

Moral injury, posttraumatic stress disorder, and religious involvement among U.S. veterans

Running headline: MORAL INJURY, PTSD, AND RELIGIOUS INVOLVEMENT AMONG VETERANS

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BACKGROUND: Traumatic experiences can cause ethical conflicts. “Moral injury” (MI) has been used to describe this emotional/cognitive state, and could contribute to the development of posttraumatic stress disorder (PTSD) or block its recovery. We examine the relationship between MI and PTSD, and the impact of religious involvement (RI) on that relationship.

METHODS: We conducted a study of 120 veterans enrolled at the Charlie Norwood VA Medical Center in Augusta, Georgia. Standard measures of PTSD symptoms, MI, and RI were administered. Regression models were used to examine correlates of PTSD symptoms and the moderating or mediating effects of RI.

RESULTS: A strong relationship was found between MI and PTSD symptoms ($r = 0.54, P < .0001$), and between MI and RI ($r = -0.41, P < .0001$), but only a weak relationship was found between RI and PTSD symptoms ($r = -0.17, P = .058$). RI did not mediate or moderate the relationship between MI and PTSD symptoms in the overall sample. However, among non-Middle Eastern war theater veterans, a significant buffering effect of religiosity was found.

CONCLUSIONS: MI has a strong positive relationship with PTSD symptoms and an inverse relationship with RI. RI did not mediate or moderate the relationship between MI and PTSD in the overall sample, but it moderated this relationship in non-Middle Eastern theater veterans.

INTRODUCTION

Moral injury (MI) has been described in military personnel after traumatic experiences during wartime.¹⁻³ Litz et al³ define it as “perpetrating, failing to prevent, bearing witness to, or learning about acts that transgress deeply held moral beliefs.” MI, a construct that is distinct from PTSD, often has been identified among those with PTSD, and could contribute to onset and maintenance of PTSD symptoms.^{4,5} Although PTSD is believed to be a chronic emotional and physical response to fear and danger with hyper-alertness and physiological arousal that can be triggered by reminders of the trauma, MI does not necessarily involve fear-based stressors.⁶ Instead, MI results from experiences that violate deeply held moral beliefs and values, which then arouses shame, guilt, anger, and existential questioning. Furthermore, MI symptoms include not only psychological symptoms (guilt, anger, shame, etc.), but spiritual symptoms as well (loss of meaning and hope, spiritual struggles, loss of faith).⁷ Treatments targeting MI, both spiritual and secular, have been shown to significantly reduce PTSD symptoms.^{8,9}

Because of MI’s connection with moral beliefs and values, religious beliefs and practices might worsen symptoms of this condition (eg, because high moral standards are more easily violated) or could help to relieve MI (eg, through beliefs regarding forgiveness, rituals involving

forgiveness or penance, and support through the faith community).¹⁰ Religious beliefs and behaviors are important to many veterans, and often are used to cope with stresses of war.^{11,12} Regarding the relationship of religious belief/involvement and PTSD, it could be postulated that being more religious might have a protective effect on PTSD; on the other hand, some suggested that the association might be that having a mental illness could lead individuals to be less religious.

However, religious involvement (RI) in veterans has been shown to predict faster recovery from depression,¹² greater posttraumatic growth,¹³ and faster recovery from PTSD.¹⁴ On the other hand, religious struggles and loss of faith as a result of combat or combat-related experiences have been associated with lack of full recovery from PTSD and continued need for mental health services from the VA.¹⁴⁻¹⁶ Ogden et al⁸ also found that PTSD symptoms were associated with alienation from God, religious rifts, religious fear, and religious guilt among veterans of Middle Eastern wars. For the purpose of this study, Middle Eastern wars included Operation Iraqi Freedom, Operation New Dawn, and other conflicts in the Middle Eastern region, as well as Afghanistan (Operation Enduring Freedom). Non-Middle Eastern wars included Vietnam, Korea, WWII, and other combat theaters.

MI might be particularly problematic for specific subgroups of veterans, particularly younger veterans who served in Iraq/Afghanistan, and those who might experience more religious struggles (raised within a culture with high moral values, but perhaps with fewer religious resources to cope with those moral struggles). Currier et al¹⁷ compared community-dwelling adults of similar age and veterans who served in Iraq/Afghanistan and found less religiosity, more religious struggles, and weaker spirituality in the latter group. Therefore, RI might predispose veterans to develop MI (and consequently worse PTSD symptoms), might provide veterans with resources to help cope with and resolve MI (and consequently improve

PTSD symptoms), or might buffer the effects of MI in generating and maintaining PTSD symptoms (blocking the negative effects of MI on PTSD). Further research is needed to better understand the potentially complex relationships and interactions between RI, MI, and PTSD symptoms.

Objectives

The objectives of this study were to (1) examine the relationship between MI and severity of PTSD symptoms in U.S. military veterans, and (2) determine the mediating and moderating effects of religiosity on the relationship between MI and PTSD severity.

METHODS

This study was approved by the Institutional Review Board (full review) and the Research and Development Committee of the Charlie Norwood VA Medical Center and by the Duke University Medical Center Institutional Review Board (exempted). After informed consent, 120 veterans at the Charlie Norwood VA Medical Center were recruited via advertisements and clinicians' referrals from several mental health clinics, including general mental health clinics and PTSD clinics, and completed a questionnaire that asked about demographics, military service, physical health, use of alcohol, PTSD diagnosis, and information about religious affiliation, importance of religion and spirituality, and level of religious commitment. Inclusion criteria were being a veteran, previous deployment to a combat theater, and the presence of PTSD symptoms and/or symptoms of inner conflict. All participants provided written informed consent and were compensated \$25 for their time in the form of a gift card.

Questionnaire

Demographics. Demographic information collected included age, sex, race (white, black, Hispanic, Asian, multiracial, other), education (years), and marital status (single, divorced, married, widowed).

Military information. Participants were asked if they were involved in combat or served in a combat zone; the particular combat theater in which they were deployed (Middle East, Vietnam, Korea/WWII, other); and the time since deployment (years).

PTSD symptoms/diagnosis. Participants were also asked if they had PTSD symptoms without a formal diagnosis or had a formal PTSD diagnosis. PTSD severity was assessed with the Department of Veterans Affairs' 20-item PTSD Checklist DSM-5 version (PCL-5).¹⁸ The PCL-5 assesses symptoms of PTSD required for a diagnosis of PTSD in DSM-5. Participants were asked, "How much have you been bothered by each problem in the past month?" Possible response options were 0 ("not at all"), 1 ("a little bit"), 2 ("moderately"), 3 ("quite a bit"), and 4 ("extremely"). Responses were summed to create a PTSD severity scale that ranges from 0 to 80. The 20-item PCL-5 has high reliability and strong associations with combat exposure and functional impairment in military personnel.^{19,20}

Physical health/alcohol use. Difficulty engaging in physical activity was assessed on a 0 to 10 scale (0 = no difficulty, 10 = great difficulty); similarly, average daily physical pain was assessed on a 0 to 10 scale (0 = no pain, 10 = severe pain). Finally, current alcohol use was assessed, with possible responses ranging from "none" to "some" (≤ 2 drinks/day) to "quite a bit" (> 2 drinks but < 7 drinks/day) to "a lot" (> 6 drinks/day).

Religious involvement. Religious affiliation was assessed as Christian, non-Christian (of other religious persuasion), or none/atheist/agnostic. Importance of religion and importance of spirituality in life were each measured on a 4-point Likert scale from 1 (not important at all) to 4 (very important). Religious commitment and overall involvement were assessed with the 10-item

Belief into Action Scale (BIAC).^{21,22} The BIAC scale assesses degree of religious commitment, time spent in religious activity, and money given for religious causes, with responses ranging from 1 to 10 for each item. The internal reliability ($\alpha = 0.89$; 95% [confidence interval [CI], 0.86 to 0.91) and test-retest reliability for the BIAC after 1 week (interclass correlation coefficient = 0.92; 95% CI, 0.87 to 0.95) are acceptable, and the scale has solid convergent, discriminant, and factor analytic validity (1 factor explaining 94% of variance).

Moral injury. The MI Symptoms Scale is a 54-item multidimensional measure that assesses symptoms of moral injury. It is composed of 10 subscales: guilt, shame, violation of moral values, self-condemnation, betrayal by others, loss of trust, difficulty forgiving, loss of meaning, purpose and hope, spiritual struggles, and loss of faith.²³ We recently have shown in a multicenter study in veterans and active duty military the reliability and validity of this multidimensional symptom measure of MI that can be used in studies targeting MI in veterans and active duty military with PTSD symptoms. It also can be used by clinicians to identify those at risk.⁵ The guilt subscale consists of 2 items taken from the Moral Injury Questionnaire (MIQ)²⁴ and 3 items from the Combat Guilt Scale (CGS)²⁵ (standardized Cronbach's alpha in the present sample = 0.41). The shame subscale consists of 2 items from the CGS and 1 item from the work of Bernice Andrews with veterans from the United Kingdom²⁶ ($\alpha = 0.65$). The 3-item violation of moral values subscale consists of statements of moral transgression from the Moral Injury Events Scale (MIES)²⁷ that assess commission and omission ($\alpha = 0.79$). The self-condemnation subscale is made up of all 10 items of the Rosenberg Self-Esteem Scale,²⁸ which measures global self-worth by assessing both positive and negative feelings about the self ($\alpha = 0.84$). The 3-item betrayal subscale from the MIES assesses feelings regarding betrayal by others during wartime ($\alpha = 0.62$). Six items make up the loss of trust subscale, which come from the General Trust Scale that assesses beliefs about the honesty and trustworthiness of

others²⁹ (alpha = 0.80). Difficulty forgiving is measured by a 10-item subscale consisting of 6 statements from the Heartland Forgiveness Scale³⁰ and 4 questions that ask about feeling forgiven by God, forgiving God, and forgiving oneself, and the need to seek forgiveness (alpha = 0.69). Loss of meaning, purpose, and hope is assessed by a 7-item subscale, with 5 items coming from the Presence of Meaning subscale of the Meaning in Life Questionnaire,³¹ a sixth item coming from the MIQ, and a seventh item that asks how hopeful the individual is about the future (alpha = 0.82). Finally, religious/spiritual struggle is assessed by the 7-item subscale of the Brief RCOPE³² and loss of faith subscale by a single question that asks how faith has changed as a result of wartime experiences (alpha = 0.87).

All 54 items of the MI Symptom Scale are rated on a 1 to 10 scale in terms of agreement or disagreement to each statement (with reverse scoring of items so that higher scores indicate more symptoms of MI), producing a response range from 54 to 540. The average MI score in the present sample was 262.0 with a standard deviation (SD) of 68.0 and a range from 119 to 452. Overall, the MI Symptom Scale had an alpha of 0.92.

Missing values. In constructing scales, missing items on the scales were handled as follows: If participants answered at least 50% of items on a scale or subscale, the average of items answered was substituted for the missing item score (this method was used for the PCL-5 in 12% of cases, the BIAC in 3%, and the MI subscales in 0% to 13%). A similar procedure was followed for combining subscale scores to produce the overall MI Symptom Scale score. If an entire subscale score was missing, the average of completed subscale scores was inserted for the missing score (done in 7% of cases).

Statistical analyses

Descriptive statistics were used to report characteristics of the sample with means, SD, and frequency distributions. Bivariate analyses were conducted using Pearson's r for continuous variables, Student's t test for continuous variables across dichotomized categories, analysis of variance for continuous variables across ≥ 3 categories, and chi-square for 2 categorical variables. Variables significant at $P < .15$ in bivariate analyses were entered into general linear models predicting PTSD symptom severity that consisted of the MI Symptom Scale score alone (Model 1), followed by adding demographic and military variables (Model 2), then physical health and behavioral variables (Model 3), then religious commitment (BIAC) (Model 4), and then the interaction between MI symptoms and BIAC score (to test the moderating effect of religiosity on the relationship between MI and PTSD symptom severity). For Models 4 and 5, the BIAC was dichotomized with two-thirds of the sample in the low religiosity category and one-third in the high category. Alpha level was set at $P = .05$, and was not corrected for multiple comparisons because of the exploratory nature of these analyses. All statistical tests were performed using SAS (version 9.4; SAS Institute Inc., Cary, North Carolina).

RESULTS

Sample characteristics are presented in **TABLE 1**. The average age of participants was 55.6 years, with a range of 23 to 81 years. Most participants were male (86.4%), black (62.9%) or white (30.2%), married (43.7%) or divorced (29.4%), and Christian (84.9%). Average education was 13.8 years, with a range of 4 to 25 years. This sample contained veterans who were previously deployed. The majority were involved in combat (67.5%), served in Iraq, Afghanistan, or another Middle Eastern theater (48.7%), or Vietnam (31.3%), and the average time since last deployment was 23.2 years (range 6 months to 60 years). Most participants indicated they had a formal diagnosis of PTSD (93.1%), and the average PCL-5 score was 53.7

(the cutoff for PTSD ranges from 28 to 38).²⁰ Most participants experienced some level of physical disability (average 6.1 on a 0-to-10 scale) and daily chronic pain (average 6.5 on a 0-to-10 scale). Religion and spirituality were “very important” to many (54.2% and 59.3%, respectively), and the average BIAC score was 47.1 (SD = 20.9), which is similar to the average score found in stressed family caregivers of disabled persons in North Carolina (47.2, SD = 21.5).²²

Bivariate correlations

As hypothesized, MI symptoms were strongly and positively correlated with PTSD symptom severity ($r = 0.54, P < .0001$) (**TABLE 2**). In contrast, MI symptoms were strongly and inversely correlated with religious involvement assessed by the BIAC ($r = -0.41, P < .0001$). However, religiosity was only weakly correlated with PTSD symptom severity ($r = -0.17, P = .058$). Other significant correlates of PTSD symptoms were higher education level, deployment to Afghanistan/Iraq or other Middle Eastern war theaters, and especially impairments in physical functioning ($r = 0.40, P < .0001$) or daily chronic physical pain ($r = 0.27, P < .005$). Compared with veterans who served in other combat theaters, both MI and PTSD severity were higher in veterans who served in the Middle East ($F = 6.9, P = .002$ and $F = 2.4, P < .10$, respectively), whereas religiosity (BIAC) was significantly lower ($F = 5.36, P = .006$).

Multivariate analyses

The strongest independent predictor of PTSD symptom severity was MI symptoms (**TABLE 3**). Higher education and being married (surprisingly) were other significant independent predictors of PTSD symptom severity. Poorer physical functioning also was a significant predictor. Once MI symptoms were controlled for, religiosity score on the BIAC (either continuous or

dichotomized) was no longer related to PTSD symptoms and did not mediate the relationship between MI symptoms and PTSD symptoms in the overall sample. Furthermore, the interaction between MI and BIAC scores was not significant, indicating no buffering effect for religiosity on the relationship between MI and PTSD symptom severity.

Because both MI and PTSD symptoms were higher and religiosity lower in Middle East theater veterans, further exploratory analyses were conducted. The buffering effect of religiosity on the relationship between MI and PTSD symptoms was examined separately in Middle Eastern theater veterans and non-Middle Eastern theater veterans (Vietnam, Korea, WWII, and other theaters). Given the small samples in these subanalyses, only MI, BIAC score (continuous), and the interaction between MI and BIAC scores were examined as predictors of PTSD severity in these models. Among non-Middle Eastern theater veterans ($n = 63$, including 3 missing data for combat theater), a significant interaction was found between MI and BIAC scores ($\beta = -0.004$, $SE = 0.002$, $t = -2.09$, $P = .04$), whereas this was not found in Middle Eastern theater veterans ($n = 56$) ($\beta = 0.001$, $SE = 0.001$, $t = 0.80$, $P = .43$). To determine what the significant interaction meant in non-Middle Eastern theater veterans, we again dichotomized veterans in terms of high and low religiosity. Among highly religious non-Middle Eastern theater veterans ($n = 31$), no significant correlation was found between MI and PTSD symptom severity ($\beta = 0.04$, $SE = 0.05$, $t = 0.68$, $P = 0.50$), whereas among less religious non-Middle Eastern theater veterans ($n = 32$), a significant positive correlation between MI and PTSD symptoms was present ($\beta = 0.14$, $SE = 0.04$, $t = 3.19$, $P = .003$).

DISCUSSION

To our knowledge, this is the first study to explore the role of religious involvement in the established relationship between symptoms of MI resulting from wartime experiences and PTSD

symptom severity. In the overall sample, we found that MI was strongly and positively correlated with severity of PTSD symptoms, although level of religious involvement or commitment had little or no effect on this relationship in the overall sample, neither mediating nor buffering it. However, in an exploratory analysis among non-Middle Eastern theater veterans, who were typically older and more religious, high religiosity completely buffered the effects of MI on PTSD symptoms. However, there was no evidence for such a buffering effect among younger veterans who were deployed in recent operations in Iraq, Afghanistan, and other Middle East conflicts.

Other researchers also have reported a strong correlation between exposure to morally injurious events and PTSD symptoms or other psychopathology.^{24,27,33-36} However, MI scales used to examine these correlations assessed a mixture of traumatic experiences (not amenable to treatment) and emotional symptoms (treatable), and they did not assess spiritual symptoms of MI (eg, religious struggles or loss of faith). Although no studies (to our knowledge) have examined the buffering effect of religiosity on the relationship between MI and PTSD symptoms, several studies with larger samples of veterans have found a significant inverse correlation between RI and PTSD symptoms.^{14,17,37,38} Likewise, religiosity also has been shown to buffer the effects of traumatic experiences on mental health outcomes in veterans and non-veterans.³⁹⁻⁴²

Although the present study found a weak inverse relationship between religiosity and PTSD symptom severity in bivariate analyses, this relationship lost its borderline significance when other factors were controlled for in the multivariate analyses. Although religiosity was inversely related to MI, it did not buffer the effects of MI on PTSD symptoms in the overall sample. However, religiosity buffered the effects of MI on PTSD symptoms among non-Middle Eastern theater veterans. Therefore, it appeared that religiosity among veterans of Vietnam, WWII, Korea, and other non-Middle Eastern theaters helped block the effects of MI on PTSD

symptoms or promote recovery when such difficulties emerged, whereas religiosity had little effect on this relationship among veterans serving in Iraq, Afghanistan, or other Middle Eastern theaters. The latter group also tended to be less religious, yet they had higher MI and PTSD symptom scores. Although difficult to explain, perhaps religiosity was less effective in helping Middle Eastern theater veterans cope with the moral injuries that they had suffered, therefore inducing or increasing the severity of their PTSD symptoms.

These findings, if verified in future studies, have clinical implications. MI involves not only psychological symptoms, such as guilt and shame, but also spiritual symptoms such as religious struggles and loss of religious faith. Neither symptom type can be ignored in any comprehensive treatment for those with PTSD. Psychotherapies, both spiritually-integrated and secular forms, are needed to target the psychological and the spiritual symptoms of MI or inner ethical conflict. Based on the present findings, spiritual therapies for MI in the setting of PTSD might be particularly effective in older veterans who have served in non-Middle Eastern war theaters. The limitations of the present study, however, make such conclusions preliminary.

Limitations

Several study characteristics limit the generalizability and interpretability of these findings. First, the cross-sectional nature prevents any speculations on direction of causation in the relationships identified. Second, this was a relatively small sample and one that was drawn from a single state (Georgia) that is located in the “Bible belt,” although many of these veterans were not born or raised in Georgia. Third, there may be some overlap between our measure of religious involvement (BIAC) and the spiritual dimensions of MI that needs to be acknowledged. However, these dimensions are quite distinct because spiritual struggles could occur in those who are religious or those who are not religious, and often there is little relationship between the

2 (as has been found for positive and negative religious coping). Finally, significant buffering effects of religiosity were identified only in exploratory analyses, and significance levels were not corrected for multiple comparisons. The strengths of this study are the use of psychometrically valid comprehensive measures of MI symptoms (symptoms that are amenable to change), PTSD symptom severity, and religious commitment, along with careful statistical control for demographic, military, and physical health confounders.

CONCLUSIONS

Although symptoms of MI appeared to be strongly and positively correlated with severity of PTSD symptoms (the strongest of any correlates identified here), level of religious involvement in the overall sample did not influence this relationship—neither mediating nor buffering it. However, among veterans serving in non-Middle Eastern combat zones, religiosity appeared to buffer the effects of MI on PTSD symptom severity. Future studies are needed that longitudinally follow active-duty military from before deployment to discharge from military service, prospectively examining the effects of baseline religiosity on MI and PTSD symptoms, taking into account the severity of wartime trauma and confounding factors, such as pre-service mental health and physical injuries experienced during combat. Randomized clinical trials also are needed to determine whether interventions that specifically target MI in individuals with PTSD result in a faster remission of PTSD symptoms and its comorbidities compared with standard therapies used today.

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Other	20.7% (23)
Time since deployment, years	24.2 (17.3) (0.5 to 60)
Diagnosis of PTSD (% yes)	93.1 (108)
Physical functioning, average on 0 to 10 scale	6.1 (2.6) (0 to 10)
Pain severity, average on 0 to 10 scale	6.5 (2.4) (0 to 10)
Alcohol use (% >2 drinks/day)	13.8% (16)
Religious affiliation (%)	
Christian	84.9% (101)
Non-Christian	2.5% (2)
None, agnostic, atheist	12.6% (15)
Importance of religion (% very)	54.2% (65)
Importance of spirituality (% very)	59.3% (70)
Belief into Action Scale score	47.1 (20.9) (10 to 93)
PCL-5 score	53.7 (15.3) (15 to 80)
MI symptom score	262 (68.0) (119 to 452)

N may vary by up to 5%.

MI: moral injury; PCL-5: PTSD Symptom Checklist DSM-5 version; PTSD: posttraumatic stress disorder; SD: standard deviations.

TABLE 2

Sample characteristics and PTSD symptoms (PCL-5) (bivariate correlations)

Demographic	<i>r</i>	PCL-5 (mean, SD)	<i>P</i> value
Age, years	-0.11		.23
Education, years	0.26		<.01
Race			

Black		54.0 (14.2)	.96
Other		54.2 (16.9)	
Marital status			
Married		55.9 (13.2)	.14
Other		51.7 (16.8)	
Military			
Involved in combat			
Yes		54.7 (15.2)	.35
No		51.8 (16.0)	
Combat theater			
Middle East		56.6 (14.8)	.04
Other		50.9 (15.4)	
Years since deployed	-0.10		.30
Diagnosis of PTSD			
Yes		54.7 (14.9)	.02
No		40.7 (19.6)	
Physical health/health behaviors			
Physical functioning (0 to 10)	0.40		<.0001
Pain severity (0 to 10)	0.27		<.005
Alcohol use			
>2 drinks/day		58.8 (16.8)	.15
<3 drinks/day		52.8 (15.2)	
Religious			
Christian			
Yes		52.9 (15.2)	.19
No		58.1 (15.6)	
Religious importance			

Very important		53.1 (14.9)	.66
More than very		54.4 (15.8)	
Spiritual importance			
Very important		52.4 (14.8)	.31
More than very		55.4 (16.2)	
BIAC score (religiosity)	-0.17		.058
MI Symptom score (moral injury)	0.54		<.0001

BIAC: Belief into Action Scale; MI: moral injury; PCL-5: PTSD Checklist DSM-5 version.

TABLE 3**Predictors of PTSD severity (PCL-5) (multivariate)**

	Model 1 β (SE)	Model 2 β (SE)	Model 3 β (SE)	Model 4 β (SE)	Model 5 β (SE)
MI	0.12 (0.02) ^a	0.13 (0.02) ^a	0.12 (0.02) ^a	0.12 (0.02) ^a	0.12 (0.02) ^a
Demographic and military					
Education, years	...	1.17 (0.36) ^b	1.13 (0.36) ^c	1.14 (0.36) ^c	1.13 (0.36) ^c
Marital status (married)	...	6.56 (2.33) ^c	5.62 (2.40) ^d	5.69 (2.41) ^d	5.69 (2.43) ^d
Combat theater (Middle East)	...	-0.37 (2.42)	-0.95 (2.49)	-1.68 (2.68)	-1.69 (2.69)
Physical health/behaviors					
Physical functioning (0 to 10)	1.07 (0.54) ^d	1.11 (0.55) ^d	1.10 (0.55) ^d
Pain severity (0 to 10)	0.28 (0.57)	0.34 (0.58)	0.34 (0.58)
Alcohol use (>2 drinks/day)	0.87 (3.49)	0.70 (3.51)	0.77 (3.55)
Religious					
BIAC score (dichotomized)	-2.10 (2.81)	-0.30 (10.27)
Interaction (MI × BIAC)	-0.01 (0.04)
Model R-square (n)	0.29 (120) ^a	0.42 (110) ^a	0.46 (107) ^a	0.47 (107) ^a	0.47 (107) ^a

Variables included in multivariate model only if $P < .15$.

β: unstandardized beta; BIAC: Belief into Action Scale; MI: moral injury; PCL-5: PTSD Checklist DSM-5 version; PTSD: Posttraumatic stress disorder; SE: standard error.

^a $P \leq .000$.

^b $P \leq .001$.

^c $P \leq .01.$

^d $P \leq .05.$

^T $< 0.10.$

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