

Review

Role of morality in the experience of guilt and shame within the armed forces

Nazarov A, Jetly R, McNeely H, Kiang M, Lanius R, McKinnon MC. Role of morality in the experience of guilt and shame within the armed forces.

Objective: Despite advances in our understanding of mental health issues among military forces, a large proportion of military personnel continue to exhibit deployment-related psychological issues. Recent work has identified symptoms of guilt and shame related to moral injury as contributing significantly to combat-related mental health issues. This systematic scoping review explores the association between morality and symptoms of guilt and shame within military forces.

Method: A search of the literature pertaining to guilt, shame and morality within military samples was conducted.

Results: Nineteen articles were selected for review. There is strong evidence linking exposure to and the perceived perpetration of moral transgressions with experiences of guilt and shame. Critically, symptoms of guilt and shame were related to adverse mental health outcomes, particularly the onset of post-traumatic stress disorder (PTSD). No studies have explored moral judgment in conjunction with assessments of guilt or moral injury.

Conclusion: These findings have important implications for the prevention and treatment of PTSD-related symptoms in military samples. By measuring moral judgment prior to deployment, it may be possible to predict the likelihood of incurring moral injuries and the development of associated symptoms. Early intervention programmes aimed at ameliorating guilt and shame are required to prevent the long-term development of deployment-related psychological distress.

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Summations

- The increased number of veterans and active military personnel seeking mental health services points towards an imminent need for an enhanced understanding of how military operations affect the psychological health of army personnel during training, active duty, postdeployment and after release.
- There is accumulating evidence suggesting a link between the perceived transgression of moral standards, symptoms of guilt and shame, suicidal ideation and PTSD within military samples.
- Recent research surrounding the concept of moral injury suggests that experiences of guilt and shame may represent the pathological core of many combat-related PTSD cases.

Considerations

- To date, leading treatment interventions for PTSD have centred predominantly on fear-based symptoms; treatment interventions that target symptoms of guilt and shame in military populations are urgently required.
- Early intervention programmes targeting personnel that endorse postdeployment moral injuries may reduce the development of guilt-based PTSD.
- Assessment of predeployment styles of moral judgment may predict the likelihood of perceived moral injury and of experiencing symptoms of guilt and shame and therefore the risk of developing combat-related PTSD.

Introduction

The United States (US) Armed Forces and the Canadian Forces (CF) collectively employ over 2 400 000 personnel (2 344 000 US; 100 000 CF), representing 1.5% and 0.5% of the countries' total labour forces respectively (1). As of 2013, there are 1 520 100 US and 60 000 CF active personnel, with units deployed across 150 countries (1). With an increase in CF and US veterans seeking mental health services (2–4), Canada's Department of National Defense (DND) and the US Department of Defense (DoD) have placed increased emphasis on ensuring the mental health of military personnel. This emphasis is evident through the introduction of: more streamlined access to care (5), mental health surveys (6), and educational programs for personnel and their families geared towards raising mental health awareness (7, 8) and training to cope with stressors (7, 9). Despite increased efforts to dampen the residual effects of military operations on the psychological health of personnel, operational stress injuries (OSI; persistent psychological difficulties resulting from military duties) are still prevalent. Post-traumatic stress disorder (PTSD) accounts for the largest proportion of OSI encountered in the CF (2) and remains one of the most common disorders seen after deployment in US personnel (10). In addition to classical symptoms associated with PTSD (e.g. nightmares, trauma avoidance (11)), recent work indicates that combat personnel diagnosed with PTSD also show marked disruptions in emotion regulation (12, 13), autobiographical memory (14), attention (15), theory of mind (16) and interpersonal functioning (17–20). Furthermore, the presence of guilt and shame frequently reported by military personnel (21–23) may interact with these domains and further exacerbate the alterations (24) (e.g. impede relationships through isolation and self-deprecation, distort autobiographical memory narrative). Critically, these disruptions are present despite rigorous mental health screening during the selection process, and the presumptive selection of personnel that represent a more resilient subset of the population.

A recent study of 2000 CF personnel deployed to Afghanistan (2001–2008) indicates that within 4 years of returning home from the combat theatre, approximately 14% were diagnosed with a deployment-related mental disorder, with PTSD being the most common diagnosis at 8% (25), followed closely by major depressive disorder (MDD) at 6%. Within this sample, being

deployed to combat-heavy zones increased PTSD rates to 25% (25). The cumulative risk of developing deployment-related PTSD plateaued at approximately 6 years following return home from first deployment. The authors of this study, however, suggest that these rates may be underestimated, considering the mental health information of the sample was available only when diagnosis was made by CF mental health services and only over the course of a median follow-up period of 3.7 years. Interestingly, these findings parallel reports from the DoD in the United States, where the estimated rate of PTSD is 11% among US veterans of the war in Afghanistan (10, 26). Similar to the Canadian experience, rates of PTSD in US veterans who served in what has been described as heavier combat, particularly in the Vietnam War, Iraq War and Gulf War, have been estimated at 30% (27), 20% (26) and 10% (28) respectively. This is in line with reports suggesting a linear association between combat exposure and PTSD symptomatology (29). Although it is difficult to compare PTSD rates between civilian and military samples, according to research conducted prior to the war in Afghanistan, it is estimated that lifetime prevalence of PTSD in Canada is at least two times greater for soldiers involved in combat than for the general population (30, 31).

Critically, in the United States, veterans comprised 22% of all nationwide suicides in 2012 (32). Given that 60% of all veteran committing suicide were 50 years of age or older, a large proportion of the veteran sample represents Vietnam or Korean War veterans, and therefore may not be indicative of mental health issues faced by current military personnel. As of 2012, however, suicide (349 deaths; 915 attempts) has overtaken combat operations (311 deaths) as the most common cause of death in personnel currently serving in the US military (33), with almost 70% of all currently serving US military suicides involving personnel 29 years old or younger (34). Since the onset of the war in Afghanistan and Iraq, the US military has seen a 100% increase in number of suicides within active duty personnel (35). Over the last decade, VAC saw a 600% increase in the number of veterans seeking VAC services due to OSI (from 2000 to 14 500)(36), with over 60% of CF personnel seeking VAC mental health services after deployment (25). These findings signify an imminent need for a comprehensive understanding of how military operations affect the psychological health of army personnel during training, active duty, postdeployment and after release.

Guilt and shame

A series of studies indicate that experiences of guilt and shame are reported widely in individuals with PTSD (21–23) and that both guilt and shame are closely linked to suicide and suicidal ideation in military samples (37–39). Notably, symptoms of guilt and shame have been cited as the leading cause for seeking US VA mental health services (40). Despite a breadth of research on fear-based PTSD, research on guilt and shame as a core symptom (41, 42) of PTSD psychopathology has been comparatively scarce. Classically, a diagnosis of PTSD assumes that an individual is exposed to a trauma where he/she experiences fear, helplessness or horror in response to the threat to his/her life or the life of someone else. The work of Herman (42), in addition to more recent theories (21, 41), however, has proposed that, in some cases, PTSD may derive from deep feelings of guilt and/or shame after traumatic events, with symptoms of fear being non-existent or secondary in severity.

Although guilt is described in DSM-IV, generally posited as an associated symptom within MDD, it is a common experience for victims of trauma, including but not limited to sexual assault, transportation accidents, natural disasters and after exposure to combat/war. Indeed, DSM-5 now acknowledges ‘persistent distorted blame of self or others for causing the traumatic event or for resulting consequences’ among the core symptoms of PTSD, falling within Criterion D: negative alterations in cognitions and mood. Guilt and shame are complex cognitive and emotional experiences (43) that arise when one perceives one’s behaviour to transgress an internal moral standard (44). The extent to which guilt and shame independently relate to adverse mental health outcomes has proven difficult to evaluate. Shame proneness is associated with PTSD (45), MDD (46–48), generalized anxiety disorder (49) and suicidal ideation (50). Guilt, however, is associated with negative psychological outcomes only when it is paired with experiences of shame (51). Indeed, a recent meta-analysis by Kim et al. (52) found that whereas guilt is not related to MDD symptoms when controlling for shame, shame is significantly associated with MDD symptoms when controlling for guilt. Problematically, in the context of the DSM, the term guilt is captured in a single construct—as a maladaptive, inappropriate sense of responsibility. In the meta-analysis by Kim et al. (52), shame was indistinguishable from maladaptive guilt (e.g. guilt experienced in the aftermath of uncontrollable negative events), suggesting that these two interrelated concepts may

be most relevant to psychopathology, including depression and PTSD. Numerous theories postulate that to experience guilt and shame one requires a sense of social comparison and the ability to interpret others’ perspectives (53) (e.g. theory of mind, an ability known to be altered in PTSD (54)). Correspondingly, whereas simple emotions (e.g. sadness, happiness, anger, fear) appear developmentally early in life, experiences of guilt and shame arise only at approximately the age of 3–4 years (55), alongside the emergence of theory of mind (56–58) and autobiographical memory (59).

Although the terms *guilt* and *shame* are frequently used synonymously, they represent distinct psychological constructs. One of the primary distinctions between the two concepts is the object of negative evaluation after a moral transgression; with guilt, the object of evaluation is the specific transgressing behaviour, whereas shame entails an extrapolation of that behaviour to a global evaluation and redefinition of the self (60). Accordingly, shame entails the process of self-blame for global personal inadequacies or flaws that are perceived as being stable over time and not mendable (60–62). The accompanying experiences of worthlessness, powerlessness and inferiority translate into behaviours of avoidance and withdrawal. By contrast, guilt involves an acknowledgement of the deleterious effect of behaviour on others, an appropriate sense of responsibility and an understanding that despite the moral transgression, one is still virtuous, future goals are attainable, and reparation is possible (63). Here, the experiences of tension, regret and remorse are translated into an ‘approach-and-amend’ behaviour. Whereas the psychological distress in shame involves an inward focus of distress leading to eventual annihilation of the self (64), the distress in guilt is channelled outwardly towards interpersonal reparation (65). Indeed, whereas individuals experiencing guilt display enhanced interpersonal sensitivity via increased empathy (66) and theory of mind performance (65), shame is associated with decreased empathy and theory of mind (65) and reduced interaction with others (67). Importantly, outcomes differ significantly between guilt and shame; shame yields self-condemnation, while guilt creates an opportunity for self-forgiveness.

To experience guilt or shame, one must perceive one’s behaviour as diverging from the moral values and standards with which one identifies. In a landmark review by Litz et al. (21) of psychological injuries among war veterans, a *moral injury* was identified as ‘any personal action/inaction that transgresses this subjective moral standard’. A

moral injury may occur not only while being the perpetrator of the transgressing behaviour, but also when: one, bearing witness to it; two, failing to prevent it; or three, experiencing certain emotions after learning of transgressing behaviours, with the emotions, upon reflection, being considered subjectively amoral. It has been classically observed that a traumatic memory may facilitate the onset of fear-based PTSD. A moral injury may also act as, or in lieu of, a traumatic memory, creating a similar symptom profile (68). Specifically, experiences of shame mirror the re-experiencing and avoidance/emotional numbing symptom clusters of PTSD (68). Persistent re-experiencing of moral violations is considered aversive because it weakens self-esteem, reinforces feelings of worthlessness and in turn, leads to increased self-condemnation and withdrawal (21). Considering the large overlap between guilt, shame and PTSD within the military, the experience of guilt and shame may be the fundamental pathological core of most combat-related PTSD cases (21, 38, 64).

Moral injuries are considered to be much more prevalent in today's military, due primarily to the increased unconventionality of several domains of today's military operations that go against schematic beliefs about warfare (see Litz et al. (21) for a comprehensive review). Specifically, increased urban warfare and unmarked enemy combatants pose a greater risk to not only military personnel but also increases the risk of harm being inflicted on civilians. Despite military training geared towards preparing soldiers for a multitude of situations expected during combat operations, a study of US soldiers serving in Iraq/Afghanistan revealed that up to 30% faced morally ambiguous situations where they were unsure of how to properly react (69). Additionally, in a survey of a similar sample of US military personnel, over 20% reported being responsible for a non-insurgent's death (26). Equally concerning is the large proportion of suicides by military personnel that never experience combat. For example, a study of suicide within the US Air Force showed that only 25% of personnel that committed suicide had ever been deployed, with only 7% seeing combat (34). It is possible that military operations within non-deployed personnel may also result in exposure to moral injuries, albeit more subtly.

Given that the moral integrity (and at times, disengagement) of military personnel is central to a functional military organization, recent awareness of the potential impact of moral injuries and the high incidence of psychological distress within the military personnel that is comorbid with the experience of moral emotions (guilt and shame

symptoms), it is critical to identify how these factors interact.

Aims of the study

In this review, we explore the literature on the association between morality (moral judgment or exposure to moral transgressors) and the experience of guilt and shame within the military. A secondary aim was to explore the relation of morality, guilt and shame to the development of adverse mental health outcomes among military members, including PTSD.

Material and methods

To obtain relevant literature, four internet databases (PsycINFO, EMBASE, MEDLINE and CINAHL) were searched for articles published between January 1900 and June 2014. To be included in this review, articles must have explored three research domains: morality, guilt/shame and military (see Table 1 for search terms). To ensure our search strategy was comprehensive, the initial search results contained articles that explored at least two of the three domains. We placed no other restrictions on the initial search. Articles resulting from the search were independently screened by two raters. In addition, the references of included articles were searched for studies not captured by

Table 1. Domains and associated search terms investigated in the scoping review

Domain [†]		
Guilt/Shame	Morality	Military
Guilt	Morality	Military
Shame	Morals or moral	Army
Humiliation	Moral development	Service member
or ashamed or		Arm* force
embarrass* or		Military personnel
Disgrace* or		Veteran
dishono* or		Military schools
forgiveness or		Military deployment
condemn*		Military attrition
		Enlisted military personnel
		Military veterans
		Military medical personnel
		Military duty status
		Military psychology
		Military training
		Volunteer military personnel
		Military psychologists
		Military enlistment
		Military recruitment
		Military families
		War
		Military services

[†]where appropriate, search terms were mapped to keyword headings of each database and had its term exploded.

*search was conducted on any combination of characters proceeding the keyword.

the initial search terms. The search terms and strategy were confirmed by a health sciences librarian.

Inclusion criteria during title and abstract screen:

- i) Assessed moral judgment or explored moral transgressions.
- ii) Explored experiences of guilt and shame.
- iii) Studied a military sample.

Inclusion criteria during full-text screen:

- i) Text available in full.
- ii) Primary, peer-reviewed research (no dissertations).
- iii) Written in English.
- iv) Confirmation of focus on the three domains.

Results

A total of 6325 references were screened with 19 articles being selected for review (see Fig. 1 for the systematic review screening process). Inter-rater reliability was high (title and abstract screen: 0.96; full-text screen: 0.94), as assessed by Gwet's AC1/2 inter-rater reliability coefficient (70). Please refer to

Table 2 for study characteristics and Table 3 for a summary of the results of included articles.

Correlations between exposure to and the perceived perpetration of atrocities and the onset of guilt symptoms in military personnel have been widely reported (40, 71–79). This relation holds even when controlling for combat exposure (1, 75, 76, 79; see Table 3). In studies that reported this association, the majority of study samples were comprised of primarily Vietnam War veterans (sample size mean = 775, SD = 694), although two studies confirmed this relation in Ugandan former child soldiers (77) and in Operation Enduring Freedom/Operation Iraqi Freedom (OEF/OIF) (78). Tools used to assess guilt in the study samples varied greatly and ranged from validated guilt/shame scales to dichotomously coded items derived from open-ended interviews. In no instance was morality assessed globally (via moral reasoning or judgment) nor with validated scales and instead typically involved identifying whether the respondent was exposed to morally injurious events. Combat exposure was assessed primarily by the Combat Exposure Scale (80). Notably, these

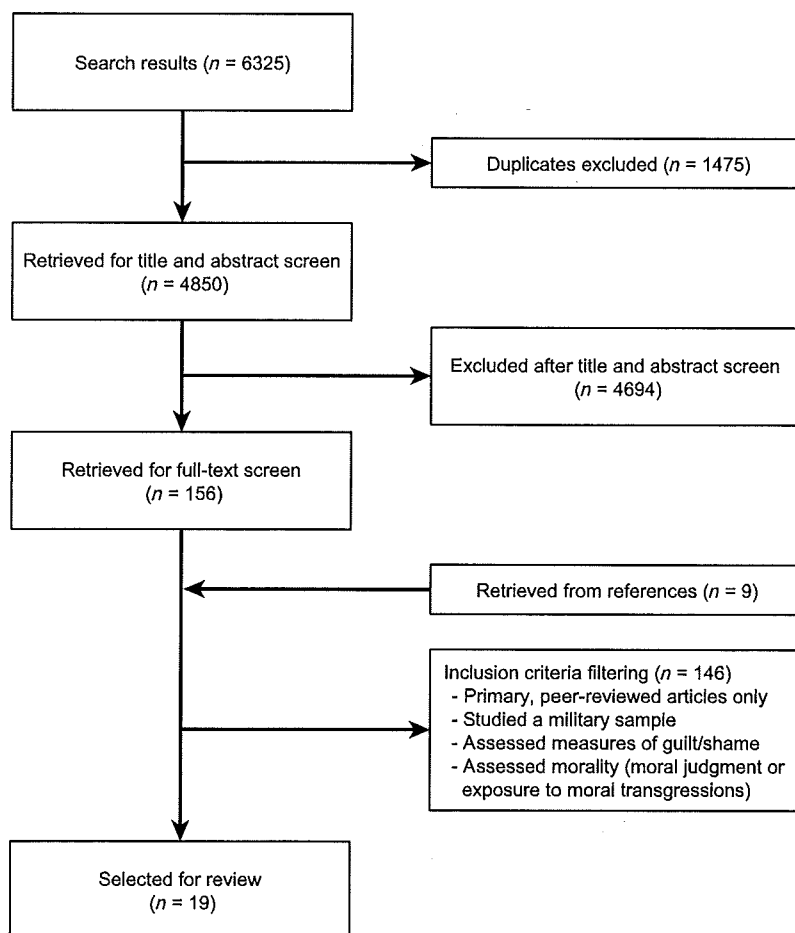


Fig. 1. Flow diagram of systematic article selection.

Table 2. Study parameters of reviewed articles

Author (year), Country	Sample groups	PTSD assessed	Sample size	Combat exposure assessed	Theatre of operations	Guilt/Shame assessments	Morality assessments	Moral transgression assessments
Laufer (1984), USA (71)	Veterans	Stress Scale (111)	350	Combat Scale (non-validated) (71)	Vietnam War	Psychiatric Epidemiological Research Interview (112) (feelings of guilt subscale)	Psychiatric Epidemiological Research Interview (112) (feelings of demoralization subscale)	Exposure to Abusive Violence (Interview – non-validated) (71)
Glover (1990), USA (93)	Veterans	DSM-III diagnosis	339		Vietnam War	VREQ (93)		VREQ (93)
Yehuda (1992), USA (73)	Veterans	SCID (DSM-III-R) (113); M-PTSD (92); Figley Scale for Combat PTSD (Figley & Stretch, unpublished)	40	CES (80)	Vietnam War	Not explicitly reported – potentially HAM-D (114) Guilt Items		The Atrocity Scale (Brett & Laufer, unpublished)
Fontana (1992), USA (72)	Veterans	SCID (DSM-III-R) (113)	1709	Revised Combat Scale (115); War Stress Interview (116)	Vietnam War	AGENT cluster; FAILURE cluster (guilt sx over failing to fulfil duties/save the wounded, etc.)		AGENT cluster (Guilt sx due to being the agent of killing) measured according to convention used by Laufer et al. (117)
Henning (1997), USA (74)	Veterans	CAPS (118); M-PTSD (92)	40	Revised Combat Scale (80)	Vietnam War (85%); WWII (5%); Korea (5%); Gulf War (5%)	The Guilt Inventory (119); CGS (74) (created for present study)		Combat Guilt Scale (74) (created for present study, Subscales: survival guilt, guilt about acts of commission, guilt about acts of omission, guilt about thoughts/feelings)
Kubany (1997), USA (81)	Veterans	M-PTSD (92); PCL (120)	106	CES (121)	Vietnam War	Harder Personal Feelings Questionnaire (122); The Guilt Inventory (119); TRGI (123)		STRGS-WZ (81)
Beckham (1998), USA (75)	Veterans	M-PTSD (92); CAPS (118); Davidson Trauma Scale for PTSD (124)	151	CES (121)	Vietnam War	TRGI (123)		Vietnam Era Stress Inventory (125) (Atrocities Exposure subscale)
Fontana (2004), USA (40)	Veterans	M-PTSD (92)	1385	No objective measure – distressing experiences only (see moral transgression column)	Vietnam War (95%); WWII (5%)	Laufer-Parsons Guilt Inventory (126)	Two questions querying changes in religious faith (FAITH cluster)	Indicated whether 11 experiences were distressing, based on structured interviews (AGENT cluster – killing others, excitement from killing others, participating in atrocities)
Witvliet (2004), USA (87)	Veterans	CAPS (118); M-PTSD (92); Davidson Trauma Scale for PTSD (124)	213	CES (121)		Forgiveness of Others and Forgiveness of Self Scales (127)	The Brief RCOPE (128)	
Marx (2008), USA (90)	Veterans	SCID (DSM-III-R) (113); M-PTSD (92); PTSD Keane Scale (91)	1081	CES (121); War Stress Interview (116)	Vietnam War	Items from Laufer-Parsons Inventory (115)		Items from Laufer-Parsons Inventory (115)
Klasen (2010), Germany (77)	Former Child Soldiers	MINI-KID (129)	330	CSTQ (130)	Uganda	Guilt Cognitions Scale of the TRGI (123)	The Brief RCOPE (128)	CSTQ (130) (Perpetrator Subscale)
Marx (2010), USA (76)	Veterans	SCID (DSM-III-R) (113)	1323	CES (121)	Vietnam War	Laufer-Parsons Inventory (115)		One item from the War Stress Inventory (116)

Table 2. (Continued)

Author (year), Country	Sample groups	PTSD assessed	Sample size	Combat exposure assessed	Theatre of operations	Guilt/Shame assessments	Morality assessments	Moral transgression assessments
Berg (2011), USA (82)	Veterans	Watson PTSD Interview (131)	94		Vietnam War	Berg Spiritual Injury Scale* (non-validated)	Spiritual Profile Assessment (132); Intrinsic/Extrinsic Religious Motivation Scale (133)	Berg Spiritual Injury Scale* (non-validated)
Ogden (2011), USA (83)	Veterans	PCL (120)	110	CES (121)	DEF/OIF	Religious Comfort and Strain Scale (134) (religious guilt subscale)	Religious Comfort and Strain Scale (134); The Brief RCOPE (128); PTGI (135)	
Gray (2012), USA (84)	Active Duty	PCL-M (120)	44		DEF/OIF	PTCI (136)		Used sx of MDD as a proxy for distress result from traumatic loss and moral injury
Stein (2012), USA (78)	Active Duty	PSS-I (137)	122		DEF/OIF	TRGI (123)		(Validation of Moral Injury Categories for war-zone exposure)
Nash (2013), USA (85)	Active Duty	PCL (120)	1039	CES (121)	DEF/OIF	MIES (85)		MIES (85)
Vargas (2013), USA (86)	Veterans	None (NVVRS average: 31% lifetime PTSD; 15% current PTSD)	300		Vietnam and other areas served between 1964 and 1975	'Self-deprecation' cluster from open-ended interview probing moral injuries	'Spiritual/Existential Issues' cluster from open-ended interview probing moral injuries	Open-ended interview probing moral injuries (86)
Currier (2014), USA (79)	Veterans	M-PTSD (92); Diagnostic Interview Schedule (138)	1203	Traditional combat exposure scale (139)	Vietnam War	3 dichotomous guilt questions during NVVRS		Four-item measure to assess atrocity exposure

CAPS, Clinician-Administered PTSD Scale; CES, Combat Exposure Scale; CGS, Combat Guilt Scale; CSTQ, Child Soldiers Trauma Questionnaire; DSM, Diagnostic and Statistical Manual of Mental Disorders; HAM-D, Hamilton Rating for Depression; M-PTSD, Mississippi Scale for Combat-Related PTSD; MDD, Major Depressive Disorder; MIES, Moral Injury Evaluation Scale; MINI-KID, Mini International Neuropsychiatric Interview for Children and Adolescents; NVVRS, National Vietnam Veterans Readjustment Study; DEF/OIF, Operation Enduring Freedom and Operation Iraqi Freedom; PCL, PTSD Checklist; PSS-I, Post-traumatic Symptom Scale, Interview Version; PTCI, Post-traumatic Cognitions Inventory; PTGI, Post-traumatic Growth Inventory; PTSD, Post-traumatic Stress Disorder; SCID, Structured Clinical Interview for DSM Disorders; STRGS-WZ, sources of trauma-related guilt survey-war-zone version; sx, symptoms; TRGI, Trauma-Related Guilt Inventory; VREQ, Vietnam Related Experiences Questionnaire.

*Found on www.spiritualassessment.com/sis.pdf

Military mental health and morality

Table 3. Summary of results from reviewed studies.

Author (Year), Country	Results*	Limitations
Laufer (1984), USA (71)	Caucasian veterans: participation in violence was associated with lower levels of feelings of demoralization ($b = -7.5, P < 0.05$) and guilt ($b = -11.1, P < 0.05$) vs. those who did not participate in violence African American veterans: participation in violence was associated with higher levels of feelings of demoralization ($b = 11.4, P < 0.05$) and guilt ($b = 11.5, P < 0.05$) vs. those who did not participate in violence	Retrospective Non-validated interview was used to assess exposure to abusive violence
Glover (1990), USA (93)	Factor analysis of the VREQ items showed that both types of guilt (survival guilt and guilt related to acts of abusive violence) were loaded onto the same factor ($\lambda = 4.6$). Participants in atrocities may be exposed to a greater number of combat stressors and therefore exposed to both types of traumatic events.	Combat exposure was not assessed Retrospective No control group
Yehuda (1992), USA (73)	Strong correlation between exposure to atrocities and HAM-D scores ($r = 0.46, P < 0.05$). No associations between combat exposure and HAM-D scores ($r = 0.10, P > 0.05$). Increased exposure to atrocities ($r = 0.70, P < 0.05$), but not exposure to combat ($r = 0.07, P > 0.05$), was strongly associated with PTSD sx	Small sample size Retrospective No control group Associations with HAM-D guilt items were not explicitly reported Non-validated measure of moral transgression exposure
Fontana (1992), USA (72)	Participation in atrocities was related to increased sx of guilt ($r = 0.54, P < 0.0001$) Guilt sx over participation and failure to prevent atrocities was related to an increased risk of suicide ($b = 0.09, P < 0.01; b = 0.11, P < 0.0001$), more so than to a diagnosis of PTSD ($b = 0.07, P < 0.05; b = 0.08, P < 0.001$)	Clinician-based measure of exposure to traumas Retrospective (up to 20 years) Treatment-seeking only
Henning (1997), USA (74)	Most frequently endorsed items on the CGS related to acts of commission and omission, whereas items reflecting survival guilt, guilt about one's thoughts and feelings during combat, and shame were less frequently reported. Increased guilt on the CGS was related to overall PTSD severity (M-PTSD) ($r = 0.49, P < 0.001$) and the re-experiencing ($r = 0.46, P < 0.01$) and avoidance ($r = 0.45, P < 0.01$) subscales of the CAPS.	Small sample size No control group Retrospective Did not separately analyse different sources of guilt Dichotomous format for guilt items
Kubany (1997), USA (81)	Most common sources of guilt on the STRGS-WZ did not include guilt due to perpetration or exposure to moral transgressions. Inconsistent with popular view that perpetration of atrocities is most common source of Vietnam-related guilt	Collection of studies developing and validating the STRGS-WZ scale Retrospective
Beckham (1998), USA (75)	Controlling for combat exposure, PTSD ($b = 0.54, R^2 = 0.14, P < 0.05$) and guilt sx ($b = 0.04, R^2 = 0.13, P < 0.05$) were highly associated with exposure and/or perpetration of atrocities	Retrospective Non-validated assessment of perpetration/exposure to atrocities No control group
Fontana (2004), USA (40)	Guilt sx mediated the association between perpetrations of atrocities and reduced comfort derived from religious faith after service (direct b: -0.08 ; indirect: $0.34[-0.11]$) Guilt sx ($b = 0.09$) and weakened religious faith ($b = -0.08$) were strongest predictors for increased use of VA mental health services.	Retrospective interview-based assessment of traumas No control group
Witvliet (2004), USA (87)	Negative religious coping and unforgiving of self was related to increased PTSD (M-PTSD) ($b = 0.25, P < 0.001; b = 0.19, P < 0.01$) and depression ($b = 0.29, P < 0.001; b = 0.22, P < 0.001$) sx	Retrospective No control group Moral injury and general moral reasoning was not assessed
Marx (2008), USA (90)	Statistical prediction instrument (containing guilt items) identified the presence of PTSD more accurately (sensitivity = 0.98, specificity: 0.43) than the PTSD Keane Scale (sensitivity = 0.98, specificity: 0.33) and almost as accurate as M-PTSD Scale (sensitivity = 0.99, specificity: 0.54).	Retrospective Development and validation study
Klasen (2010), Germany (77)	Resilient child soldiers endorsed less perpetration of moral transgressions vs. child soldiers with PTSD ($M = 2.87$ vs. $M = 3.55, P = 0.005$) Severity of perpetration of moral transgressions and exposure to atrocities were significantly associated with guilt sx ($r = 0.27, P < 0.001; r = 0.20, P < 0.001$), PTSD sx ($r = 0.24, P < 0.001; r = 0.28, P < 0.001$), depression sx ($r = 0.22, P < 0.001; r = 0.32, P < 0.001$) and lowered perception of spiritual support ($r = 0.18, P < 0.01; r = 0.12, P < 0.05$)	Retrospective Unique sample – not generalizable to common military settings Psychopathology may be also related to trauma related to family separation
Marx (2010), USA (76)	Combat-related guilt indirectly mediated the relation between exposure to abusive violence and PTSD (indirect effect: 0.24) and MDD (indirect effect: 0.16) diagnoses Relation between participation in abusive violence and PTSD (indirect effect: 0.21) and MDD (indirect effect: 0.12) diagnoses was fully mediated by combat-related guilt	Mediation analysis on cross-sectional data Retrospective Small sample size
Berg (2011), USA (82)	Guilt sx, lack of meaning and religious doubt (subscales from the Spiritual Injury Scale) were strongly correlated with depression ($t = 4.95, P < 0.001; t = 8.23, P < 0.001; t = 2.92, p = 0.004$) and PTSD ($t = 4.05, P < 0.001; t = 5.91, P < 0.001; t = 2.63, P = 0.01$) sx	Did not differentiate between trauma aetiology Moral injury and general moral reasoning was not assessed
Ogden (2011), USA (83)	PTSD sx were related to alienation from God ($r = 0.36, P < 0.001$) and religious fear and guilt ($r = 0.25, P < 0.001$) Religious factors predicted 14% of variance in PTSD sx	Moral injury and general moral reasoning was not assessed Only generalizable to Christian faith treatment-seeking sample only

Table 3. (Continued)

Author (Year), Country	Results*	Limitations
Gray (2012), USA (84)	Despite improvements in PTSD sx, veterans did not demonstrate significant reductions in self-blame severity after adaptive disclosure treatment (pretest $M = 2.51$ vs. posttest $M = 2.31$, $P = 0.14$)	Small sample size
Stein (2012), USA (78)	Moral injury by self was associated with re-experiencing symptoms ($b = 0.28$, $P = 0.015$) and TRGI Hindsight-Bias/Responsibility ($b = 0.39$, $P = 0.003$) and Wrongdoing ($b = 0.26$, $P = 0.043$) subscales.	Review of non-validated structured clinical interviews Retrospective treatment-seeking sample only Event coding was ambiguous
Nash (2013), USA (85)	Perceived moral injury was not associated with combat exposure ($r = 0.08$) Perceived moral injury was associated with increased depression sx ($r = 0.40$), anxiety sx ($r = 0.28$), negative affectivity ($r = 0.29$), PTSD sx ($r = 0.28$) and lower social support ($r = -0.29$) (Interpersonal Support Evaluation List)	Development and validation study Retrospective
Vargas (2013), USA (86)	Based on an interview exploring symptoms experienced in the aftermath of moral injury, guilt and shame (Self-Deprecation theme) were found to be within the moral injury construct; however, frequency of this theme is lower than of feelings of loss of trust and existential/spiritual problems.	No mental health outcomes archival data Raters were not blind
Currier (2014), USA (79)	Severity of guilt sx was associated with degree of exposure to atrocities (SEM estimate = 0.19, $P < 0.001$) (controlling for combat exposure)	Lack of validated measures for guilt and atrocity exposure Retrospective

CGS, Combat Guilt Scale; HAM-D, Hamilton Rating for Depression; M-PTSD, Mississippi Scale for Combat-Related PTSD; MDD, Major Depressive Disorder; PTSD, Post-traumatic Stress Disorder; STRGS-WZ, sources of trauma-related guilt survey-war-zone version; sx, symptoms; TRGI, Trauma-Related Guilt Inventory; VREQ, Vietnam Related Experiences Questionnaire.

*Positive results and associations reported in this table were statistically significant.

studies have several important limitations, pointing towards the need for additional study: all involved retrospective self-report and were thus vulnerable to memory decay and systematic reporting biases (e.g. halo effect). Social desirability factors may contribute further to underreporting of morally transgressive actions perceived as unacceptable to others. In addition, sample sizes were relatively small in the majority of studies surveyed (73, 74, 78, 81–84) and, as noted, relied upon non-validated measures to assess morality, guilt and shame. Moreover, civilian control groups were not included to assess the relation between morally injurious acts (e.g. denying a patient medical care) and experiences of guilt and shame in non-military samples.

In one key validation study of the Moral Injury Evaluation Scale (MIES), also relying upon retrospective self-report, Nash et al. (85) provided additional evidence implicating moral transgressions as a source of psychological distress experienced after deployment. Although Nash et al. (85) did not measure specifically symptoms of guilt and shame, the authors did examine experiences of moral injury, which include feelings of guilt and shame experienced in the aftermath of moral transgressions (86). Specifically, Nash found that increased perception of moral injuries was related to PTSD and MDD symptomatology and a lower index of social support. Critically, MIES scores were not related to the degree of combat exposure, supporting the notion that moral injuries provide an independent source of psychological distress.

Several studies (while also limited by retrospective self-report) have differentiated further the impact of being either an observer or an agent of moral transgressions, finding that guilt is experienced by military members after both perpetration (40, 71, 72, 76, 77) and observation (73, 76, 77, 79) of moral transgressions. Two studies involving restricted samples of Vietnam veterans, however, reported null findings where the perpetration of atrocities was not identified as a common source of guilt (81, 86); critically, however, the Vargas et al. study relied upon archival data, which may have limited significantly the scope of participant responses available for analysis.

Among the articles selected for review, several reported associations between guilt (with or without exposure to perceived moral transgressions) and symptoms of PTSD (74, 75, 82, 87) and of MDD (82, 87) in military members, including the onset of re-experiencing (74, 75) and avoidance symptoms (74). These findings contribute to the growing body of literature relating experiences of guilt with poor mental health outcomes among military members (37, 38, 52, 64, 88, 89); notably, these studies did not assess independently experiences of guilt and of shame, and cross-contamination of these concepts is probable across measures. Direct exposure to and/or perpetration of moral transgressions has also been related to several mental health outcomes such as severity of PTSD (71, 73, 75, 77, 78, 83, 85), severity of MDD (73, 77, 85) and suicidal ideation (72). Critically, in one study, formal mediation analysis revealed that

combat-related guilt mediated the relation between exposure to and participation in retrospectively reported perceived atrocities and subsequent diagnoses of PTSD and MDD (76). The results of this study suggest that the onset of symptoms of guilt and shame following either participation in or observation of perceived atrocities contributes significantly to the onset of PTSD and of MDD in military samples. Interestingly, a statistical prediction instrument developed by Marx and colleagues (90) containing items relating to guilt and moral transgressions predicted a diagnosis of PTSD more accurately than did the PTSD Keane Scale (91) and almost as accurately as the Mississippi PTSD Scale (92).

Several studies have explored further the concept of morality via changes in religious functioning among military members. Fontana et al. (40) found that in personnel who completed military service, guilt symptoms mediated the association between retrospective self-report of perpetration of atrocities and reduced comfort derived from religious faith. Furthermore, negative religious coping and alienation from God were related to increased PTSD (83, 87) and MDD (87) symptomatology. Ogden et al. (83) found that religious factors predicted 14% of the variance in PTSD symptomatology in a group of veterans who experienced combat in OEF/OIF; moral injury was not assessed directly in these studies. Studies relating to other topics of morality include the work of Laufer et al. (71), who found that participation in violence was associated with higher demoralization in African American Vietnam veterans and lower demoralization in Caucasian Vietnam veterans. Moreover, among veterans who participated in perceived abusive violence, whereas Caucasian veterans described feeling indifference to the fate of civilians and the maintenance a full war mentality, African Americans veterans reported dissonance between their current attitude and behaviour in the combat theatre. Finally, despite assessing guilt and moral transgressions separately and being included in this review, two studies did not go on to explore the association between guilt and morality, thus yielding no interpretable findings for the current analysis (84, 93). As reviewed, the studies reported here suffer several significant limitations, summarized on a study-by-study basis in Table 3.

Discussion

The primary scope of this review was to explore how morality contributes to the experiences of guilt and shame within military samples; the relation of guilt, shame and morality to subsequent

mental health outcomes was also examined. Our review of the extant literature strongly suggests that exposure to and perceived perpetration of morally transgressive acts that result in the incurrance of moral injuries during military service are associated with the emergence of symptoms of guilt and shame. The emergence of symptoms of guilt and shame following moral injury appears to mediate the onset of psychopathology, including PTSD and MDD, among military members and may increase risk of subsequent suicide. Critically, this association holds regardless of the degree of combat exposure. To our knowledge, however, no studies have directly explored the association between validated measures of global moral reasoning/judgment and the onset of symptoms of guilt within military personnel. This effort will have important implications for understanding how moral injury, guilt, and shame interact to influence mental health outcomes among military personnel.

The study of morality is particularly pertinent to the military as military service exposes individuals to unique, morally salient situations. The army is a tool of war. Participating in the military generally involves an assumption that one creates a better world, for the nation or humanity, albeit by the use of force (also assuming that all other non-violent means have failed). As the use of force involves the violation of individual rights, the concept of using violence as an instrument of peace parallels the idea of sacrifice for greater good. Moral conflict generally arises during these types of situations, where one's innate feelings of what is right and wrong (deontological thought) are pitted against a more cognitive, calculated, objectively advantageous outcome (utilitarianism). Converging with neuroimaging data (94–97), moral emotions (e.g. guilt and shame) and empathic concern are generally associated with a more deontological morality. Nonetheless, morality is dynamic, subjective and open to socio-cognitive influence (98). Social psychologists, particularly Bandura (98), have coined the term *moral disengagement* – the phenomenon when an individual or a group of individuals disconnect their internal moral code from moral action and, ultimately, one's conduct is not perceived as immoral but is seen as honourable. Generally, diffusion and displacement of responsibility (i.e. through division of labour), euphemistic language (e.g. bombing referred to as 'clean, surgical strikes', suggesting acts of healing) and dehumanization all attribute to the removal of the self as inflicting direct harm, therefore dampening emotional contagion from otherwise complex moral dilemmas (98). We conceptualize moral

disengagement as the disengagement of deontological thought, where the value of the moral decision is placed exclusively on the calculated outcome. Within a military context, the amplitude of utilitarianism is assumed to be high, with the goodness of the outcome generally defined by authority and meant to be taken at an authoritarian face value. The military is an organization that generally functions through utilitarian methods, suggesting that, over time, military personnel will develop a shift towards a more utilitarian moral judgment. This idea remains to be explored, however.

The studies reviewed have several limitations. As with any situation involving feelings of shame, full disclosure may be associated with significant hesitation and fear of judgment by others. Reporting observation of or participation in the perpetration of acts that transgress moral standards during deployment is no exception, suggesting that these types of events may be underreported (73). Moreover, self-reports of guilt and shame have been shown to be moderated by cultural factors (99). As mentioned previously, the interchangeable use of terms guilt and shame within the majority of studies limits our ability to explore the independent roles of distinct experiences of guilt and shame. Although the studies reviewed here included samples comprised primarily of Caucasian Vietnam War veterans, the increased multiculturalism of today's Western military may add additional variance surrounding the propensity to report guilt and/or shame within military personnel. A significant proportion of the studies sampled included treatment-seeking veterans tested several years after combat; non-random sample selection, memory decay and retrospective reporting add additional bias to the findings. Finally, the findings reported here are correlational and do not provide direct evidence that moral injuries lead to the onset of guilt and related psychopathological symptoms. Longitudinal studies are instead urgently required to establish the course of psychopathology stemming from moral injury and attendant guilt and distress.

In addition to moral injuries stemming from observed or perceived moral transgressions in the combat theatre, several other factors may influence moral emotions, moral judgment and psychopathology as they relate to military service. Specifically, a past history of childhood trauma has been associated with combat-related PTSD in soldiers (100), shame-inducing thoughts (48) and shame proneness (101). Notably, military personnel are frequently separated from traditional sources of social support, potentially altering the dynamics and stability of these relationships (102, 103); lack

of perceived social support has been a robust predictor of chronic PTSD (103, 104). Critically, the perception of forgiveness from others mediates self-forgiveness over time (105), pointing further towards the vital importance of maintaining social support in populations at risk for PTSD and for moral injury. In addition, military sexual trauma (MST; sexual assault, rape or harassment occurring during military service) has received increasing attention in recent years, where approximately 20% of female and 1% of male VA healthcare users report experiencing at least one MST during their service, representing almost 100 000 personnel positively screened by the VA in 2008 alone (106); sexual trauma is closely linked to intense guilt and shame among personnel and represents a key intervention target. Moreover, perpetrators of MST may present with similar patterns of guilt and shame, particularly upon return from service and integration into civilian life. Finally, in the aftermath of moral injury, a proportion of soldiers may experience changes in religious faith and difficulty finding meaning in their actions postdeployment; treatment of individuals with combat-related psychological distress must address the spiritual and existential changes involved with such experiences (40, 77, 83).

Given the high rates of PTSD within the military and the increasing number of veterans seeking VAC mental health services, there is an urgent need for research that increases the capacity for the prevention and treatment of combat-related PTSD. The results of the present review point towards strong relations between the incurrence of a moral injury, the subsequent development of symptoms of guilt and shame and the emergence of psychopathology, including MDD and PTSD. Although it is not possible to predict who will be exposed to morally questionable events during deployment, it may be possible to predict who is more likely to perceive such events as morally injurious. By assessing predeployment styles of moral judgment using validated assessment tools (e.g. Defining Issues Test (107), Moral Competence Test (108)), we may be better able to identify those military members most likely to experience moral injuries, to have resulting symptoms of guilt and shame and thereby a greater risk of developing combat-related PTSD and/or MDD. Given that the emergence of guilt and shame (additional targets of systematic measurement) is dependent on one's perception of behaviour as diverging from personal moral values and standards, assessing these moral standards prior to deployment may elucidate how individuals may emotionally respond to morally ambiguous circumstances in

the combat theatre. Members identified as being at risk for moral injury may then be targeted by preventive and/or early intervention efforts. Pre-emptive screening and removal from service of individuals at risk for moral injury and associated symptoms of guilt and shame is not warranted, where instead it is those individuals with an appropriately high sense of personal responsibility and intolerance for moral transgressions who are actively sought among military ranks. Interestingly, a survey conducted with OIF US personnel reported that although 45% of personnel agreed that non-combatants should be treated with respect, 17% of the sample believed that non-insurgents should be treated in the same manner as insurgents (69). Identification and pre-emptive screening of those individuals most likely to engage in moral transgressions in the combat theatre may further limit the exposure of other military members to witnessing transgressive acts that result in downstream consequences of guilt and shame. Recent evidence has shown that leader-led training in battlefield ethics reduces unethical behaviour of soldiers during deployment (109), further signifying the need for a broad integration of ethics training and moral judgment assessment for optimal personnel and operational preparedness (110).

Given that longer durations of experiences of shame are linked to a lower likelihood of self-forgiveness (105), military forces may also implement early intervention programmes targeting personnel that endorse postdeployment moral injuries. Targeted early intervention programmes of this nature would be expected to inhibit the development of guilt-based PTSD. Accordingly, it will be crucial to explore further the relation between guilt and shame in military populations and its implications for the onset, maintenance and treatment of combat-related PTSD in service personnel. Treatment options for combat-related PTSD that rely, for example, on cognitive processing therapy may not yet be sufficient for targeting psychological distress caused by moral injuries (see (21) for a comprehensive overview of future treatment directions). Although PTSD treatments to date have centred predominantly on fear-based PTSD symptoms, a novel exposure protocol focused on adaptive disclosure of moral injuries appeared highly promising (84). Employing group-based therapy that targets specifically symptoms of guilt and shame may allow participants to discuss a wider range of experienced symptoms and to move past fear-based conceptualizations of military PTSD. Treatment interventions that concentrate on symptoms of guilt and shame in the military population will need to be a priority as research and clinical efforts

address the enduring impact of moral injuries on military personnel.

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Declaration of interest

None.

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