure 1.

**Method**

**Participants and Procedures**

Participants were recruited from a sampling frame of veterans (N = 4,961) who
participated in previous veteran survey research (Castro, Kintzle, & Hassan, 2015; Castro &
Kintzle, 2017; Castro, Kintzle, & Hassan, 2014; Kintzle, Rasheed, & Castro, 2016) and agreed to
be re-contacted for future studies. Initial screen-in criteria were current veteran status and
separation from the military after September 11, 2001. Upon completing the survey, participants
received a $15 electronic Amazon gift card. Data collection was conducted from July 2016 to
February 2017. All procedures were approved by the University Institutional Review Board. The
final analytic sample was 577.

**Measures**

**Mindfulness.** Mindfulness was measured using the Mindful Attention and Awareness
Scale (MAAS; K. W. Brown & Ryan, 2003), a unidimensional 15-item measure with a 6-point
Mindfulness, PTSD and Depression, and Self-Stigma in Veterans

Likert-type scale. Response options range from 1 “almost always” to 6 “almost never”. Higher scores indicate more mindful attention. Sample item: “I find myself doing things without paying attention.”. Higher scores indicate higher attention awareness. The MAAS had excellent internal consistency in the current study (α = .93) and has demonstrated strong reliability and validity in previous psychometric analyses (MacKillop & Anderson, 2007; Osman, Lamis, Bagge, Freedenthal & Barnes, 2016).

**Posttraumatic stress disorder.** PTSD was measured using the 20-item PTSD Checklist for DSM-5 (PCL-5; Weathers et al., 2013). Participants responded to each item on a 5-point Likert-type scale with options ranging from 1 “Not at all” to 5 “Extremely”. Responses to the 20 items result in a score from 0–80, with a clinical cutoff score of 33 indicating probable PTSD. Sample item: “In the past month, how much were you been bothered by: repeated, disturbing, and unwanted memories of the stressful experience?” The PCL-5 demonstrated excellent internal consistency in the current study (α = .96). The PCL-5 has shown strong reliability and validity in previous psychometric analyses (Bovin et al., 2016; Wortmann et al., 2016).

**Depression.** Depression was measured using the Patient Health Questionnaire 9 (PHQ-9; Kroenke, Spitzer, & Williams, 2001). Participants responded on a 4-point Likert-type scale with options ranging from 0 “not at all” to 3 “nearly every day”. Scores on the PHQ-9 range from 0 to 27, with a clinical cutoff score of 10 indicating probable depression. The PHQ-9 demonstrated very good internal consistency in these data (α = .89). The PHQ-9 has shown strong reliability and consistency in previous psychometric studies (Arroll et al., 2010).

**Self-stigma.** Self-stigma of mental health help-seeking was measured with the widely used Self-Stigma of Seeking Help Scale (SSOSH; Vogel, Wade, & Haake, 2006). The SSOSH is a unidimensional 10-item measure with a 5-point Likert-type scale ranging from 1 “strongly
Mindfulness, PTSD and Depression, and Self-Stigma in Veterans
disagree” to 5 “strongly agree.” Sample item: “I would feel inadequate if I went to a therapist for
psychological help.” The SSOSH demonstrated acceptable internal consistency in these data (α = .80). The SSOSH has demonstrated good reliability and validity in previous studies (DeBate, Gatto & Rafal, 2018; Topkaya, 2014; Tucker et al., 2013).

**Analytic Plan**

Confirmatory factor analysis was conducted for MAAS, PHQ9, and SSOSH instruments to compute measurement models for mindfulness, depression, and self-stigma latent factors. PCL-5 items were parceled across the four subscales and subscale means employed as observed indicators of the overall PTSD latent factor. Full scale CFAs were specified for MAAS, PHQ9, and SSOSH instrument and items with factor loadings greater than .60 were retained to generate measurement models for inclusion in the full SEM. Model fit was assessed with values for CFI and TLI > .95 and RMSEA < .08 used to indicate good model fit (Hu & Bentler, 1999; Kline, 2011).

Next, a series of direct and indirect effects models in were used to assess associations between study variables. Direct effects models assessed the extent to which mindfulness was associated with PTSD (path A), depression (path B), and self-stigma (path C); the extent to which PTSD was associated with depression (path D) and self-stigma (path E); and the extent to which depression was associated with self-stigma (path F). Indirect effect models assessed the extent to which mindfulness was associated with self-stigma through PTSD and depression pathways. All direct and indirect effects models were tested using regression analyses with bootstrapped standard errors (iterations=10,000), which is a method commonly used in a SEM context that does not require distributional assumptions of normality for parameters (Davis, Dumas, & Roberts, 2018). Multiple co-variates (gender, age, marital status) were assessed using
Mindfulness, PTSD and Depression, and Self-Stigma in Veterans

bi-variate correlations. As recommended by Muthén and Muthén (Muthén & Muthén, 2015), only level of education was included as a covariate in direct and indirect effects models because of its significant correlation with both exogenous and endogenous predictors and the dependent variable self-stigma. All models were specified in Mplus 7.14 (Muthén & Muthén, 2012)

Results

Descriptive statistics show that the average age of respondents was 38.78 (SD = 8.78), were nearly 80% (n = 444) male and that nearly 90% (n = 486) reported at least one combat deployment. Participants reported average scores of 11.52 (SD = 6.75) for the PHQ-9 and 38.16 (SD = 20.26) for the PCL-5. Results showed that 63.43% of respondents scored above the clinical cut-point of 33 for the PCL-5, and 62.56% scored above the moderate depression cut-point for the PHQ9. See Table 1 (descriptive statistics) and Table 2 (correlations) for more information.

Measurement Models

The empirically derived measurement model for the mindfulness latent factor comprised MAAS items 7–10, 13, and 14; model fit indices were $\chi^2(9, 550) = 38.8, p < 0.001$, CFI = 0.98, TLI = 0.97, and RMSEA = 0.08 (90% CI [0.05, 0.10]). The measurement model for the depression latent factor comprised PHQ-9 Items 1–8; model fit indices were $\chi^2(9, 550) = 38.80, p<0.001$, CFI = 0.95, TLI = 0.93, and RMSEA = 0.10 (90% CI [0.08, 0.12]). The measurement model for the PTSD latent factor comprised the four parceled PCL-5 subscale items; model fit indices were $\chi^2(2, 549) = 23.90, p < 0.001$, CFI = 0.98, TLI = 0.96, and RMSEA = 0.14 (90% CI: .09, .19). The measurement model for the self-stigma latent factor comprised SSOSH Items 1, 3, 6, 8, and 10; model fit indices were $\chi^2(5, 552) = 10.40, p < .001$, CFI = 1.00, TLI = 0.99, and RMSEA = 0.04 (90% CI: 0.00, 0.08). All Factor loadings are presented in Table 3.
Mindfulness, PTSD and Depression, and Self-Stigma in Veterans

**Direct Effects**

To address hypothesis 1, we assessed the extent to which mindfulness predicted PTSD (path A), depression (path B), and self-stigma (path C). All reported effects are standardized. In paths A and B respectively, mindfulness had a negative direct effect on PTSD ($\beta = -0.74$, $p < 0.001$) and depression ($\beta = -0.14$, $p < 0.01$). This is interpreted to mean a unit increase in mindfulness is associated with a 0.74 and 0.14 standard deviation decrease in PTSD and depression, respectively. However, for path C, the direct effect of mindfulness on self-stigma was not significant. To address hypothesis 2, we assessed the extent to which PTSD predicted depression (path D) and self-stigma (path E) as well as the extent to which depression predicted self-stigma (path F). Both path D examining the direct effect of PTSD on depression ($\beta = 0.90$, $p < 0.001$) and path E examining the direct effect of PTSD on self-stigma ($\beta = 0.40$, $p < 0.001$) were positive and significant. However, path F examining the direct effect of depression on self-stigma was not.

**Indirect Effects**

To address hypotheses 3a and 3b, we assessed the extent to which mindfulness indirectly predicted self-stigma though reduced PTSD and depressive symptom pathways. Hypothesis 3a was supported; mindfulness had a significant negative indirect effect on self-stigma through the PTSD pathway ($\beta = -0.48$, $p < 0.001$). This is interpreted to mean that for a unit increase in mindfulness, we can expect to see nearly half a standard deviation decrease in self-stigma via lower PTSD symptomatology. However, the indirect effect for mindfulness on self-stigma through the depression pathway hypothesized in 3b was not significant. The overall structural model demonstrated acceptable fit to the data, $\chi^2(262, 552) = 1019.35$, $p < 0.001$, CFI = 0.91, TLI =
Mindfulness, PTSD and Depression, and Self-Stigma in Veterans

0.90, RMSEA = 0.07 (95% CI: 0.07, 0.08). Factor loadings and standard errors for the full model are presented in Table 3. Direct effects are presented in Figure 2.

Discussion

The purpose of this study was to examine direct effects among mindfulness, PTSD and depressive symptoms, and self-stigma, as well as indirect effects of mindfulness on self-stigma through PTSD and depressive symptom pathways. Most OEF/OIF veterans who screen positive for mental health problems also report high levels of self-stigma (Hoge et al., 2004; Kim et al., 2011). Recent research suggests heightened self-stigma is associated with less mental health service use and other poor treatment outcomes. This study advances our understanding of how mindfulness can mitigate both symptoms of mental health (e.g., PTSD, depression) and associated self-stigma.

We found support for our first hypothesis, that mindfulness would be negatively associated with PTSD and depression. These findings are consistent with previous research (Bhatnagar et al., 2013; Call et al., 2015; Kearney, et al., 2012) showing that individuals who report higher levels of trait mindfulness also report lower levels of depression and trauma related symptomology. While we are unable to draw causal inferences in the context of these cross-sectional data, the robust negative associations between mindfulness and mental health symptoms suggest that attention control and present moment focus may provide a protective effect against the development of two of the most common mental health disorders evident in combat deployed military veterans. Nevertheless, alternative explanations for these associations are possible. For example, it may be that PTSD and depression degrade trait mindfulness or that bidirectional associations best describe relations between these variables. In addition, one of our expectations stipulated in hypothesis 1 was not supported, as we did not detect a significant
Mindfulness, PTSD and Depression, and Self-Stigma in Veterans
direct effect of mindfulness on self-stigma of mental illness. It may be that the association
between mindfulness and self-stigma of mental illness depends on the presence of mental health
symptoms, as logically, no self-stigma would exist in the absence of mental health symptoms.
Alternatively, mindfulness, as an experiential process, may have a stronger association with
experiential processes like PTSD and depression rather than attitudinal processes like stigma.

Further, we found PTSD was positively associated with depression and self-stigma, but
the direct effect of depression on self-stigma was not significant. This pattern of findings
suggests that PTSD is closely linked to symptoms of depression in combat deployed veterans,
and may in fact be a driver of these symptoms (Ginzburg, Ein-Dor, & Solomon, 2010; Stander et
al., 2014). Other research has shown that chronic expressions of PTSD in military veterans are
nearly indistinguishable from comorbid PTSD and depression, lending further support to this
explanation (O’Donnell, Creamer, & Pattison, 2004). However, the PCL-5 contains a
cognitive/emotional symptom cluster that includes depressive symptom criteria, so it may also be
that the PTSD latent factor absorbed much of the statistical variance in depressive
symptomology. In addition, PTSD alone was linked to self-stigma in these data. It may be that
depressive symptoms simply do not carry the stigma burden that PTSD symptoms do in the
veteran context. This view is consistent with the military occupational health model of trauma
(Adler & Castro, 2013), which suggests that veterans may view PTSD reactions as an inability to
navigate the combat duties for which they have been trained and prepared, in distinction to
depressive symptoms which may be perceived as non-combat related or experienced somatically.

We also detected a significant indirect effect for mindfulness on self-stigma through the
PTSD pathway. That is, higher mindfulness was associated with reduced self-stigma due to the
negative relationship between mindfulness and PTSD symptoms. Thus, the current results
Mindfulness, PTSD and Depression, and Self-Stigma in Veterans
suggest that enhancing mindfulness skills may reduce self-stigma indirectly by reducing PTSD symptomology. Although associations between mindfulness, mental health symptoms, and self-stigma have not previously been investigated in a veteran population, our findings are consistent with civilian studies demonstrating that mindfulness is associated with less stigmatized beliefs toward individuals with mental illness (Masuda et al., 2007), and that mindfulness may influence the association between mental health symptoms and internalized stigma in individuals with mental health symptoms (Chan & Lam, 2017). This finding implies that enhancing mindfulness in military veterans may reduce the stigma barrier to seeking mental health treatment. Research further suggests that focusing attention and awareness on present-moment experiences may decrease shame, guilt, and nonacceptance related to mental health symptoms, and that mindful individuals may be more open to discussing thoughts and emotions with mental health service providers (Henning & Frueh, 1997; Vujanovic et al., 2011). Mindfulness may have the added effect of indirectly reducing self-stigma associated with mental health symptoms in this population. Observing thoughts and emotions nonjudgmentally, without avoidance or reactivity, may assist in reducing stigmatizing value judgments linked to mental health symptoms. Further study of the mechanisms of action by which mindfulness affects self-stigma and perceived public stigma seem warranted in light of strong direct effects of mindfulness on PTSD and PTSD on self-stigma, as well as the strong indirect effect mindfulness on self-stigma in these data.

Limitations and Conclusions

This study has several limitations. We analyzed cross-sectional data, and therefore we cannot conclude that the observed relationships are causal in nature. In addition, respondents endorsed higher rates of PTSD and depressive symptoms than those observed in other veteran studies and there was substantial variability in these scale scores, which may make generalization
Mindfulness, PTSD and Depression, and Self-Stigma in Veterans to the larger veteran population more difficult. Furthermore, this study employed a unidimensional measure of mindfulness which, though used frequently in mindfulness research, did not allow for modelling of additional dimensions of mindfulness, including nonjudgment. Finally, some fit indices for measurement models were outside rule of thumb model fit boundaries, though all fit indices were within the bounds of acceptable fit for the full structural model.

Together, findings from the current study suggest that enhancing mindfulness skills in veterans and military service members may serve two important functions. First, mindfulness may provide a primary protective effect against PTSD and depression. Second, greater mindfulness may indirectly lead to reductions in self-stigma by reducing the intensity of PTSD and depressive symptoms, potentially removing a critical barrier to accessing mental health services in this population. There is robust evidence demonstrating that mindfulness can be enhanced through training (Jha, Krompinger & Baime, 2007; Zeidan et al., 2010), and emerging evidence indicates that mindfulness-based interventions can improve psychological resilience and physiological stress recovery in first responder and military samples (Kaplan et al., 2017; Stanley et al., 2011). Interventions that seek to develop mindfulness skills in active duty and recently separated veteran populations are warranted, as the present results suggest that improvements in mindfulness may reduce the incidence of mental health problems and the self-stigma that often accompanies them.
Mindfulness, PTSD and Depression, and Self-Stigma in Veterans


*Mental Health Stigma in the Military.* RAND Corporation. https://doi.org/10.7249/RR426


Mindfulness, PTSD and Depression, and Self-Stigma in Veterans


https://doi.org/10.1080/15374416.2012.698724


https://doi.org/10.1177/2167696817725608


https://doi.org/10.1037/tra0000075
Mindfulness, PTSD and Depression, and Self-Stigma in Veterans


Mindfulness, PTSD and Depression, and Self-Stigma in Veterans

https://doi.org/10.1016/j.annepidem.2014.11.020


https://doi.org/10.1007/s12671-017-0713-2

of participation in a mindfulness program with measures of PTSD, depression and quality of

https://doi.org/10.1002/jclp.20853

Attitudes About Treatment, and Utilization of Mental Health Care Among Soldiers.

Chicagoland veterans study. *University of Southern California Center for Innovation and
Research on Veterans and Military Families*.

Williams, M., & Vogt, W. P. *The SAGE handbook of innovation in social research

Internal Medicine*, 16(9), 606–613. https://doi.org/10.1046/j.1525-1497.2001.016009606.x


https://doi.org/10.1016/j.copsyc.2014.12.016
Mindfulness, PTSD and Depression, and Self-Stigma in Veterans


Mindfulness, PTSD and Depression, and Self-Stigma in Veterans


Mindfulness, PTSD and Depression, and Self-Stigma in Veterans

https://doi.org/10.1037/0022-0167.53.3.325


https://doi.org/10.1037/t02622-000


Table 1. Descriptive Statistics

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>%</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21–29</td>
<td>66</td>
<td>11.87</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30–39</td>
<td>273</td>
<td>49.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40–49</td>
<td>150</td>
<td>26.98</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50–59</td>
<td>51</td>
<td>9.17</td>
<td></td>
<td></td>
</tr>
<tr>
<td>60+</td>
<td>16</td>
<td>2.88</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Race</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>273</td>
<td>49.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>59</td>
<td>10.61</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Latino</td>
<td>144</td>
<td>25.90</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>80</td>
<td>14.39</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>444</td>
<td>79.86</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>111</td>
<td>19.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transgender</td>
<td>1</td>
<td>0.18</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Education</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Mindfulness, PTSD and Depression, and Self-Stigma in Veterans

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>High school degree</td>
<td>183</td>
<td>32.91</td>
</tr>
<tr>
<td>College degree</td>
<td>294</td>
<td>52.88</td>
</tr>
<tr>
<td>Advanced degree</td>
<td>77</td>
<td>14.21</td>
</tr>
</tbody>
</table>

Marital status

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Single</td>
<td>97</td>
<td>17.48</td>
</tr>
<tr>
<td>Married or cohabiting</td>
<td>362</td>
<td>65.22</td>
</tr>
<tr>
<td>Separated</td>
<td>96</td>
<td>17.29</td>
</tr>
</tbody>
</table>

Deployed                 | 486    | 87.52  |

PCL-5                    | 530    | 38.16  | 20.26  |
PHQ-9                    | 535    | 11.52  | 6.75   |
MAAS                     | 538    | 3.33   | 1.00   |
SSOSH                    | 547    | 26.04  | 6.40   |

Note. PCL-5 = PTSD Checklist for DSM-5; PHQ-9 = Patient Health Questionnaire 9; MAAS = Mindful Attention and Awareness Scale; SSOSH = Self-Stigma of Seeking Help Scale.

Table 2. Correlation matrix for study variables

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.MAAS mean</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.PCLM mean</td>
<td>-0.75***</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.PHQ9 mean</td>
<td>-0.73***</td>
<td>0.86***</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>4.SSOSH mean</td>
<td>-0.34***</td>
<td>0.42***</td>
<td>0.37***</td>
<td>1</td>
</tr>
</tbody>
</table>

*P<0.05, **P<0.01, ***P<0.001
### Table 3. Factor Loadings for Measurement Models

<table>
<thead>
<tr>
<th></th>
<th>Estimate</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mindfulness</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MAAS item 8: I rush through activities without being really attentive to them</td>
<td>0.85</td>
<td>0.02</td>
</tr>
<tr>
<td>MAAS item 14: I find myself listening to someone with one ear, doing something else at the same time</td>
<td>0.8</td>
<td>0.02</td>
</tr>
<tr>
<td>MAAS item 7: It seems like I am “running on automatic”, without much awareness of what I’m doing</td>
<td>0.78</td>
<td>0.02</td>
</tr>
<tr>
<td>MAAS item 10: I do jobs or tasks without being aware of what I’m doing</td>
<td>0.76</td>
<td>0.02</td>
</tr>
<tr>
<td>MAAS item 9: I get so focused on the goal I want to achieve that I lose touch with what I’m doing right now to get there</td>
<td>0.74</td>
<td>0.02</td>
</tr>
<tr>
<td>MAAS item 13: I find myself doing things without paying attention</td>
<td>0.69</td>
<td>0.03</td>
</tr>
<tr>
<td><strong>Depression</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHQ-9 item 1: Little interest or pleasure in doing things</td>
<td>0.82</td>
<td>0.02</td>
</tr>
<tr>
<td>PHQ-9 item 2: Feeling down, depressed, or hopeless</td>
<td>0.81</td>
<td>0.02</td>
</tr>
<tr>
<td>PHQ-9 item 3: Trouble falling/staying asleep, sleeping too much</td>
<td>0.7</td>
<td>0.03</td>
</tr>
<tr>
<td>PHQ-9 item 4: Feeling tired or having little energy</td>
<td>0.69</td>
<td>0.03</td>
</tr>
<tr>
<td>PHQ-9 item 5: Poor appetite or overeating</td>
<td>0.66</td>
<td>0.03</td>
</tr>
<tr>
<td>PHQ-9 item 6: Feeling bad about yourself or that you are a failure or have let yourself or your family down</td>
<td>0.76</td>
<td>0.02</td>
</tr>
<tr>
<td>PHQ-9 item 7: Trouble concentrating on things, such as reading the newspaper or watching television</td>
<td>0.69</td>
<td>0.02</td>
</tr>
</tbody>
</table>
Mindfulness, PTSD and Depression, and Self-Stigma in Veterans

PHQ-9 item 8: Moving or speaking slowly so that other people could have noticed. Or the opposite; being so fidgety or restless that you have been moving around a lot more than usual

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor Loading</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHQ-9 Item 8</td>
<td>0.64</td>
<td>0.03</td>
</tr>
</tbody>
</table>

PTSD

PCL-5 Item D: Cognitive/emotional

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor Loading</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCL-5 Item D</td>
<td>0.96</td>
<td>0.01</td>
</tr>
</tbody>
</table>

PCL-5 Item B: Reexperiencing

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor Loading</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCL-5 Item B</td>
<td>0.88</td>
<td>0.01</td>
</tr>
</tbody>
</table>

PCL-5 Item E: Hyperarousal

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor Loading</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCL-5 Item E</td>
<td>0.84</td>
<td>0.01</td>
</tr>
</tbody>
</table>

PCL-5 Item C: Avoidance

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor Loading</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCL-5 Item C</td>
<td>0.8</td>
<td>0.02</td>
</tr>
</tbody>
</table>

Self-stigma

SSOSH Item 6: It would make me feel inferior to ask a therapist for help

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor Loading</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSOSH Item 6</td>
<td>0.85</td>
<td>0.02</td>
</tr>
</tbody>
</table>

SSOSH Item 8: If I went to a therapist, I would be less satisfied with myself

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor Loading</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSOSH Item 8</td>
<td>0.8</td>
<td>0.02</td>
</tr>
</tbody>
</table>

SSOSH Item 3: Seeking psychological help would make me feel less intelligent

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor Loading</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSOSH Item 3</td>
<td>0.76</td>
<td>0.03</td>
</tr>
</tbody>
</table>

SSOSH Item 1: I would feel inadequate if I went to a therapist for psychological help

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor Loading</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSOSH Item 1</td>
<td>0.75</td>
<td>0.03</td>
</tr>
</tbody>
</table>

SSOSH Item 10: I would feel worse about myself if I could not solve my own problems

<table>
<thead>
<tr>
<th>Item</th>
<th>Factor Loading</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSOSH Item 10</td>
<td>0.64</td>
<td>0.03</td>
</tr>
</tbody>
</table>

Note. PCL-5 = PTSD Checklist for DSM-5; PHQ-9 = Patient Health Questionnaire 9; MAAS = Mindful Attention and Awareness Scale; SSOSH = Self-Stigma of Seeking Help Scale. All factor loadings were significant at the p<0.001 level.
Mindfulness, PTSD and Depression, and Self-Stigma in Veterans

Figure 1. Conceptual Model

Figure 2. Structural Equation Model of Relationships among Mindfulness, PTSD, Depression, Education Covariates, and Self-Stigma