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A Review of Research on Moral Injury in Combat Veterans

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The moral injury construct has been proposed to describe the suffering some veterans experience when they engage in acts during combat that violate their beliefs about their own goodness or the goodness of the world. These experiences are labeled *transgressive acts* to identify them as potentially traumatic experiences distinct from the fear-based traumas associated with posttraumatic stress disorder. The goal of this article was to review empirical and clinical data relevant to transgressive acts and moral injury, to identify gaps in the literature, and to encourage future research and interventions. We reviewed literature on 3 broad arms of the moral injury model proposed by Litz and colleagues (2009): (a) the definition, prevalence, and potential correlates of transgressive acts (e.g., military training and leadership, combat exposure, and personality), (b) the relations between transgressive acts and the moral injury syndrome (e.g., self-handicapping, self-injury, demoralization), and (c) some of the proposed mechanisms of moral injury genesis (e.g., shame, guilt, social withdrawal, and self-condemnation). We conclude with recommendations for future research for veterans suffering with moral injury.

Keywords: moral injury, PTSD, combat veteran, transgressive acts, trauma

Combat can require individuals to violate their consciences repeatedly. For several decades, clinicians have noted the psychological impact on veterans of engaging in killing, committing atrocities, and violating the rules of engagement (Haley, 1974). Despite this clinical attention, most psychological research on veterans' war wounds has focused on posttraumatic stress disorder (PTSD; American Psychiatric Association, 2013), a fear-based disorder that results from exposure to life-threatening events,

rather than on the consequences of active participation in warfare.

The moral injury syndrome was proposed to describe the constellation of shame and guilt-based disturbances that some combat veterans experience after engaging in wartime acts of commission (e.g., killing) or omission (e.g., failing to prevent atrocities; Litz et al., 2009). The moral injury syndrome was proposed to be constituted of the PTSD symptoms of intrusive memories, emotional numbing, and avoidance, along with collateral effects such as self-injury, demoralization, and self-handicapping (Litz et al., 2009).

The purpose of this article was to review the research and clinical literature on moral injury. Our goal was to encourage additional research that can further construct validation and spur the development of evidence-based assessment tools and interventions. Specifically, we first reviewed definitions of and research on the prevalence of transgressive acts, along with research on factors that increase or decrease the risk of transgressive acts. Next, we reviewed the empirical and clinical literature on the relations between transgressive acts and components of moral injury (e.g., self-injury) as well as the proposed mechanisms of moral injury develop-

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ment (e.g., shame). We concluded with directions for future research. Understanding the diverse ways in which returning veterans are affected by their wartime experiences is timely: Between 2001 and 2011, approximately 930,000 military personnel (Army, Navy, Marine, Air Force) were deployed to Iraq and Afghanistan for at least 1 year; at least 50,000 personnel were deployed for 4 or more years (Baiocchi, 2013). These veterans require focused attention to their mental health needs (Hoge et al., 2004).

Transgressive Acts in War

Definition of Transgressive Acts

Moral injury was proposed to result from grossly disturbing violent wartime experiences such as killing civilians or failing to prevent atrocities. Litz and colleagues (2009) offered this preliminary definition of *morally injurious experiences* (or transgressive acts): “perpetrating, failing to prevent, bearing witness to, or learning about acts that transgress deeply help moral beliefs and expectations” (p. 700). Drescher and colleagues’ (2011) definition emphasized that transgressive acts are “inhumane, cruel, depraved, or violent, bringing about pain, suffering, or death of others” (p. 9). Shay (1994) identified betrayal by a trusted authority figure, such as a commanding officer, as a transgressive act. Like *traumatic events*, as defined in the criteria for PTSD (American Psychiatric Association, 2013), transgressive acts can be directly experienced, witnessed, or learned about. Although these experiences are often referred to as “morally injurious experiences” (e.g., Litz et al., 2009, p. 696), or even “moral injury” (e.g., Farnsworth, Drescher, Nieuwsma, Walser, & Currier, 2014, p. 250), these terms confound the act and the outcome and may contribute to tautological assumptions about the impact of these events (e.g., that certain events necessarily cause moral injury). We here use the term *transgressive act* to identify and describe these experiences that involve the violation—or transgression—of accepted boundaries of behavior.

A contentious aspect of the moral injury field concerns what acts should be considered transgressive. On the one hand, some have argued that transgressive acts can be justified in war

(e.g., killing an enemy combatant) and still be potentially morally injurious (Farnsworth et al., 2014; Litz et al., 2009). On the other hand, defining transgressive acts only in terms of behavior that falls outside the rules of engagement (e.g., atrocities, war crimes) could avoid “bracket creep,” an issue that has also been debated regarding the definition of traumatic events in the diagnostic criteria for PTSD (e.g., Spitzer, First, & Wakefield, 2007, p. 236). Whether or not transgressive acts are limited to those that violate the rules of engagement, these rules could be used to sharpen the definition of transgressive acts because they dictate when, how, and why force may be used in combat. For example, shooting and attempting to kill an enemy combatant who is shooting at you falls within the rules of engagement, but continuing to shoot at an enemy combatant who has fallen to the ground falls outside the rules of engagement. A systematic inquiry that bridges psychology, philosophy, and military studies is needed to resolve what should be considered transgressive acts and how they should be defined.

Prevalence of Transgressive Acts

For this review of data on the prevalence of transgressive acts, we report on acts that fall both within (e.g., killing an enemy combatant) and outside (e.g., committing atrocities) the rules of engagement. However, as described previously, there is an ongoing debate about what particular acts should be considered transgressive. The prevalence of the full range of potentially transgressive acts has not been systematically assessed in cohorts of veterans of any war. The data that are available on the prevalence of participation in or exposure to transgressive acts in U.S. military personnel in different war eras are briefly reviewed below.

The most recent cohort of veterans from Operation Iraqi Freedom (OIF) in Iraq and Operation Enduring Freedom (OEF) in Afghanistan generally runs a high risk of having engaged in or been exposed to transgressive acts. This risk was likely heightened because combat was against insurgent forces using guerilla tactics in urban/close quarters (Farnsworth et al., 2014). Across two samples of combat infantry, approximately 40%–50% of OIF soldiers and 65% of OIF Marines reported killing an enemy combat-

ant (Hoge et al., 2004; Maguen et al., 2010). Additionally, 12%–15% of OIF combat infantry soldiers and 28% of OIF combat infantry Marines reported killing a noncombatant (Hoge et al., 2004). A Rand Corporation population-based survey of all deployed OIF and OEF veterans (including both active duty and Reserve/National Guard Army, Marine Corps, Navy, and Air Force personnel) found that 9.5% reported participating in hand-to-hand combat, 5% reported being directly responsible for deaths of civilians, and 5% reported witnessing brutality toward civilians (Schell & Marshal, 2008).

Vietnam veterans, similar to OIF/OEF veterans, have a high risk of some transgressive acts. Population-based estimates of transgressive acts were derived from the nationally representative National Vietnam Veterans Readjustment Survey (NVVRS; Maguen et al., 2009). Approximately 41% of male combat Vietnam veterans believed they had killed an enemy combatant, and 18% of these veterans described being sometimes or often in situations where they had killed an enemy combatant; 13% reported they were involved in a situation where a woman, child, or elder was injured or killed; and 7% reported they were personally responsible for the death of a Vietnamese civilian. A reanalysis of the NVVRS data found that 16% of male combat Vietnam veterans reported participating in atrocities, and 35% reported witnessing atrocities (Currier, Holland, Jones & Sheu, 2014).

Little data were found on the prevalence of transgressive acts in veterans of other wars. Two studies of deployed male Gulf War veterans (Carney et al., 2003; Maguen, Vogt, et al., 2011) found that 11%–14% reported killing enemy combatants, and 19%–22% witnessed a death firsthand. No data on rates of transgressive acts were found for Korean War, World War II, or World War I veterans.

In sum, the risk of transgressive acts has varied between eras, theaters of combat, branches of military service, and particular acts assessed. However, studies across branches and eras have not assessed the same events, complicating comparisons. The rates of some putative transgressive acts, such as witnessing transgressive acts, betrayal by a commanding officer, or participation in a friendly fire incident, also have not been systematically assessed.

In their review, Litz and colleagues (2009) called for the development of measures to assess engagement in and exposure to transgressive acts. In response, two measures have been developed: the Moral Injury Events Scale (MIES; Nash et al., 2013), and the Moral Injury Questionnaire—Military version (MIQ–M; Currier, Holland, Drescher, & Foy, 2015). Both the MIES and the MIQ–M assess committed or witnessed transgressive acts and perceived betrayal by others. The MIQ–M assesses both causes (“I saw/was involved in the death[s] of children”) and effects (“I feel guilt for surviving when others didn’t”) of moral injury development. The MIQ–M also assesses events that violate the rules of engagement (e.g., “I saw/was involved in violations of rules of engagement,” and “I saw/was involved in the death[s] of children”) and events that do not violate those rules (e.g., “I feel guilt over failing to save the life of someone in the war”).

Initial psychometric testing of both the MIES and MIQ–M demonstrated adequate psychometric properties of scores in samples of active duty military personnel, recently returned veterans, and treatment-seeking veterans (Currier et al., 2015; Nash et al., 2013). For example, scores on the MIES demonstrated good internal consistency, and the two-factor structure (i.e., perceived transgressions by self or others and perceived betrayal by others) was cross-validated in a separate sample (Nash et al., 2013). Scores on the MIES and MIQ–M were significantly positively correlated with measures of distress, supporting convergent validity.

One issue with both the MIES and the MIQ–M is that they tend to confound exposure to transgressive acts with the effects of exposure. Although this is explicitly noted in the description of the MIQ–M, a total score was reported that combined items assessing causes (14 items) and effects (six items). The MIES also assesses both causes (“I saw things that were morally wrong”) and effects (“I am troubled by having witnessed others’ immoral acts”) on the same items. Assessing causes and effects on the same items implies connections between the two that may not be present. Analyses that separate the causes versus effects items on the MIQ–M or new measures of transgressive acts that are not confounded with outcomes would be useful. Finally, because com-

mitting transgressive acts may have different effects than does witnessing transgressive acts (Farnsworth et al., 2014), a measure that separately assesses these experiences would be useful.

Risk and Protective Factors for Transgressive Acts

A number of risk (e.g., combat exposure) and protective (e.g., military training and leadership) factors for transgressive acts have been proposed (Litz et al., 2009). The limited available data on these factors are reviewed next. Understanding these factors could both reduce the risk of transgressive acts and help clinicians identify combatants who have committed or experienced transgressive acts and might therefore be at higher risk of moral injury.

Research to date has suggested that combat exposure and deployment length reliably increase the risk of transgressive acts that fall within the rules of engagement. For example, among both OIF and Vietnam veterans, greater combat exposure was significantly correlated with killing in combat (Maguen et al., 2010, 2009). In addition, the U.S. Army's *Combat and Operational Stress Control Manual for Leaders and Soldiers* (COSC manual) notes that "misconduct stress behavior" (e.g., violations of the rules of engagement) can be a reaction to extreme combat and operational stress and that even highly trained units may be at greater risk of misconduct stress behavior after heavy combat, for example, by lapsing into "illegal revenge when a unit member is lost in combat" (U.S. Department of the Army, 2009, pp. 1–4). Consistent with this, greater combat exposure among Vietnam veterans was associated with participating in atrocities (Hiley-Young, Blake, Abueg, Rozytko, & Gusman, 1995) and harming civilians (Dohrenwend, Yager, Wall, & Adams, 2013). The U.S. Office of the Surgeon General found that OIF/OEF soldiers and Marines who had heavy combat exposure *and* had either experienced casualties in their unit or handled dead bodies were significantly more likely to report unethical behavior toward non-combatants (U.S. Army, 2006).

Contextual factors such as leadership and training in battlefield ethics may decrease the risk of violating rules of engagement, which in turn may prevent some transgressive acts (e.g.,

killing civilians, committing atrocities). The Army has been instructing commanding officers that misconduct stress behaviors can be prevented by sound leadership and has been providing strategies for identifying and mitigating risk factors for these misconduct behaviors (U.S. Department of the Army, 2009). For example, the COSC manual suggests that stress may be mitigated after heavy combat by holding memorial services for fallen comrades, recognizing that grief is a normal and expected response, and encouraging soldiers to talk about their grief and loss (U.S. Department of the Army, 2009, pp. 2–2). In support of these policies, soldiers and Marines who reported better leadership were more likely to report following the rules of engagement during conflicts (U.S. Army, 2006); conversely, approximately 30% of soldiers and Marines reported that their commanding officers did not clearly disavow unnecessary harm to noncombatants.

The associations between precombat personality variables, particularly anger or aggressiveness, and transgressive acts are unclear given the dearth of precombat or premilitary personality data. In one study, the relations between three personality traits (disconstraint, neuroticism, and aggression), combat exposure, and participation in atrocities were examined in a large sample of Vietnam Army and Marine veterans (Holowka et al., 2012). The relation between aggressiveness and participation in atrocities was fully mediated by combat exposure, such that aggressiveness was associated with combat exposure, which in turn was associated with involvement in atrocities. Disconstraint (i.e., tendency toward impulsivity and risk-taking) was directly, and neuroticism was both directly and indirectly (via combat exposure), associated with participation in atrocities. Three studies showed a consistent relation between transgressive acts and anger and aggressiveness among OIF/OEF military personnel (Killgore et al., 2008; Maguen et al., 2010; U.S. Army, 2006). Finally, in a qualitative study 13% of OIF and OEF veterans ($N = 24$) attributed their postdeployment anger to transgressive acts (e.g., betrayal by chain of command; Worthen & Ahern, 2014).

Shay (1994), drawing on his clinical work with Vietnam veterans with PTSD, speculated that extreme anger, precipitated by a combination of grief at the loss of a close comrade and

feeling betrayed by authorities, can heighten combatants' risk for committing transgressive acts. One attempt was made to empirically assess these relations using NVVRS data (Fontana & Rosenheck, 1999): Witnessing the death of a close comrade was significantly associated with killing others and indirectly related to committing atrocities (through its positive association with killing others). Farnsworth and colleagues (2014) also speculated that losses within combat units may prompt strong moral emotions (e.g., contempt) that increase the likelihood of abusive violence. Because all of these studies were cross-sectional and personality was not assessed predeployment, it is unclear whether, for example, dispositional anger/aggressiveness increased the risk of participating in transgressive acts or whether committing transgressive acts led to anger and aggressiveness, or both (Farnsworth et al., 2014).

Moral Injury Following Transgressive Acts

The lived suffering of moral injury was conceptualized by Litz et al. (2009) as a constellation of PTSD symptoms (i.e., intrusions, avoidance, and numbing) and collateral effects (i.e., self-injury, demoralization, and self-handicapping). Self-injurious behaviors include substance abuse, risk-taking, and suicidality. Demoralization is an affective and cognitive phenomenon that manifests as despair, worthlessness, and meaninglessness. Self-handicapping involves shunning positive experiences, such as success or positive emotions.

Most research on transgressive acts has focused on whether killing and/or participating in atrocities predicts PTSD over and above traumas that involve life threat and general combat exposure. Several studies have shown that killing in combat significantly predicted PTSD symptoms after controlling for combat exposure in samples from the Vietnam, Gulf War, and the Iraq War (e.g., Fontana & Rosenheck, 1999; Maguen et al., 2010, 2009; Maguen, Vogt, et al., 2011), underscoring the importance of transgressive acts in understanding veterans' mental health. Additionally, shame and guilt (key mechanisms in the moral injury model) have been associated with more severe PTSD among samples of Vietnam War veterans (Beckham, Feldman, & Kirby, 1998; Currier et al., 2014) and Korean War and World War II veterans

who were former prisoners of war (Leskela, Dieperink, & Thuras, 2002).

Although research on the relations between transgressive acts and PTSD symptom clusters was reviewed by Litz and colleagues (2009), the collateral effects of self-injury, demoralization, and self-handicapping were only briefly mentioned. To guide continuing investigations on moral injury and the development of interventions, we next review empirical and clinical literature on the relations between transgressive events and the moral injury collateral effects and then the proposed mechanisms of moral injury development.

Litz and Colleagues' (2009) Formulation of Moral Injury Collateral Effects

Transgressive acts and self-injurious behaviors. Five studies have examined whether transgressive acts were associated with greater substance abuse, one form of self-injurious behavior (Currier et al., 2014; Killgore et al., 2008; Maguen, Vogt, et al., 2011; Wilk et al., 2010; Yager et al., 1984). Killing in combat was associated with postdeployment alcohol abuse even after controlling for combat exposure and prior problematic alcohol use among Gulf War veterans (Maguen, Vogt, et al., 2011) and OIF Soldiers (Killgore et al., 2008). Participating in or witnessing atrocities was associated with higher risk of postdeployment substance abuse among Vietnam veterans (Currier et al., 2014; Yager et al., 1984) and OIF soldiers (Wilk et al., 2010). Thus, existing research has suggested a relation between transgressive acts and substance abuse. However, the direction of the relation is unclear: Combatants with substance abuse problems may also be more likely to experience transgressive acts. Also, clinicians have noted that some veterans with transgressive act exposure avoid substance use altogether due to concerns about losing control while intoxicated (Shay, 1994), suggesting that there may be different patterns of substance use after transgressive acts.

Available data have supported the proposition that transgressive acts are associated with a small but significant increased risk of suicidality, the most direct form of self-injury. In the NVVRS sample, Vietnam veterans who reported more types of killing experiences (i.e., killing enemies, prisoners, or civilians) had

double the risk of suicidality compared with veterans reporting few or no killing experiences (Maguen et al., 2012). Among a large sample of OIF veterans, killing in combat was indirectly associated with a desire for self-harm and suicidal ideation; PTSD symptoms and depression mediated this relation (Maguen, Luxton, et al., 2011). In the development of the Moral Injury Questionnaire—Military version (Currier et al., 2015), MIQ–M scores were associated with greater suicide risk in regression analyses controlling for other factors, but the bivariate correlation was not significant. In a study of the relation between transgressive acts and suicidality, Air Force and Army personnel with a lifetime history of suicide attempts ($n = 11$) had significantly higher MIES scores than did personnel with no history of suicidality ($n = 106$; A. Bryan, Bryan, Morrow, Etienne, & Ray-Sannerud, 2014). In general, the associations between transgressive acts and suicidality tended to be small across studies. This may be due to the overall low incidence of suicidality in the samples; for example, only 2.8% of Iraq veterans examined by Maguen, Luxton, et al. (2011) reported suicidal ideation. Future studies would benefit from identifying samples of suicidal veterans to assess whether they have higher rates of exposure to transgressive acts than do nonsuicidal veterans.

Risk-taking was also proposed to be a form of self-injury associated with moral injury (Litz et al., 2009). One study examined the relations between violent combat exposure, various transgressive acts, and postdeployment risk-taking behaviors among a large sample of OIF soldiers (Killgore et al., 2008). Killing in combat was associated with postdeployment risk-taking propensity; however, these findings should be interpreted cautiously because the effect sizes were quite small. Additionally, the effect sizes of the associations between transgressive acts and risk-taking were generally the same as those between violent nontransgressive acts and risk-taking, suggesting that risk-taking may not be uniquely related to transgressive acts and can have other motivations besides self-injury.

Transgressive acts and demoralization. Demoralization is the phenomenon of feeling an “inability to cope” (Clarke & Kissane, 2002, p. 733), hopelessness, and helplessness; a demoralized person descends into existential despair

and meaninglessness (Parson, 1990). Although often experienced concurrently with depression, demoralization may have unique consequences. For instance, in a large community sample, hopelessness predicted suicidality more strongly than did depression (Kuo, Gallo, & Eaton, 2004).

Clinical literature has pointed to posttraumatic demoralization as a significant manifestation of suffering for veterans (Parson, 1990); however, no empirical studies that compared rates of demoralization in combat veterans with and without transgressive acts were identified. Additional research is needed to understand whether demoralization is better understood as a mechanism that increases the risk of other collateral outcomes such as self-injury rather than as an independent outcome. For example, hopelessness (a component of demoralization) is also a risk marker for suicidality among veterans with direct combat exposure (C. J. Bryan, Ray-Sannerud, Morrow, & Etienne, 2013). Future research also can explore whether demoralization is experienced at different rates relative to the type of transgressive act experienced. For instance, being unable to prevent a comrade from dying may induce more demoralization than does killing.

Transgressive acts and self-handicapping behaviors. According to the moral injury model (Litz et al., 2009), veterans respond to their own transgressive acts by self-handicapping; that is, by acting in ways that undermine their own well-being and engagement in life. Substance abuse was speculated to have a maladaptive function similar to self-handicapping among veterans with moral injury (Currier et al., 2014). A thorough search of the literature found no studies of self-handicapping in response to transgressive acts, to combat, or in veteran populations more broadly.

Mechanisms of moral injury. The moral injury syndrome was proposed by Litz and colleagues (2009) to result from the dissonance generated from the conflict between transgressive acts and long-held beliefs about one’s basic moral worth and the goodness of the world. If this dissonance, or internal moral conflict, gives rise to stable, internal, and global negative attributions about the causes and meaning of a transgressive act (e.g., it was due to character flaws, the veteran is tainted), then these attributions will lead to long-lasting shame, guilt, and

a fear of being judged. If these moral emotions and fear of judgment lead to social withdrawal, then the veteran will lose supportive interactions and opportunities to disconfirm the shame and guilt-based beliefs of being unforgivable, which in turn can reinforce self-condemnation.

Few studies have examined the relations between transgressive acts and these proposed mechanisms or the relations between these mechanisms and moral injury collateral effects. One study reported a relation between transgressive acts and guilt and shame (Fontana, Rosenheck, & Brett, 1992). Another study established a strong association between exposure to atrocities, guilt, shame, and the reexperiencing and avoidance symptoms of PTSD (Beckham, Feldman, & Kirby, 1998), but the associations with the collateral effects of moral injury (e.g., self-injury) were not examined. Although no research was found that tested whether transgressive acts were a risk factor for social withdrawal specifically, transgressive acts were associated with diminished social support and increased social problems (King, King, Fairbank, Keane, & Adams, 1998). To date, other important factors such as attributions and self-condemnation have not been studied in veterans with a history of transgressive acts.

Few studies have conducted integrative tests of the moral injury model by examining the relations between transgressive acts and relevant outcomes and the mechanisms proposed to account for these relations (e.g., guilt, shame, social withdrawal) in one model. One study (Hendin & Haas, 1991) that examined the relation between transgressive acts, combat experiences, and self-injury found that 93% of suicidal veterans who had killed civilians reported being out of control because of rage over loss and/or fear at the time. In comparison, only 43% of nonsuicidal veterans who had killed civilians reported being in an out-of-control state, suggesting relations among transgressive acts, extreme anger, and suicidality. Another study assessed the relation between involvement in atrocities, combat-related guilt, suicidality, and substance abuse in Vietnam veterans using NVVRS data (Currier et al., 2014). Wartime participation in atrocities was directly and indirectly (via PTSD) associated with postdeployment substance abuse and suicidality and was also directly associated with combat-related guilt. However, combat-related guilt did

not mediate the relation between participation in atrocities and outcomes, contrary to the moral injury model (Litz et al., 2009).

Discussion

The purpose of this article was to review research on the prevalence of transgressive acts, factors that increase or decrease risk of exposure to transgressive acts, and the relations among exposure to transgressive acts and moral injury collateral effects (e.g., self-injury) as well as the proposed mechanisms of moral injury genesis (e.g., shame). Next, we briefly highlight some of the primary conclusions of our review and offer some recommendations for future research and interventions for veterans suffering with moral injury.

Key Conclusions From Review

Many combat veterans are at risk of transgressive act exposure (especially using a broader definition of transgressive acts that includes killing in combat) and the postdeployment suffering that sometimes follows these experiences. A significant percentage of U.S. Armed Forces have reported participation in or exposure to transgressive acts during combat from the Vietnam War (the first conflict after which veterans were surveyed about their experiences) onward. OIF/OEF veterans runs a high risk of transgressive act exposure, perhaps because of the unique nature of these conflicts.

A number of protective and risk factors have been proposed to influence the likelihood of exposure to transgressive acts. There is the most consistent evidence for combat exposure and deployment length as risk factors. Although combat exposure may be unavoidable, deployment length could be reduced, both in terms of length of single deployments and number of deployments, which may in turn reduce the risk of some transgressive acts. Other structural changes, such as better leadership and training in battlefield ethics, may lower the risk of some transgressive acts, especially those that involve violating the rules of engagement, although data on this are limited. Finally, although anger and aggression are associated with transgressive acts, the direction of the relation between transgressive acts and anger/aggression is unclear because of the lack of predeployment data. Data

collected during deployment would also be useful because it has been speculated that anger and grief over the loss of close comrades may heighten the risk of committing transgressive acts in some combatants.

Clinical and empirical work has begun to identify the effects of transgressive acts. There is compelling evidence that transgressive acts are associated with greater PTSD risk, even after controlling for combat exposure. Of the collateral effects outlined in the moral injury model, there is the strongest support for the relation between transgressive acts and substance abuse (an aspect of self-injury). Participation in transgressive acts is also associated with increased risk of suicidality, although this relation tends to be small. Although clinical accounts have identified demoralization and self-handicapping in veterans with transgressive acts, no research evidence was found. Finally, risk-taking seems to follow both transgressive acts and violent nontransgressive acts. In sum, much more information is needed on the associations between a range of transgressive acts and postdeployment mental health and functioning.

The moral injury syndrome was proposed to result from the cascading effects of social withdrawal and self-condemnation following the guilt and shame veterans experience after transgressive acts (Litz et al., 2009). Both clinical expertise and one empirical study have identified a strong association between guilt and shame and transgressive acts. Clinical data have supported the putative link between transgressive acts, social withdrawal, and self-condemnation (e.g., Worthington & Langberg, 2012) but again, research on these mechanisms is lacking.

Directions for Future Research

Given the overall dearth of research on moral injury, there are many gaps in the literature. Here we highlight some ideas for future research in the four areas covered by our review (i.e., definitions and prevalence of transgressive acts, risk and protective factors for transgressive act exposure, the proposed collateral effects of moral injury, and the mechanisms linking transgressive acts to moral injury outcomes).

First, further theorizing and research are needed to clarify the definition of a transgres-

sive act, including whether and when killing an enemy combatant can be considered a transgressive act. Qualitative research, in particular, could be used to gather data on exactly what transgressive acts entail. The moral injury field could benefit from the debate regarding bracket creep (i.e., the expansion of events considered traumatic) that has occurred in the PTSD field (e.g., Spitzer, First, & Wakefield, 2007) in terms of setting the threshold for what should be considered a transgressive act. The prevalence of exposure to a full range of transgressive acts among veterans from different eras, combat theaters, and branches of service and the relations between these transgressive acts and indicators of moral injury need to be systematically assessed. This research can also be used to help define the boundaries of what should be considered a transgressive act.

Conceptual consideration should also be given to assumptions about the normativity of moral injury. Litz and colleagues (2009) wrote, "Inherent in our working definition of moral injury is the supposition that anguish, guilt, and shame are signs of an intact conscience . . . [moral] injury is only possible if the service members have an intact moral belief system" (p. 701). This supposition implies that moral injury is the normative and expected response to transgressive acts. This expectation could have the unintended consequence of harming veterans who do not have moral injury. That is, veterans may feel that they should have moral injury and may pathologize themselves if they do not. This is especially problematic if transgressive acts are broadly defined to include acts that do not violate rules of engagement. However, some veterans may have avoided moral injury and its collateral effects (e.g., self-injury) by dealing with their guilt in prosocial ways (e.g., by helping others). Others may have avoided moral injury by becoming bitter and misanthropic, and some may have been bitter and misanthropic (perhaps without an "intact conscience") prior to deployment and exposure to transgressive acts. Research that bridges psychology, philosophy, ethics, and military studies needs to carefully consider the normative assertions and assumptions of the moral injury concept and to define the boundaries between expected existential reckoning and moral injury.

Additionally, improved measures of transgressive acts are needed. As mentioned previ-

ously, both of the two existing measures (MIES and MIQ-M; Carrier, Holland, et al., 2015; Nash et al., 2013) tend to confound exposure to transgressive acts with the effects of exposure (e.g., guilt). It is difficult to test models of moral injury that posit links between transgressive acts and guilt if the measures of transgressive acts also measure guilt. It would also be helpful to have measures of transgressive acts that distinguish between different kinds of exposures (e.g., direct involvement in atrocities vs. witnessing atrocities vs. betrayal by an officer; acts that do and do not violate rules of engagement) because these different types of exposures may be associated with different outcomes (Farnsworth et al., 2014). Such measures would also allow for assessing the relations among different types of transgressive acts. For example, Shay (1994) speculated that betrayal by commanding authorities erodes unit cohesion, military effectiveness, and the safety and security of combat personnel. Such a betrayal thus may place combatants at risk of other transgressive acts (e.g., committing atrocities). Additionally, the effects (e.g., guilt) measured by the MIES and MIQ-M are mechanisms in Litz and colleagues' (2009) model of moral injury. Although this could be a difference in proximity (i.e., guilt is a proximal effect and PTSD is a distal effect of transgressive acts), this labeling could contribute to confusion regarding what moral injury is and how it develops.

Second, more research is needed on risk and protective factors for transgressive act exposure. For example, interdisciplinary research is needed on the kinds of leadership and training that would effectively promote battlefield ethics and prevent moral injury. Although combat exposure is perhaps inevitable, better leadership and training may help protect against some transgressive acts (e.g., killing enemy combatants or noncombatants) that accompany combat exposure. To disentangle the causes and effects of transgressive acts, it would be most useful to gather data on risk and protective factors for transgressive acts and moral injury outcomes *prior* to deployment (see Polusny et al., 2011, for an example).

Third, additional research is needed on the proposed collateral effects of exposure to transgressive acts beyond PTSD symptoms. Although Litz and colleagues' (2009) article has been widely cited, little research has examined

the collateral effects outlined in that model in relation to transgressive acts. Other aspects of moral injury not described by Litz and colleagues, such as spiritual/existential problems and loss of faith (Drescher et al., 2011; Farnsworth et al., 2014), should also be examined. Studies that comprehensively assess the collateral effects would allow for further clarification regarding the interrelatedness of the manifestations of moral injury.

Fourth, studies that test more complex models that include mediators and moderators of the relations between transgressive acts and the collateral effects of moral injury and PTSD symptoms are needed. Studies that assess mediation should be designed to provide strong tests of implied claims of causality in mediation models (e.g., by collecting data longitudinally pre- and postdeployment). In particular, further research is needed regarding the unique experiences of combat-related guilt and shame versus noncombat-related guilt and shame and to distinguish between context-specific guilt, generalized guilt, and shame (Farnsworth et al., 2014).

Additional mechanisms of moral injury have emerged in recent research and warrant investigation. Meaning-making about the transgressive act (a cognitive process focused on values and beliefs) has received some support as a potential mechanism of moral injury (Currier, Holland, & Malott, 2015). Other moral emotions such as disgust and contempt (e.g., Farnsworth et al., 2014) and embitterment (Linden, 2003) should also be investigated. Research is also needed on the attributions veterans make about transgressive acts, which play a key role in the moral injury model but have not been investigated. Finally, Litz and colleagues (2009) proposed factors that may moderate the relation between transgressive acts and moral injury (e.g., self-esteem), and that need to be examined empirically.

In general, research on transgressive acts and moral injury is complicated by the lack of conceptual clarity regarding definitions, causes, mechanisms, and outcomes. We have previously mentioned that measures of morally injurious experiences assess both acts and outcomes. Similarly, it is unclear whether factors such as anger are risk factors for transgressive acts or outcomes of transgressive acts or both. The proposed mechanisms of moral injury (e.g., guilt, shame, withdrawal, self-condemnation)

also overlap with the collateral outcomes (i.e., self-handicapping, demoralization, self-injury). And, the proposed collateral effects are themselves very interrelated. For example, substance abuse can be conceptualized as self-injury or as self-handicapping. Strong research designs, including longitudinal and mixed methods (e.g., qualitative and quantitative methods) studies, are needed to untangle these relations.

Interventions for Moral Injury

Veterans who experienced transgressive acts may suffer from a shame- or guilt-based syndrome (i.e., moral injury) in addition to a fear-based disorder (i.e., PTSD). Indeed, cognitive-behavioral PTSD interventions that are effective in civilian populations have smaller effect sizes in veteran populations (Bradley, Greene, Russ, Dutra, & Westen, 2005) and have been criticized as inadequately addressing guilt and shame (see Steenkamp, Nash, Lebowitz, & Litz, 2013, for further discussion). Furthermore, it has been suggested that exposure-habituation models of PTSD treatment may exacerbate shame-based reactions to transgressive events, be less effective, and lead to treatment refractoriness (Maguen & Burkman, 2013).

Recently, a number of interventions have been developed to address moral injury. For example, adaptive disclosure (AD) is a six-session individual cognitive-behavioral-Gestalt intervention for active duty military personnel that promotes self-forgiveness and compassion (Gray et al., 2012). AD involves first disclosing the transgressive event narrative in a safe therapeutic environment and then participating in a therapist-facilitated imaginal dialogue with a forgiving and compassionate moral authority about the transgressive event and the harmed it has caused (e.g., self-injury). Active duty Marine and Navy Corps personnel ($N = 44$) who participated in a pilot study of AD reported significant reductions in scores on measures of PTSD and depression from pre- to posttreatment. A treatment manual for adaptive disclosure was recently published (Litz, Lebowitz, Gray, & Nash, 2015).

Another program, Building Spiritual Strength (BSS), is an eight-session group therapy for use in faith-based settings for military personnel suffering from spiritual distress (Harris, Park, Currier, Usset, & Voecks, 2015): One case

study describing the application and successful treatment of a young religious OIF veteran provided some promising support for this community-based intervention. Other interventions, such as a form of acceptance and commitment therapy (ACT) for moral injury, are under development in the Veterans Affairs health care system (Nieuwsma et al., 2015). A PTSD treatment module that was developed to directly address the impact of killing on psychiatric symptoms recently underwent a clinical trial, although study results have not yet been released (ClinicalTrials.gov, 2014). Development of additional interventions that treat moral injury with and without co-occurring PTSD is an important next step in delivering adequate care to combat veterans.

Conclusions

Moral injury is a construct used to help identify those veterans who are at risk of existential and reintegration difficulties and to explain why some veterans suffer with potentially life-threatening psychic distress postdeployment. However, the moral injury field is relatively young and requires greater theoretical development to properly serve veterans. We hope that this review will spur additional research on moral injury that will then lead to new interventions addressing the unique issues that can arise for veterans who have committed or been exposed to transgressive acts.

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