Guilt as a Mediator of the Relationship Between Depression and Posttraumatic Stress With Suicide Ideation in Two Samples of Military Personnel and Veterans

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Guilt as a Mediator of the Relationship Between Depression and Posttraumatic Stress With Suicide Ideation in Two Samples of Military Personnel and Veterans

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Depression, posttraumatic stress (PTS), and guilt have been implicated as risk factors for suicide ideation (SI) among military personnel and veterans. Conceptual and empirical work suggests that guilt may mediate the relationship of depression and PTS with SI. The current study explored this hypothesis in two cross-sectional samples of military personnel and veterans (n = 464 and n = 158). Path analyses showed good fit for both samples [Sample 1: $\chi^2(1) = 2.18, p = .140$; CFI = 1.00; RMSEA = .05; WRMR = .23; Sample 2: $\chi^2(2) = 1.39, p = .499$; CFI = 1.00; RMSEA = .00; SRMR = .02] and indicated that depression was indirectly related to SI through guilt for both samples (ps < .038). Furthermore, guilt partially mediated the relationship of PTS with SI (p = .033) in Sample 1 and fully mediated the relationship (p = .016) in Sample 2. The present findings suggest that guilt may be a mechanism for increased risk among suicidal military personnel and veterans with depression and PTS.

Keywords: depression, guilt, military, moral injury, posttraumatic stress, suicidal ideation

The views expressed in this article are those of the authors and do not necessarily represent the official position or policy of the U.S. Government, the Department of Defense, or the U.S. Air Force.

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Since the initiation of military operations in Afghanistan and Iraq in 2001, deaths by suicide have more than doubled among the United States Armed Forces. Suicide is currently higher among the U.S. Armed Forces than the general public despite historically lower rates (Department of Defense, 2011), and is the second leading cause of death for this population (Hoyert, & Xu, 2012). In 2013 the number of deaths by suicide surpassed the number of combat deaths (Burns, 2013), which is due in part to the decline in combat-related fatalities following the termination of military operations in Iraq in December of 2011. This trend highlights the need to further refine our understanding of the mechanisms that underlie suicide risk among our military personnel.

In response to this alarming trend, researchers have sought to empirically identify risk factors associated with increased risk for suicidal thoughts and behaviors among military personnel and veterans. Similar to nonmilitary populations, psychiatric factors including depression and posttraumatic stress disorder (PTSD) have been confirmed as risk factors in the military and veteran populations across clinical and epidemiological studies (e.g., LeardMann et al., 2013; Nock et al., 2014; Oquendo et al., 2004; Sokero et al., 2003, 2005). For instance, in a sample of military personnel admitted to an inpatient military treatment facility, 94 of 100 suicidal patients reported depressed mood at the time of admission (Ritchie, Keppler, & Rothberg, 2003). Among military personnel in outpatient psychiatric treatment, suicide ideation was significantly associated with depression severity but not age, gender, or number of deployments (C. J. Bryan, Morrow, Etienne, & Ray-Sannerud, 2013). Two large-scale population-based studies of all military personnel (LeardMann et al., 2013) and Army personnel (Nock et al., 2014) further indicate that depression and PTSD confer significantly greater increased risk for suicide, suicide attempts, and suicide ideation than demographic variables. Overall, an estimated 29% of the total risk for suicide that occurs annually among U.S. Army personnel has been deemed to be attributable to depression, and 45% is estimated to be attributable to comorbid PTSD and depression (Ramsawh et al., 2014).

Despite a clear and consistent relationship of depression and PTSD with suicidal thoughts and behaviors, the mechanisms by which depression and PTSD confer increased risk for suicidal thoughts and behaviors remain poorly understood. In a recent literature review, for instance, Panagioti, Gooding, and Tarrier (2009) noted that some studies suggest that depression mediates the relationship of PTSD with suicide risk, whereas other studies suggest that depression intensifies (i.e., moderates) the relationship of PTSD with suicide risk. Yet another group of studies examining the relative strength of associations among PTSD symptom clusters with suicide risk have yielded contradictory findings that both support and oppose the relation of each PTSD symptom cluster with suicidal thoughts and behaviors (Bell & Nye, 2007; Guerra, Calhoun, & MIRECC, 2011; Tarrier & Gregg, 2004). These inconsistencies are explained in part by the general absence of application of empirically supported conceptual models of suicide to guide research within the field of trauma studies (Panagioti et al., 2009).

One conceptual model of suicide that may shed light on the mechanisms underlying PTSD, depression, and suicide risk is the *fluid vulnerability theory* (FVT) of suicide (Rudd, 2006). The FVT posits that all individuals possess a baseline risk for suicide that varies person-to-person, and that each individual's risk level is heightened by aggravating factors, which may be internal or external. For individuals with very low baseline risk, even a very severe stressor will not elicit a suicidal crisis, whereas for those with a higher baseline risk, the point at which a suicidal crisis is activated may be rather low. According to the FVT, negative and derogatory self-perceptions such as perceived burdensomeness, guilt, shame, and self-hatred are associated with elevated baseline risk because these beliefs sensitize individuals to life stressors. In other words, individuals with negative self-perceptions, especially those characterized by self-blame (e.g., "I can never be forgiven for what I've done") and perceived defectiveness (e.g., "There is something wrong with me"), experience more severe suicidal crises and remain suicidal for longer periods of time than individuals who do not have these same beliefs. The FVT further suggests that these core beliefs underlie suicide risk across all psychiatric conditions; as such, these suicidal beliefs overlap with, but are independent from, specific psychiatric symptoms. According to the FVT, the observed discrepancies in the literature regarding the relationships among depression, PTSD, and suicide risk are explained by the fact that depression and PTSD are less specific to suicidal thoughts and behaviors than self-derogatory cognitive-affective states such as guilt.

Guilt is conceptualized as an interpersonal cognitive-affective state of regret or remorse resulting from a specific action or behavior that one perceives to be a transgression or violation of the other person's well-being (Kim, Thibodeau, & Jorgensen, 2011; Tangney & Dearing, 2002). Guilt, although experienced as an unpleasant psychological state, is nonetheless a prosocial and adaptive emotional response that decreases the likelihood that an individual will make a similar transgression again in the future, because the nature of experiencing guilt motivates the individual to avoid re-experiencing this aversive cognitive-affective state. Guilt is not always adaptive (also referred to as *legitimate*), however, and in less common circumstances can be maladaptive. Maladaptive guilt differs from legitimate guilt in that one's attributions of responsibility for an outcome are misplaced or disproportionate to what is reasonable (O'Connor, Berry, & Weiss, 1999; O'Connor, Berry, Weiss, Bush, & Sampson, 1997). Supporting the conceptual distinction of legitimate versus maladaptive guilt are the results of a recent meta-analysis, which found that maladaptive but not legitimate guilt was significantly associated with depressive symptom severity (Kim et al., 2011). Maladaptive guilt is also very commonly reported by military personnel and veterans with PTSD (Drescher et al., 2011; Vargas, Hanson, Kraus, Drescher, & Foy, 2013), but was only recently added to the formal diagnostic criteria for PTSD in the recently published fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-5*; American Psychiatric Association, 2013).

As applied to suicide risk, a growing body of research supports the role of guilt among military personnel and veterans, with several studies reporting a sig-

nificant association between guilt and suicide ideation (A. O. Bryan, Bryan, Morrow, Etienne, & Ray-Sannerud, 2014; C. J. Bryan, Morrow, et al., 2013; C. J. Bryan, Ray-Sannerud, Morrow, & Etienne, 2013; Hendin & Haas, 1991) and suicide attempts (Hendin & Haas, 1991; Hyer, McCranie, Woods, & Boudewyns, 1990; Kubany et al., 1996) in military populations. Research further suggests that trauma-related guilt is a risk factor for the later development of depression, PTSD, and substance use disorders (Andrews, Brewin, Rose, & Kirk, 2000; Kim et al., 2011; Leskela, Dieperink, & Thuras, 2002; Marlatt & Gordon, 1985; Meehan, O'Connor, Berry, Weiss, & Acampora, 1996), suggesting that guilt may underlie a range of risk factors associated with suicide risk, and may even mediate the association of depression and PTSD with suicide risk. To date, however, no studies have tested this hypothesis.

The current study used path analysis to examine direct and indirect pathways by which depression, posttraumatic stress, and guilt were related to suicide risk. The primary aim was to evaluate the extent to which the relationships among these variables are consistent with the Fluid Vulnerability Theory of suicide. We specifically hypothesized that among military personnel and veterans, posttraumatic stress and depression would be indirectly related to concurrent suicide ideation through guilt. We tested this hypothesis in two separate samples of military personnel and veterans, one clinical and one nonclinical.

METHOD

SAMPLE 1: STUDENT SERVICE MEMBERS AND VETERANS

Participants. Participants included 464 military personnel and veterans (70.7% male, 27.2% female; 2.1% did not report gender) ranging in age from 19 to 78 years (M = 36.17, SD = 10.25) who were enrolled in college classes across the United States. Self-reported racial identity was 86.9% Caucasian, 8.4% African American, 3.2% Native American, 2.6% Asian, 1.1% Pacific Islander, and 6.9% other (participants could select more than one race category). Hispanic/Latino ethnicity was assessed separate from race, and was endorsed by 10.8% of participants. Approximately one third (34.9%) indicated they were military personnel, and 65.1% indicated they were military veterans no longer in active service. Participants reported serving in the Army (40.1%), Air Force, (30.6%), Navy (19.2%), Marines (7.6%), and Coast Guard (1.3%). Seventy-three percent of participants had deployed at least once.

Procedures. Participants were recruited from universities across the country by administrators working with student service members/veterans on each campus (e.g., military and veteran student coordinators) during the 2013 calendar year (i.e., spring 2013, summer 2013, and fall 2013 academic terms). Information regarding the study was e-mailed to university coordinators, who then forwarded an e-mail message containing a brief description of the project, an invitation to participate, and an embedded hyperlink for an online survey to student service members/veterans enrolled at their respective universities. Upon visiting the study

website, student service members/veterans reviewed the informed consent document and then proceeded to the survey if they agreed to participate. The survey was completed anonymously. Quality checks were conducted by comparing the concordance of responding among similar items located throughout the survey, as well as checking for impossible or highly improbable values that might indicate careless responding (e.g., age of enlistment in military). There were no indictors of inconsistent responding or outliers that would adversely influence the data. Because of the methods employed, it is unknown what proportion of all student service members/veterans eligible to participate actually did so. However, a total of 618 individuals accessed the survey website, of whom 464 completed the survey and indicated that they were student service members/veterans (i.e., 75.1% of all individuals accessing the survey). Participants were not compensated for completing the survey. Approval for the current study was provided by the University of Utah Institutional Review Board.

Measures: Suicide Ideation. The self-report version of the Self-Injurious Thoughts and Behaviors Interview (SITBI; Nock, Holmberg, Photos, & Michael, 2007) was used to assess for the presence of suicide ideation (i.e., "Have you ever had thoughts of killing yourself?"). Participants endorsing this item were then asked to indicate if they had last experienced suicide ideation within the past month to operationalize "recent" suicide ideation.

Measures: Posttraumatic Stress. The 6-item PTSD Checklist-Short Form (PCL-SF; Lang & Stein, 2005) was derived empirically from the full 17-item PTSD Checklist (PCL; Weathers, Litz, Herman, Huska, & Keane, 1993). The PCL-S contains two items from each of the re-experiencing, avoidance, and hyperarousal clusters that correlated most highly with the individual cluster scores on the full PCL. Respondents rate items on a 5-point scale ranging from 1 (*not at all*) to 5 (*extremely*), with higher scores indicating more severe symptoms of posttraumatic stress. Supporting the PCL-SF's construct validity are findings that total scores correlate very strongly (> .93) with the full-scale PTSD Checklist total scores (Lang & Stein, 2005). Internal consistency in the current sample was .93.

Measures: Depression. The nine-item depression scale of the Patient Health Questionnaire (PHQ-9; Kroenke, Spitzer, & Williams, 2001) is a self-report measure that assesses the frequency of each of the nine diagnostic criteria for major depressive disorder during the preceding 2 weeks on a scale ranging from 0 (*not at all*) to 3 (*nearly every day*). Higher scores indicate more severe depression symptoms. Internal consistency in the current sample was .91.

Measures: Guilt. The guilt subscale of the Harder Personal Feelings Questionnaire (PFQ2; Harder & Lewis, 1987) was used to measure guilt. The PFQ2 directs respondents to indicate how frequently they experience six items (e.g., mild guilt, worry about hurting or injuring someone, regret, remorse) on a Likert scale ranging from 0 (*never*) to 4 (*continuously or almost continuously*). The guilt subscale has good internal consistency (> .72) and test–retest stability (> .85) and correlates strongly with other measures of guilt, self-derogation, and social anxiety (Harder, Rockart, & Cutler, 1993; Harder & Zalma, 1990). Internal consistency in the current sample was .85.

SAMPLE 2: ACTIVE DUTY AIR FORCE PERSONNEL

Participants. Participants included 158 active duty Air Force personnel (63.3% male, 35.4% female; 1.3% did not report gender) ranging in age from 20 to 54 years (M = 33.94, SD = 8.50) receiving outpatient mental health care treatment at two Air Force clinics located in the southern and the western United States. Self-reported racial identity was 66.5% Caucasian, 20.9% African-American, 1.3% Native American, 1.3% Asian, 1.3% Pacific Islander, and 5.7% other (3.2% did not report race). Hispanic/Latino ethnicity was assessed separate from race, and was endorsed by 9.5% of participants. Rank distribution was 23.2% junior enlisted (E1–E4), 20.0% noncommissioned officer (E5–E6), 16.2% senior noncommissioned officer (E7–E9), and 20.6% officer. Fifty-six percent of participants had deployed at least once.

Procedures. Participants were recruited from two outpatient military mental health clinics, one located in the southern United States and the second located in the western United States. All current patients and new patients were invited to participate by clinic staff following their regularly scheduled mental health appointments or intake appointments, without exclusion. The only inclusion criterion was to be currently accessing outpatient mental health treatment; there were no exclusion criteria. Patients voluntarily provided informed consent for the study and then completed an anonymous survey packet in the waiting room immediately following invitation and agreement to participate. Completed packets were returned to collection boxes located at the check-in desks of each clinic. A total of 180 patients were invited to participate, of which 158 (87.8%) agreed to participate. The current study was reviewed and approved as exempt research by the Wright-Patterson Air Force Base Institutional Review Board.

Measures: Suicide Ideation. The Beck Scale for Suicide Ideation (BSSI; Beck & Steer, 1991) was used to measure the severity of current suicidal ideation, such as frequency and duration of ideation, specificity of planning, and preparations for death, during the past week. The BSSI has very good internal consistency and convergent validity and has been found to predict future suicide attempts and death by suicide (Beck & Steer, 1991). Internal consistency for the BSSI in the current sample was .87.

Measures: Posttraumatic Stress. The PTSD Checklist, Military Version (PCL-M; Weathers et al., 1993) was used to assess the severity of PTSD symptoms. The PCL-M consists of 17 items that assess each of the *DSM-IV-TR*–defined symptom criteria for PTSD and directs respondents to indicate the severity with which each symptom of PTSD has been experienced within the past month on a scale ranging from 1 (*not at all*) to 5 (*extremely*). The scale has demonstrated excellent reliability and diagnostic utility for PTSD. Internal consistency for the PCL-M in the current sample was .97.

Measures: Depression. The PHQ-9 is described above. Internal consistency in the current sample was .91.

Measures: Guilt. The guilt subscale of the PFQ2 is described above. Internal consistency in the current sample was .85.

DATA ANALYSIS

To test direct and indirect effects among variables, path analyses were conducted using Mplus 6.12 (Muthén & Muthén, 1998–2010). Robust maximum likelihood estimation was used to specify the model, and the following fit indices and thresholds were used to determine goodness of fit: nonsignificant chi-square, comparative fit index (CFI) > .90, root mean square error of approximation (RMSEA) < .08, and the standardized root mean square residual (SRMR) < .08 for continuous outcomes or the weighted root mean square residual (WRMR < 1.00) for binary outcomes.

RESULTS

Means, standard deviations, and zero-order intercorrelations of all variables for both samples are displayed in Table 1. As expected, depression, posttraumatic stress, guilt, and suicide ideation were positively correlated with each other.

STUDENT SERVICE MEMBERS AND VETERANS

Results of the just-identified model indicated that depression and posttraumatic stress symptoms were significantly associated with each other ($\beta = .665, p < .001$) and with guilt (depression: $\beta = .559, p < .001$; posttraumatic stress: $\beta = .235, p < .001$). Guilt was significantly associated with suicide ideation ($\beta = .242, p < .031$). The direct effect of depression on suicide ideation was nonsignificant ($\beta = .179, p = .134$), but the indirect effect through guilt was statistically significant ($\beta = .135, p < .038$). The direct effect of posttraumatic stress on suicide ideation was statistically significant ($\beta = .230, p = .039$), as was the indirect effect through guilt ($\beta = .057$, p = .033). When we removed the nonsignificant direct pathway from depression to suicide ideation, the resulting model demonstrated excellent fit to the data: $\chi^2(1) = 2.18, p = .140$; CFI = 1.00; RMSEA = .05 [.00, .14]; WRMR = .23. In this final model (see Figure 1), the indirect effect of posttraumatic stress on suicide ideation through guilt was statistically significant ($\beta = .065, p = .004$), as was the indirect effect of depression on suicide ideation ($\beta = .203, p < .001$). There was also a statistically significant direct effect of posttraumatic stress on suicide ideation ($\beta = .322, p = .001$). The final model accounted for 55.1% of the variance in suicide ideation. Post-hoc analyses indicated that guilt had a significantly stronger association with depression ($r = .71$) than posttraumatic stress ($r = .60$; $Z = 4.21, p < .001$).

TABLE 1. Means, Standard Deviations, and Intercorrelations of Variables in Two Samples of Military Personnel and Veterans

	Sample 1: Student service members/veterans (n = 464)					
	M	**SD**	**1.**	**2.**	**3.**	**4.**
1. Suicide ideation[a]	–	–	1.00			
2. Posttraumatic stress	14.59	7.25	0.29	1.00		
3. Depression	16.52	6.60	0.40	0.68	1.00	
4. Guilt	12.14	5.09	0.33	0.60	0.71	1.00
	Sample 2: Outpatient Air Force clinic (n = 158)					
	M	**SD**	**1.**	**2.**	**3.**	**4.**
1. Suicide ideation	2.03	3.74	1.00			
2. Posttraumatic stress	40.71	18.51	0.27	1.00		
3. Depression	9.85	6.92	0.29	0.70	1.00	
4. Guilt	7.45	5.31	0.46	0.55	0.52	1.00

Note. [a]Suicide ideation was coded 0 = no suicide ideation during past week and 1 = suicide ideation during past week; all correlations are statistically significant at $p \leq .001$.

AIR FORCE PERSONNEL IN OUTPATIENT MENTAL HEALTH CARE

Results of the just-identified model indicated that depression and posttraumatic stress symptoms were significantly associated with each other ($\beta = .728, p < .001$) and with guilt (depression: $\beta = .338, p = .001$; posttraumatic stress: $\beta = .273$, $p = .006$). Guilt was significantly associated with suicide ideation ($\beta = .444, p < .001$). The direct effect of depression on suicide ideation was nonsignificant ($\beta = -.059, p = .598$), but the indirect effect through guilt was statistically significant ($\beta = .150, p = .005$). The direct effect of posttraumatic stress on suicide ideation was nonsignificant ($\beta = .128, p = .246$), but the indirect effect through guilt was statistically significant ($\beta = .121, p = .016$). When we removed the nonsignificant direct pathways from depression and posttraumatic stress to suicide ideation, the resulting model demonstrated excellent fit to the data: $\chi^2(2) = 1.39, p = .499$; CFI = 1.00; RMSEA = .00 [.00, .15]; SRMR = .02. In this final model (see Figure 2), the indirect effect of posttraumatic stress on suicide ideation through guilt was statistically significant ($\beta = .131, p = .011$), as was the indirect effect of depression on suicide ideation ($\beta = 162, p = .002$). The final model accounted for 22.9% of the variance in suicide ideation. Post-hoc analyses indicated that the strength of the associations of guilt with depression ($r = .52$) and posttraumatic stress ($r = .55$) did not differ from each other in magnitude ($Z = .59, p = .556$).

DISCUSSION

As would be expected, results of the current study indicated that posttraumatic stress and depression symptoms are highly interrelated with each other, and are

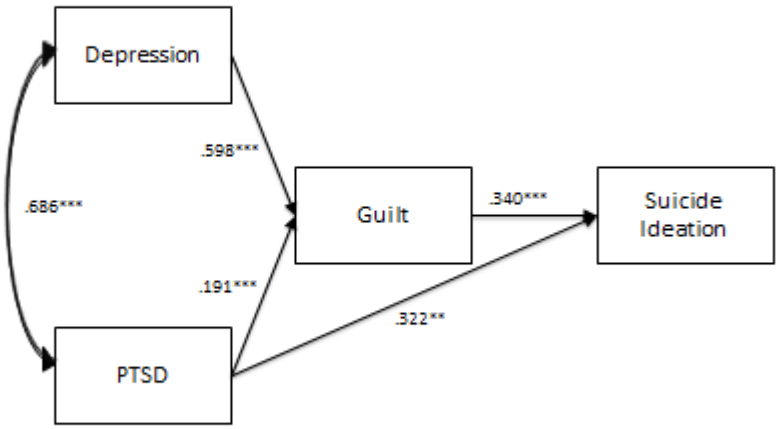

FIGURE 1. Final path model with standardized beta coefficients for student service members and veterans (Sample 1). *$p < .05$. **$p < .01$. ***$p < .001$.

associated with suicide ideation among military personnel and veterans. These findings align with previous reports that depression and posttraumatic stress are associated with risk for and severity of suicide ideation (i.e., LeardMann et al., 2013; Nock et al., 2014). Furthermore, guilt was significantly associated with suicide ideation in both samples, which aligns with previous research (A. O. Bryan, Bryan, et al., 2014; C. J. Bryan, Morrow, et al., 2013; C. J. Bryan, Ray-Sannerud, et al., 2013; Hendin & Haas, 1991). Consistent with our hypotheses, depression was indirectly related to suicide ideation through guilt across both samples, although some minor differences were observed between the two samples with respect to posttraumatic stress. In Sample 1 (student service members and veterans), guilt only partially accounted for the relationship of posttraumatic stress with suicide ideation, whereas in Sample 2 (Air Force outpatients), guilt fully accounted for this relationship. One possible explanation for this finding is that the relationships among these constructs differ across the two samples. Careful consideration of the zero-order correlation coefficients provides some support for this possibility. In Sample 1, guilt had a stronger association with depression than posttraumatic stress, but in Sample 2, the strength of the associations of guilt with depression and posttraumatic stress did not differ from each other in magnitude. Related to this, the magnitude of the correlation between guilt and depression was significantly larger in Sample 1 than in Sample 2. The pathway from depression to suicide ideation therefore appears to be relatively stronger in our sample of student service members and veterans as compared to our sample of Air Force outpatients. Another possible explanation for partial mediation in Sample 1 versus full mediation in Sample 2 is the difference in sample sizes. Specifically, smaller sample sizes are more likely to yield models suggesting full mediation (Preacher & Kelley, 2011). Despite these slight differences, our findings nonetheless suggest that guilt

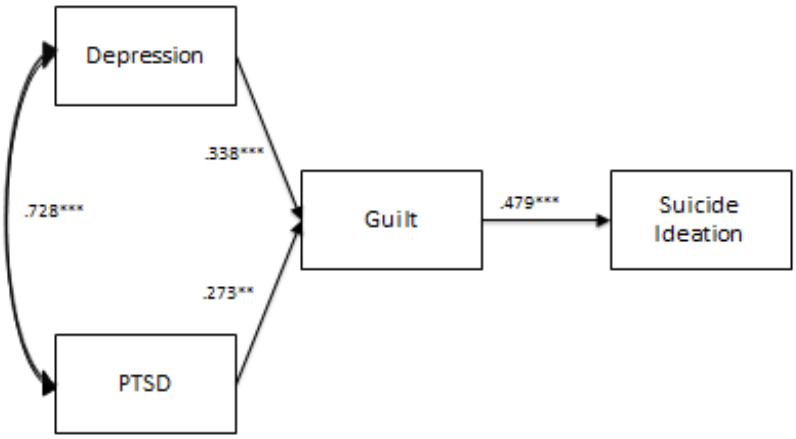

FIGURE 2. Final path model with standardized beta coefficients for military personnel in outpatient mental health treatment (Sample 2). *$p < .05$. **$p < .01$. ***$p < .001$.

may play an important role in the emergence of suicide risk among military personnel and veterans. Additional studies, especially those utilizing prospective designs, are needed to further examine these relationships and confirm these results.

The present findings are consistent with the fluid vulnerability theory of suicide, which posits that self-deprecation and negative self-perceptions such as maladaptive guilt serve as underlying vulnerabilities to suicide risk and provide a mechanism for understanding *why* depression and posttraumatic stress might be related to suicide risk among military personnel and veterans. Our findings are also consistent with emerging conceptual and empirical work focused on the construct of *moral injury*. Morally injurious experiences entail events in which an individual perpetuates, fails to prevent, witnesses, or learns about acts that violate his or her moral beliefs (Drescher et al., 2011; Litz et al., 2009). Although moral injury overlaps with traditional fear-based models of posttraumatic stress, it is proposed to be a distinct psychological injury. For instance, guilt, shame, and self-deprecation are among the most common signs and symptoms of moral injury (Drescher et al., 2011), but these psychological experiences and symptoms have only recently been incorporated into the formal diagnostic criteria for posttraumatic stress disorder. Recent research has supported an association among moral injury, suicide ideation, and suicide attempts, and has also suggested that moral injury (especially distress about one's own moral transgressions) may serve as a mechanism that underlies the relationship of posttraumatic stress with suicide-related outcomes (A. O. Bryan, Bryan, et al., 2014). Research also suggests that self-forgiveness following perceived inappropriate actions is associated with decreased risk for suicide attempts and moderates the effect of posttraumatic stress on risk for suicide attempts among military personnel and veterans (A. O. Bryan,

Theriault, & Bryan, 2015). Taken together, our results converge with a growing body of evidence suggesting that the way in which military personnel and veterans judge themselves and their actions may explain why some contemplate suicide and make suicide attempts within the context of psychological distress whereas others do not.

Clinically, these findings can be utilized to improve treatment outcomes with suicidal military personnel and veterans. Brief cognitive-behavioral therapy that directly targets guilt and other self-deprecatory beliefs, for instance, contributes to significant reductions in posttreatment suicide attempts among military personnel (Rudd et al., 2015). Evidence also suggests that trauma-focused therapies such as cognitive processing therapy and prolonged exposure contribute to reductions in suicide ideation (Gradus, Suvak, Wisco, Marx, & Resick, 2013), which may be a result of the significant reductions in guilt that occur within these two therapies (Resick, Nishith, Weaver, Astin, & Feuer, 2002). Additional research is needed to confirm that guilt is the primary variable that mediates reductions in suicide risk in these treatments.

Although there were some differences across the two distinct samples considered in this study, there were many more similarities in our results, which is a relative strength of the current study. Despite this strength, conclusions should be made with consideration of several limitations. For example, there is a possibility of a self-selection bias, especially in Sample 1, that may have affected our data. It is possible that service members and veterans experiencing more guilt were more likely to participate in our studies, which could skew our results. Unfortunately, because there are no published representative data regarding the population of student service members and veterans in the United States, we are unable to determine how similar (or dissimilar) our sample is from the larger population. A second limitation of our study is that our data were obtained from self-report measures. Future studies that incorporate structured clinical interviews are needed to replicate these results. Finally, although our two samples were distinct and diverse, our findings may nonetheless have limited generalizability to the broader military and veteran community. Replication with military personnel from other branches of service and veterans who are not enrolled in college classes are needed to temper these initial findings. Research in other nonmilitary samples is also needed to determine the generalizability of findings and conclusions more broadly. Despite these limitations, the current study provides support for the role of guilt in understanding suicide risk among military personnel and veterans, and it also supports the need for further research in this area.

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