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Mindfulness (N Y). Author manuscript; available in PMC 2020 May 01.

Published in final edited form as:

Mindfulness (N Y). 2019 May ; 10(5): 953–963. doi:10.1007/s12671-018-1047-4.

Prevalence of Mental Health Problems and Willingness to Participate in a Mindfulness Treatment: An Examination among Veterans Injured in Combat

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Abstract

Numerous studies have demonstrated that combat-exposed military veterans are at risk for numerous psychiatric disorders and rates of comorbid mental health and substance use disorders are high. Veterans wounded in combat are a particularly high-risk group of military veterans, however treatment services are often underutilized among this group and it is unclear whether an online treatment program that targets emotional and physical distress (including mental health symptoms and substance use disorders) would be appealing to Veterans wounded in combat. The goal of the current study was to conduct formative research on whether veterans wounded in combat would be interested in an online mindfulness-based treatment to help them cope with emotional and physical discomfort. We recruited Veterans from Combat Wounded Coalition (n = 163; 74.2% non-Hispanic White; 95.7% male) to complete an online survey of mental health and substance use disorder symptoms and willingness to participate in mindfulness treatment. The majority of participants reported significant mental health symptoms and indicated that they would be willing to participate in mindfulness treatment, either at the VA (54.0%) or online (59.5%). Those with problems in multiple health domains and lower self-compassion were significantly more likely to express interest in treatment and likely to represent a very high need group of veterans. The development of a mindfulness-based treatment for this group of individuals could be

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Author Contributions: AJB: conceptualized the research questions, conducted the analyses, drafted the introduction, method, statistical analyses, and results sections, and created the tables and figures. KW: assisted with analysis, interpretation of the data, and drafted parts of the introduction and discussion sections. MLK: designed and executed the study, wrote parts of the introduction and discussion sections, and edited other sections of the manuscript. JCR collaborated with the design and execution of the study and edited all sections of the manuscript. All authors contributed to and approved of the final manuscript.

Ethical Approval: All procedures performed in our study were approved by the institutional review board at Old Dominion University and in accordance with the ethical standards of the 1964 Helsinki declaration and its later amendments.

Informed Consent: Informed consent was obtained from all individual participants included in the present study.

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very helpful in reducing mental health symptoms and improving quality of life among wounded warriors.

Keywords

military; mental health; mindfulness; treatment seeking; wounded warriors

Introduction

Numerous studies have demonstrated that combat-exposed military veterans are at risk for numerous psychiatric disorders and behavioral conditions, including posttraumatic stress disorder (PTSD; see Fulton et al., 2015 for a meta-analysis), depression (see Bonde et al., 2016 for a meta-analysis), suicidality (see Bryan et al., 2015 for a meta-analysis), insomnia (Hughes, Ulmer, Gierisch, Hastings, & Howard, 2018), and alcohol and drug use disorders (see Kelsall et al., 2015 for a meta-analysis; see Lan et al., 2016 for a review). Moreover, rates of comorbid psychiatric and behavioral disorders are high. For instance, using data from a nationally representative study of veterans, among those with probable alcohol use disorder, 20.3% met criteria for probable PTSD, whereas, 16.8% of those with PTSD met probable criteria for alcohol use disorder. Moreover, veterans with alcohol use disorder and PTSD had higher risk for generalized anxiety disorder (43.5% vs. 2.9%), depression (36.8% versus 2.3%), suicidal ideation (39.1 vs. 7.0%), and were more likely to have attempted suicide (46.0 vs. 4.1%) than those with PTSD alone (Norman, Haller, Hamblen, Southwick, & Pietrzak, 2018). Despite increasing initiatives for more research and mental health services for military personnel and veterans (American Psychological Association, Bersoff, 2013), and the magnitude of veterans who were injured in recent wars (U.S. Department of Veterans Affairs, 2018), veterans wounded in combat have received little empirical attention.

Veterans wounded in combat are a subset of veterans who have been injured during conflict or military operations. Based on data from the American Community Survey, 35.9% of post 9/11 veterans have a service-connected disability. Survival rates are considerably higher among recent-era veterans (i.e., 90.2% and 91.6% among Iraq and Afghanistan veterans, respectively) due to advances in personal protective gear, fast evacuation, and advances in casualty care (U.S. Department of Veterans Affairs, 2018). It is also important to recognize that the nature of recent wars have been marked by considerable urban fighting, as well as increases in unconventional warfare, such as unmarked combatants, malevolent use of civilians, and extensive use of improvised explosive devices, all of which may contribute to emotional distress (Farnsworth, Drescher, Nieuwsma, Walser, & Currier, 2014). Within the 2017 Wounded Warrior Project survey (Fales et al., 2017; 34,822 respondents out of 92,848 eligible warriors), 88.1% of wounded warriors reported experiencing more than three service-connected injuries or health problems, the most common being PTSD (77.4%), sleep problems (75.0%), back, neck, or shoulder problems (72.6%), and depression (70.1%). Alarmingly, 47.2% of warriors indicated that their physical health or emotional problems interfered “all the time or most of the time” with their normal social activities with family members and friends (Fales et al., 2017).

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Despite the high rates of mental health problems and physical injury among wounded warriors, treatment services among this at-risk population are underutilized. Within the 2017 Wounded Warrior Project survey, only half (51.7%) of wounded warriors report visiting a professional about their emotional problems within the past three months (Fales et al., 2017). Over one-third (34.1%) of warriors reported having difficulty getting mental health care, putting off getting care, or did not get the care they needed. Consistent with findings from the larger veteran population about barriers to receiving care (DeViva et al., 2016; Sharp et al., 2015), the top three reasons warriors had difficulty in getting mental health care were: 1) scheduling conflicts with U.S. Department of Veterans Affairs [VA] services (34.8%), 2) discomfort with existing resources within the Department of Defense [DoD] or VA (33.0%), and 3) feeling that treatment might bring up painful or traumatic memories that warriors wanted to avoid (32.3%) (Fales et al., 2017). Further, among veterans receiving treatment, the median number of visits was four; 22% of veterans had only one visit, 24% dropped out, and 52% received minimally adequate treatment (four or more visits in six months) (Hoge, Grossman, Auchterionie, Riviere, Milliken, & Wilk, 2014). Taken together, veterans wounded in combat are a high-risk sample of military veterans that are in need of complex rehabilitation services (Sayer et al., 2009); however, current mental health services while offered, are in some cases underutilized. However, whether (e.g., complementary or alternative medicine) may be of interest to this at-risk population has received little attention.

Mindfulness-based treatments have been developed and studied for a variety of psychological and physical health disorders, including depression (Segal, Williams, & Teasdale, 2013), PTSD (Lang, 2017), addiction (Witkiewitz, Bowen, Harrop, Douglas, Enkema, & Sedgwick, 2014), insomnia (Ong, Manber, Segal, Xia, Shapiro, & Wyatt, 2014), and chronic pain (Kabat-Zinn, 2013), among numerous other applications (Baer, 2014). Although techniques and specific practices differ across particular treatment approaches, the overarching goal of most Westernized, secular mindfulness-based treatments are to increase openness, acceptance, and nonjudgmental awareness of present moment experience. Most mindfulness-based treatments incorporate both formal mindfulness meditation practices (e.g., breath meditation, body scan, open monitoring meditation) and informal mindfulness practices to increase the integration of mindfulness into daily life (Baer, 2014).

A relatively recent synthesis of the evidence base that was conducted for the VA, concluded that mindfulness-based treatments appear to be effective in improving health and psychological well-being, with the greatest evidence for the effectiveness of mindfulness-based treatment for depression, overall health, and chronic illness (Hempel et al., 2014). There is also more recent evidence of mindfulness-based treatments being effective for reducing specific symptoms of psychological and physical health disorders among combat veterans, including: PTSD (Bremner et al., 2017; Heffner, Crean, & Kemp, 2016; Polusny et al., 2015), depression (Colgan, Christopher, Michael, & Wahbeh, 2016; Felleman, Stewart, Simpson, Heppner, & Kearney, 2016), and pain (Wheeler, Glass, Arnkoff, Sullivan, & Hull, 2018; Kearney et al., 2016). Although there has been increasing interest by researchers, clinical practitioners, and military veterans for mindfulness-based interventions; whether wounded warriors would be willing to participate in a mindfulness-based intervention has been largely unexplored.

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The goal of the current study was to conduct formative research on whether military members who experienced injuries during military service (i.e., veterans wounded in combat) would be interested in a mindfulness-based treatment to help them cope with emotional and physical discomfort. Although face-to-face treatments may be ideal, many veterans are reluctant to receive care from the VA (Sharp et al., 2015); thus we also inquired whether veterans wounded in combat would be interested in an online mindfulness-based treatment. Beyond prior mental health care utilization and current mental health status, we also explored whether several other variables (i.e., rumination, self-compassion, social support, and trait mindfulness) predicted willingness to participate in a mindfulness treatment, as each of these constructs have been predictive of mental health treatment utilization and efficacy among military members (rumination: Cox & Olatunji, 2017; self-compassion: Kearney et al., 2013; social support, DeViva et al., 2016; trait mindfulness: Walser et al., 2015).

Method

Participants

Participants were veterans who were members of the Combat Wounded Coalition (CWC; https://combatwoundedcoalition.org). Although 212 veterans participated in the study, we limited the analytic sample for the present study to 163 participants (76.9%) who completed the questions about willingness to participate in a mindfulness treatment. Within our analytic sample, the majority of participants identified as being White (n = 121, 74.2%), were men (n = 156, 95.7%), and reported a mean age of 45.6 (*Median* = 41.00, *SD* = 14.34) years. The Army (n = 74, 45.4%) and Marines (n = 42, 25.8%) were the most represented branches and the majority of participants were deployed as part of Operation Iraqi Freedom (OIF), Operation Enduring Freedom (OEF), or Operation New Dawn (OND) (n =128, 78.5%), received a purple heart (n = 141, 86.5%), and reported a service-connected disability (n= 153, 93.9%). Detailed participant characteristics for our analytic and total sample are displayed in Table 1.

Procedure

In collaboration with the founder of the CWC, members (n = 2,223) were recruited via email about participating in a 30-minute online study aimed at learning more about experiences during combat and deployment, mental health, substance use, symptoms of pain, and support among veterans. Prior to becoming a member of the CWC veteran listserv, all potential CWC members provide a DD Form 214 (which is a complete verified record of the service member's time in the military including awards and medals, combat, etc.). The DD Form 214 is verified by a recent-era veteran who serves as the veteran liaison for CWC. Participants were offered a $10 amazon gift card for completing the study (61.8% opted for the gift card). All study documents and procedures were approved by an Institutional Review Board committee at the participating university.

Measures

Mental health.—Past 2-week psychopathology was assessed using the 23-item DSM-5 Self-Rated Level 1 Cross-Cutting Symptoms Measure—Adult (American Psychiatric

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Association, 2013). Participants are asked, “During the past TWO (2) WEEKS, how much (or how often) have you been bothered by the following problems?” and responded on a 5-point response scale (0 = *none, not at all*, 1 = *slight or rare, less than a day or two*; 2 = *mild, several days*; 3 = *moderate, more than half the days*, 4 = s*evere, nearly every day*). The 13 domains covered by the measure include depression, anger, mania, anxiety, somatic distress, suicidal ideation, psychosis, sleep disturbance, memory, repetitive thoughts and behaviors, dissociation, personality functioning, and substance use. A score of 2 or higher in most domains, except substance use (score of 1 or higher) is suggestive of clinically-relevant mental health problems (Narrow et al., 2013). The measure has been validated in both clinical (Narrow et al., 2013) and non-clinical (Bravo, Villarosa-Hurlocker, Pearson, & Protective Strategies Study Team, 2018; Hurst & Kavanagh, 2017) samples.

Posttraumatic stress disorder (PTSD) symptoms were assessed using the 20-item Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5; Blevins, Weathers, Davis, Witte, & Domino, 2015; $M = 35.15$; $SD = 21.23$; $\alpha = .97$). Recent psychometric work among military members proposed a score of 33 or higher as a cut-off for probable PTSD (Wortmann et al., 2016). Furthermore, we asked about prior VA treatment utilization via two questions (yes/no were response options): “Are you currently or have you in the past used VA services for 1) alcohol or drug use?” and 2) any mental health condition(s)?”.

Mindfulness Treatment.—Willingness to participate in a mindfulness treatment was assessed via three questions (yes/no were response options): 1) “Would you be open to a treatment focused on increasing awareness of the present moment and changing your relationship with emotional and physical discomfort?” [labeled as general mindfulness treatment]; 2) “Would you be open to a treatment focused on increasing awareness of the present moment and changing your relationship with emotional and physical discomfort at your local VA medical center?” [labeled as VA mindfulness treatment]; and 3) “Would you be open to receiving an online treatment focused on increasing awareness of the present moment and changing your relationship with emotional and physical discomfort that was provided to you at no cost?” [labeled as online mindfulness treatment].

Psychosocial Predictors of Treatment Utility.—Rumination was assessed using a 15-item version (Bravo et al., 2018) of the Ruminative Thought Style Questionnaire (RTSQ; Brinker & Dozois, 2009; $M = 4.40$; $SD = 1.24$; $\alpha = .93$). Self-compassion was assessed using the Self-Compassion Scale Short Form (SCS-SF; Raes, Pommier, Neff, & Van Gucht, 2011; $M = 20.08$; $SD = 5.80$; $\alpha = .79$). Social Support was assessed using the 6-item Friendship Scale Assessment (FSA; Hawthorne, 2006; $M = 12.59$; $SD = 6.07$; $\alpha = .85$). Trait mindfulness was assessed using two subscales (curiosity, M = 1.38; SD = 0.85; $\alpha = .87$; and decentering, M = 1.31; SD = 0.65; $\alpha = .71$) of the Trait version of the Toronto Mindfulness Scale (Davis, Lau, & Cairns, 2009). The majority of these measures have been validated in prior military studies (RTSQ: Armour et al., 2012; SCS-SF: Lang et al., 2017; FSA: Bravo, Kelley, & Hollis, 2016).

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Data Analyses

To assess the prevalence of mental health problems, we calculated prevalence rates (i.e., percentages) of participants who met the threshold for psychopathology symptom criteria (i.e., each item) of the 13 domains of the DSM-5 Cross-Cutting Symptoms Measure and PTSD. To examine mental health problems and prior VA utilization as predictors of willingness to participate in a mindfulness treatment, common odds ratio estimates were conducted using the Mantel-Haenszel procedure (Mantel, 1963). In predicting mindfulness treatment utilization, participants were coded as having met the cutoff for a specific DSM-5 domain only if they met the cutoff for all items within that domain (as opposed to examining each item as a predictor). For example, within the anxiety domain, participants needed a score of 2 or higher on all three items to be classified as having met the cutoff for that domain. The associations between risk/protective factors and willingness to participate in a mindfulness treatment were assessed using logistic regression (controlling for distance from a VA hospital and prior mindfulness mediation experience). Significant associations were determined by a 95% confidence interval that does not contain one.

Results

Prevalence of Mental Health Problems

Within our analytic sample, 50.9% (n = 83) of participants exceeded the cut-off for probable PTSD. The prevalence of potential symptom presentation for the 13 domains (for domains with multiple items the percentages were averaged) of the DSM-5 Cross-Cutting Symptoms Measure were as follows: sleep disturbance (75.3%), anger (67.5%), memory problems (65.4%), depression (64.5%), somatic distress (61.2%), anxiety (55.2%), mania (47.9%), personality functioning (46.6%), dissociation (41.0%), repetitive thoughts and behaviors (44.0%), suicidal ideation (16.0%), and psychosis (14.1%). For substance use, we present the rates by specific substance: alcohol use (36.8%), tobacco (37.0%), and other drug use (16.7%). Specific percentage rates for each item in both our analytic and total sample is shown in Table 2.

Predictors of Willingness to Participate in a Mindfulness Treatment

Within our analytic sample, the majority of participants who responded to the questions about mindfulness treatment indicated that they would be willing to participate in all three types of mindfulness treatment: general (64.4%), VA (54.0%), and online (59.5%). Results of mental health, prior treatment utilization, and risk/protective factors as predictors of willingness to participate in a mindfulness treatment are summarized in Table 3. Further, prevalence rates of mental health problems and prior treatment utilization as a function of willingness to participate in a mindfulness treatment are summarized in Table 4.

Mental health.—The odds of being willing to participate in a general mindfulness treatment was significantly greater among individuals who met potential symptom presentation of: depression (OR = 2.64), anger (OR = 2.35), mania (OR = 2.61), anxiety (OR = 3.40), somatic distress (OR = 2.35), and personality functioning (OR = 2.07). The odds of willing to participate in a VA mindfulness treatment was significantly greater among subjects who met potential symptom presentation of: depression (OR = 3.39), anger (OR =

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3.01), anxiety (OR = 3.63), dissociation (OR = 1.94), personality functioning (OR = 1.95), and PTSD (OR = 2.52). The odds of being willing to participate in an online mindfulness treatment was significantly greater among individuals who met potential symptom presentation of: depression (OR = 2.44), anger (OR = 2.38), mania (OR = 2.20), anxiety (OR = 3.62), drug use (OR = 2.72), and PTSD (OR = 1.97). Finally, the odds of being willing to participate in all three types of mindfulness treatment was significantly greater among individuals who have previously reported prior and/or current use of VA services for mental health (66.3% of the sample): general (OR = 3.91), VA (OR = 5.28), online (OR = 3.75).

Risk/protective factors.—Controlling for distance from a VA hospital and prior mindfulness mediation experience, odds of being willing to participate in a general mindfulness treatment was significantly greater among individuals who reported higher scores on measures of rumination (OR = 1.45), trait mindfulness curiosity (OR = 1.88), and trait mindfulness decentering (OR = 1.87). However, individuals with higher scores on self-compassion (OR = 0.94) were less willing to participate in a general mindfulness treatment. Odds of being willing to participate in a VA mindfulness treatment was significantly greater among individuals who reported higher scores of rumination (OR = 1.55) and significantly lower among individuals with higher scores of self-compassion (OR = 0.92) and social support (OR = 0.94). Odds of being willing to participate in an online mindfulness treatment was significantly greater among participants who reported higher scores of rumination (OR = 1.39) and trait mindfulness curiosity (OR = 1.62); but significantly lower among respondents with higher scores of self-compassion (OR = 0.93).

Discussion

The current formative research examined mental health symptoms and willingness to engage in mindfulness-based treatment among current members of the Combat Wounded Coalition, a non-profit organization that provides education, tangible support, and job training to wounded warriors. The sample was characterized by high rates of self-reported mental health problems, with more than half of the sample endorsing symptoms consistent with PTSD, depression, anxiety, anger, somatic distress, sleep and memory difficulties, repetitive thoughts, and difficulties in relationships. These high rates are consistent with prior research among wounded warriors (Fales et al., 2017) and are generally higher than rates found in military populations deployed to Iraq and Afghanistan (see Ramchand, Rudavsky, Grant, Tanielian, & Jaycox, 2015 for a review). Most of the sample had no prior mindfulness meditation experience (66.3%) and the majority of individuals responded that they would be interested in receiving a treatment (i.e., mindfulness training) that focused on increasing awareness of the present moment and changing one’s relationship with emotional and physical discomfort.

The current study also identified several predictors of willingness to engage in mindfulness treatment, including more severe mental health problems across multiple domains, prior receipt of VA services for mental health problems, greater rumination and higher trait mindfulness in the curiosity domain. The finding that those in higher distress, as indicated by multiple mental health symptoms and rumination, were more likely to endorse interest in

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mindfulness treatment is particularly important in light of findings that mindfulness-based approaches might be most effective for those with more severe mental health difficulties (Kuyken et al., 2016; Roos, Bowen, & Witkiewitz, 2017).

Interestingly, those with higher scores on the Self-Compassion Scale expressed less willingness to engage in mindfulness treatment. It could be the case that individuals with greater self-compassion already engage in activities that increase awareness of the present moment and are less likely to need treatment to change their relationship to emotional and physical discomfort. Additional analyses, not reported in this paper, found that individuals with greater self-compassion reported fewer mental health problems and less distress, thus may have less of a need for mindfulness treatment.

Findings from the current study also provide a window into how a mindfulness-based treatment might be particularly tailored for wounded veterans. First, nearly the entire sample has a service-connected disability and physical pain and discomfort are highly likely among this population. Practices may need to be adjusted for physical limitations (e.g., not requiring postures that cause excessive discomfort) and bringing in physical discomfort when guiding mindfulness practices would be important. Second, greater mental health problem severity combined with lower self-compassion predicted interest in engagement in mindfulness treatment, which suggests that intervention components might need to be geared toward addressing distressing mental health symptoms and increasing self-compassion. Decreasing the length of mindfulness practices and incorporating self-compassion (e.g., loving kindness meditation) into multiple sessions might be particularly helpful for this population (see Litz & Carney, 2018 for an overview). Key to the success of this type of program is to create an environment of trust and support among veterans, and to describe the program and concepts in ways that are acceptable to those who might be unfamiliar with mindfulness-based treatment. Moreover, the treatment should gradually introduce sensitive topics. At this point, it will be important to obtain feedback from potential users as well mindfulness experts and those who work with wounded veterans. Finally, key to this type of program is an iterative approach in which initial pilot testing is geared toward examining uptake, feasibility, tolerance, and client feedback, which can be incorporated into a final manualized program. It is also possible that this type of program would need to be tailored to veterans with different types of physical health problems.

The current study had some limitations. The results are based on a cross-sectional online survey with a low response rate among those who were targeted for survey participation. It is unclear to what the extent the results from this survey will generalize to other military service members who were wounded during their military service or military service members who were not wounded during service. The results are also limited to a very brief self-report questionnaire and responses were not validated against official records or clinical diagnoses. In addition, only three-quarters of the sample answered the question of interest for the current paper regarding willingness to receive mindfulness treatment.

The phrasing of the question regarding willingness to receive mindfulness treatment was intentionally not inquiring about willingness to engage in a “mindfulness” treatment and practice mindfulness, which is a limitation and a strength. It is unclear how many

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participants would endorse a willingness to explicitly practice “mindfulness,” which is a limitation of the current study. Given common misconceptions about term “mindfulness” in the lay public and popular press (Purser, 2015), we opted to not inquire about “mindfulness” and, rather, to characterize the question based on the focus of many mindfulness-based treatments, which is to increase nonjudgmental awareness and acceptance of present moment experience and the change one’s relationship to emotional and physical discomfort (Baer, 2014; Kabat-Zinn, 2013; Segal et al., 2013; Witkiewitz et al., 2014). One prior qualitative study found that some veterans may not be interested in mindfulness-based treatment because of a perception that mindfulness-based treatments are not effective for managing physical symptoms, lack of time to participate, logistic barriers of attending in-person groups, and disinterest in group treatment (Martinez et al., 2015). Importantly, the logistic barriers identified by Martinez and colleagues (2015) could be addressed by delivering mindfulness-based treatment online, and two-thirds of wounded veterans in the current sample expressed interest in online treatment. Therefore, we believe that providing options for veterans, such as live mindfulness sessions at VA hospitals or real-time interactive video conferencing for veterans who otherwise might not be able to attend mindfulness sessions due to issues of distance to services, mobility issues, interference with work, and so forth is needed.

Despite limitations, veterans who have been injured during military service and who belong to the Combat Wounded Coalition expressed numerous mental health symptoms and also expressed willingness to receive a treatment that focused on present moment awareness and emotional and physical discomfort. Those with problems in multiple health domains and lower self-compassion were most likely to express interest in treatment and likely represent a very high need group of veterans. The development of a mindfulness-based treatment, particularly an online intervention, for this group of individuals could be very helpful in reducing mental health symptoms and improving quality of life among wounded warriors.

Acknowledgments:

This work was supported by a grant from the American Psychological Association to Michelle L. Kelley from the Society for Military Psychology (Division 19). Adrian J. Bravo is supported by a training grant (T32-AA018108) from the National Institute on Alcohol Abuse and Alcoholism (NIAAA). The authors would like to thank members of the Combat Wounded Coalition for their participation.

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Table 1.

General demographic of total and analytic sample.

	Total Sample (*n* = 212)		Analytic Sample (*n* = 163)	
	n	%	*n*	%
Gender[a]				
Male	203	95.8%	156	95.7%
Female	5	2.4%	4	2.5%
Missing	4	1.9%	3	1.8%
Race				
White	160	75.5%	121	74.2%
African American	9	4.2%	8	4.9%
Asian or Pacific Islander	2	1.0%	2	1.2%
Native American	3	1.4%	2	1.2%
Multiracial	5	2.4%	3	1.8%
Other	6	2.8%	6	3.7%
Hispanic/Latino/Spanish (yes)				
Highest Education[a]	27	12.7%	21	12.9%
Some high school	2	0.9%	2	1.2%
High school diploma/GED	17	8.0%	12	7.4%
Some college	59	27.8%	39	23.9%
Associate's degree	32	15.1%	28	17.2%
Bachelor's degree	67	31.6%	55	33.7%
Graduate degree	33	15.6%	23	14.1%
Missing	2	0.9%	3	1.8%
Employment Status[a]				
Unemployed/Retired	114	53.8%	78	47.9%
Employed	78	36.8%	70	42.9%
Student	19	9.0%	14	8.6%
Missing	1	0.5%	1	0.6%
Branch of Military Affiliation[a]				
Army	99	46.7%	74	45.4%
Navy	15	7.1%	10	6.1%
Air Force	8	3.8%	6	3.7%
Marines	52	24.5%	42	25.8%
National Guard	23	10.8%	20	12.3%
Reserves	6	2.8%	5	3.1%
Multiple	8	3.8%	5	3.1%
Missing	1	0.5%	1	0.6%
Deployment for OIF/OEF/OND				
Yes	162	76.4%	128	78.5%
No	50	23.6%	35	21.4%

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	Total Sample (*n* = 212)		Analytic Sample (*n* = 163)	
Received a Purple Heart				
Yes	186	87.7%	141	86.5%
No	26	12.3%	22	13.5%
Service-Connected Disability				
Yes	199	93.9%	153	93.9%
No	13	6.1%	10	6.1%
Prior Mindfulness Meditation Experience[a]				
Yes	70	33.0%	53	32.5%
No	140	66.0%	108	66.3%
Missing	2	0.9%	2	1.2%

Note.

[a]= Totals may not sum to 100% due to nondisclosure by some participants. OIF = Operation Iraqi Freedom, OEF = Operation Enduring Freedom, and OND = Operation New Dawn. Within our full sample, participants reported a mean age of 46.12 (*Median* = 42.00, *SD* = 14.58) years. Within our analytic sample, participants reported a mean age of 45.6 (*Median* = 41.00, *SD* = 14.34) years.

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Table 2.

Percentage of respondents whom recorded a rating indicating a need for further inquiry on items within domains of the DSM-5 level 1 measure.

Total Sample Size
Depression
Little interest or pleasure in doing things? Feeling down, depressed, or hopeless?
Anger
Feeling more irritated, grouchy, or angry than usual?
Mania
Sleeping less than usual, but still have a lot of energy? Starting lots more projects than usual or doing more risky things than usual?
Anxiety
Feeling nervous, anxious, frightened, worried, or on edge? Feeling panic or being frightened? Avoiding situations that make you anxious?
Somatic Distress
Unexplained aches and pains (e.g., head, back, joints, abdomen, Legs)? Feeling that your illnesses are not being taken seriously enough?
Suicidal Ideation
Thoughts of actually hurting yourself?
Psychosis
Hearing things other people couldn't hear, such as voices even when no one was around? Feeling that someone could hear your thoughts, or that you could hear what another person was thinking?
Sleep Disturbance
Problems with sleep that affected your sleep quality over all?
Memory
Problems with memory (e.g., learning new information) or with location (e.g., finding your way home)?
Repetitive Thoughts and Behaviors
Unpleasant thoughts, urges, or images that repeatedly enter your mind? Feeling driven to perform certain behaviours or mental acts over and over again?
Dissociation
Feeling detached or distant from yourself, your body, your physical surroundings, or your memories?
Personality Functioning
Not knowing who you really are or what you want out of life? Not feeling close to other people or enjoying your relationships with them?
Substance Use
Drinking at least 4 drinks of any kind of alcohol in a single day? *
Smoking any cigarettes, a cigar, or pipe, or using snuff or chewing tobacco? *
Using any of the following medicines ON YOUR OWN, that is, without a doctor's prescription, in greater amounts or longer than prescribed? *

Note.

* These items only require a score of 1 ("slight or rare, less than a day or two") as opposed to 2 ("mild, several days") to suggest that further investigation regarding the symptom presentation is required. Items of the DSM–5 Self-Rated Level 1 Cross-Cutting Symptom Measure are reprinted with permission from the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, (Copyright 2013). American Psychiatric Association.

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Table 3.

Mental Health Prior Treatment Utilization, and Risk/Protective Factors as Predictors of Willingness to Participate in a Mindfulness Treatment.

	General Mindfulness Treatment		**VA Mindfulness Treatment**		**Online Mindfulness Treatment**	
Mental Health	Odds Ratio	*95% CIs*	Odds Ratio	*95% CIs*	Odds Ratio	*95% CIs*
CC: Depression	**2.64**	**1.37, 5.10**	**3.39**	**1.78, 6.49**	**2.44**	**1.28, 4.64**
CC: Anger	**2.35**	**1.19, 4.62**	**3.01**	**1.52, 5.95**	**2.38**	**1.22, 4.66**
CC: Mania	**2.61**	**1.19, 5.76**	2.01	0.99, 4.06	**2.20**	**1.05, 4.59**
CC: Anxiety	**3.40**	**1.64, 7.02**	**3.63**	**1.85, 7.13**	**3.62**	**1.80, 7.28**
CC: Somatic Distress	**2.35**	**1.21, 4.55**	1.67	0.91, 3.14	1.81	0.96, 3.42
CC: Suicidal Ideation	0.85	0.36, 2.01	0.84	0.36, 1.94	0.93	0.40, 2.17
CC: Psychosis	1.27	0.37, 4.30	0.99	0.32, 3.10	0.78	0.25, 2.43
CC: Sleep Disturbance	1.10	0.53, 2.31	1.59	0.78, 3.26	1.26	0.61, 2.59
CC: Memory	1.78	0.91, 3.48	1.75	0.91, 3.36	1.79	0.93, 3.45
CC: Repetitive Thoughts/Behaviors	1.06	0.53, 2.12	0.99	0.51, 1.92	1.01	0.51, 1.97
CC: Dissociation	1.65	0.84, 3.23	**1.94**	**1.02, 3.70**	1.85	0.96, 3.56
CC: Personality Functioning	**2.07**	**1.02, 4.18**	**1.95**	**1.01, 3.71**	1.74	0.89, 3.39
CC: Substance Use: Alcohol	1.17	0.60, 2.28	1.64	0.86, 3.14	1.44	0.75, 2.78
CC: Substance Use: Tobacco	1.44	0.73, 2.86	1.16	0.61, 2.21	1.26	0.65, 2.43
CC: Substance Use: Drugs	2.13	0.80, 5.62	1.53	0.65, 3.59	**2.72**	**1.03, 7.16**
PTSD	1.82	0.95, 3.48	**2.52**	**1.34, 4.74**	**1.97**	**1.05, 3.72**
Prior Treatment Utilization	Odds Ratio	*95% CIs*	Odds Ratio	*95% CIs*	Odds Ratio	*95% CIs*
VA Services for Alcohol/Drug Use	0.96	0.27, 3.43	2.36	0.60, 9.25	1.21	0.34, 4.31
VA Services for Mental Health	**3.91**	**1.95, 7.85**	**5.28**	**2.57, 10.86**	**3.75**	**1.88, 7.48**
Risk/Protective Factors	Odds Ratio	*95% CIs*	Odds Ratio	*95% CIs*	Odds Ratio	*95% CIs*
Rumination	**1.45**	**1.09, 1.92**	**1.55**	**1.16, 2.06**	**1.39**	**1.05, 1.84**

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	General Mindfulness Treatment		VA Mindfulness Treatment		Online Mindfulness Treatment	
Self-Compassion	**0.94**	**0.88, 0.99**	**0.92**	**0.86, 0.98**	**0.93**	**0.87, 0.98**
Social Support	0.95	0.89, 1.00	**0.94**	**0.88, 0.99**	0.95	0.89, 1.00
Trait Mindfulness – Curiosity	**1.88**	**1.22, 2.90**	1.38	0.94, 2.02	**1.62**	**1.08, 2.42**
Trait Mindfulness – Decentering	**1.87**	**1.09, 3.22**	1.51	0.92, 2.49	1.42	0.86, 2.36

Note. To examine mental health and prior VA utilization as predictors of willingness to participate in a mindfulness treatment, common odds ratio estimates were conducted using the MantelHaenszel procedure (Mantel, 1963). The associations between risk/protective factors and willingness to participate in a mindfulness treatment were assessed using logistic regression (controlling for distance from a VA hospital and prior mindfulness mediation experience). Significant associations are in bold typeface for emphasis and were determined by a 95% confidence interval that does not contain one. CC = Cross-Cutting DSM-5 level 1 measure. PTSD=posttraumatic stress disorder. For the CC domains that had multiple items, participants were coded as having met the cutoff for that domain only if they met the cutoff all items within that domain. For example, within the anxiety domain, participants needed a score of 2 or higher on all three items to be classified as having met the cutoff for that domain.

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Table 4.

Mental Health and Prior Treatment Utilization as a Function of Willingness for a Mindfulness Treatment.

			Mindfulness Treatment Type			Mindfulness Treatment Type			Mindfulness Treatment Type		
	Total *n*	***Yes/ Meets Cutoff n (%)***	**General Yes *n* (%)**	**General No *n* (%)**	X^2	**VA Yes *n* (%)**	**VA No *n* (%)**	X^2	**Online Yes *n* (%)**	**Online No *n* (%)**	X^2
Total Sample	163	---	105 (64.4)	58 (35.6)	---	88 (54.0)	75 (46.0)	---	97 (59.5)	66 (40.5)	---
Mental Health											
CC: Depression	163	95 (58.3)	70 (73.7)	25 (26.3)	8.53 **	63 (66.3)	32 (33.7)	13.93 ***	65 (68.4)	30 (31.6)	7.51 ***
CC: Anger	163	110 (67.5)	78 (70.9)	32 (29.1)	6.22 *	69 (62.7)	41 (37.3)	10.40 **	73 (66.4)	37 (17.8)	6.60 *
CC: Mania	163	47 (28.8)	37 (78.7)	10 (21.3)	5.90 *	31 (66.0)	16 (34.0)	3.81	34 (72.3)	13 (27.7)	4.51 *
CC: Anxiety	163	65 (39.9)	52 (80.0)	13 (20.0)	11.45 **	47 (72.3)	18 (27.7)	14.61 ***	50 (76.9)	15 (23.1)	13.61 ***
CC: Somatic Distress	163	81 (49.7)	60 (74.1)	21 (25.9)	6.55 *	49 (60.5)	32 (39.5)	2.74	54 (66.7)	27 (33.3)	3.42
CC: Suicidal Ideation	162	26 (16.0)	16 (61.5)	10 (38.5)	0.15	13 (50.0)	13 (50.0)	0.17	15 (57.7)	11 (42.3)	0.03
CC: Psychosis	163	13 (8.0)	9 (69.2)	4 (30.8)	0.14	7 (53.8)	6 (46.2)	0.00	7 (53.8)	6 (46.2)	0.19
CC: Sleep Disturbance	162	122 (75.3)	79 (64.8)	43 (35.2)	0.07	69 (56.6)	53 (43.4)	1.62	74 (60.7)	48 (39.3)	0.40
CC: Memory	162	106 (65.4)	73 (68.9)	33 (31.1)	2.91	62 (58.5)	44 (41.5)	2.83	68 (64.2)	38 (35.8)	3.04
CC: Repetitive Thoughts/Behaviors	163	52 (31.9)	34 (65.4)	18 (34.6)	0.03	28 (53.8)	24 (46.2)	0.00	31 (59.6)	21 (40.4)	0.00
CC: Dissociation	161	66 (41.0)	47 (71.2)	19 (28.8)	2.14	42 (63.6)	24 (36.4)	4.15 *	45 (68.2)	21 (31.8)	3.40
CC: Personality Functioning	163	59 (36.2)	44 (74.6)	15 (25.4)	4.16 *	38 (64.4)	21 (35.6)	4.04 *	40 (67.8)	19 (32.2)	2.64
CC: Substance Use: Alcohol	163	60 (36.8)	40 (66.7)	20 (33.3)	0.21	37 (61.7)	23 (38.3)	2.25	39 (65.0)	21 (35.0)	1.19

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			Mindfulness Treatment Type			Mindfulness Treatment Type			Mindfulness Treatment Type		
	Total *n*	***Yes/ Meets Cutoff n (%)***	**General Yes *n* (%)**	**General No *n* (%)**	X^2	**VA Yes *n* (%)**	**VA No *n* (%)**	X^2	**Online Yes *n* (%)**	**Online No *n* (%)**	X^2
CC: Substance Use: Tobacco	162	60 (37.0)	42 (70.0)	18 (30.0)	1.12	34 (56.7)	26 (43.3)	0.21	38 (63.3)	22 (36.7)	0.47
CC: Substance Use: Drugs	162	27 (16.7)	21 (77.8)	6 (22.2)	2.39	17 (63.0)	10 (37.0)	0.98	21 (77.8)	6 (22.2)	4.32 *
PTSD	163	83 (50.9)	59 (71.1)	24 (28.9)	3.28	54 (65.1)	29 (34.9)	8.35 **	56 (67.5)	27 (32.5)	4.45 *
Prior Treatment Utilization											
VA Services for Alcohol/Drug Use	158	11 (6.7)	7 (63.6)	4 (36.4)	0.00	8 (72.7)	3 (27.3)	1.60	7 (63.6)	4 (36.4)	0.08
VA Services for Mental Health	158	108 (66.3)	81 (75.0)	27 (25.0)	15.53 ***	73 (67.6)	35 (32.4)	22.15 ***	75 (69.4)	33 (30.6)	14.78

Note.

* $p < .05$

** $p < .05$

*** $p < .001$.

For cells that had less than 5 counts, Fischer's Exact test was used to test for significance. CC = Cross-Cutting DSM-5 level 1 measure. PTSD=posttraumatic stress disorder. For the CC domains that had multiple items, participants were coded as having met the cutoff for that domain only if they met the cutoff all items within that domain. For example, within the anxiety domain, participants needed a score of 2 or higher on all three items to be classified as having met the cutoff for that domain.