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REVIEW

Past, Present, and Future of Cognitive Behavioral-based Psychotherapies for Moral Injury

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Abstract

Purpose of Review In the last 15 years, there has been a burgeoning interest in moral injury, particularly among veterans and in high-risk occupational contexts. Estimates of exposure frequency to potentially morally injurious events (PMIEs) are high among veterans. Psychotherapies for posttraumatic stress disorder (PTSD) have been posited as sufficient for treating moral injury, which is tacitly conceptualized as a form of trauma. Several psychotherapies have also been developed to treat moral injury, or specific aspects of the purported syndrome (e.g., guilt). We describe and critically review individual and group psychotherapies that are putatively designed to address moral injury.

Recent Findings There have been no randomized controlled trials using a primary endpoint of moral injury. Instead, investigators have chiefly argued that existing evidence-based therapies for PTSD are de facto appropriate for PMIE-exposed individuals. Consequently, there is insufficient evidence to suggest a best-practice approach.

Summary There is still no consensus definition of moral injury, nor a widely used gold standard outcome measure, which has led to a body of research with significant validity issues. Clinical trials are needed that use clinically significant moral injury as an entry criterion, repeated assessments of moral injury symptoms, and the functional impact of those symptoms.

Keywords Potentially Morally Injurious Event · Moral Injury · Posttraumatic Stress · Cognitive Behavioral-based Intervention · Psychotherapy

The term moral injury was first introduced by Jonathan Shay (1994) [1], drawing on the story of Achilles in the *Iliad* and how it related to challenges faced by Vietnam combat veterans. He conceptualized moral injury as stemming from betrayal by authority figures in high-risk and desperate situations. Interest in moral injury in the clinical science and care communities proliferated after the seminal review of the construct by Litz and colleagues (2009) [2], who offered an initial conceptualization of potentially morally injurious events (PMIEs) as events that entail "perpetration, failing to prevent, bearing witness to, or learning about acts that transgress deeply held moral beliefs and expectations" (p. 697). Subsequently, there has been a growing multidisciplinary interest in moral injury. Although conceptual models and empirical research about moral injury have primarily focused on military personnel, interest has expanded into other populations at risk for PMIE exposure (e.g., healthcare workers, refugees).

PMIEs can be categorized as transgressive things people do or fail to do (e.g., abusive violence, failure to protect others), or transgressive experiences that happen to a person (e.g., bearing witness to cruelty, betrayal by trusted others) [3]. The prevalence of PMIE exposure has been chiefly studied among veterans. In one study, 51% of a nationally representative sample of 564 veterans endorsed PMIEs in which they were the casualty or victim, and 10.8% endorsed a self-related PMIE [3]. Another study of 7200 veterans also found a very high prevalence of reports of PMIEs [4]. Exposure to any type of PMIE is associated with risk for impairment across multiple domains of functioning (e.g., social, occupational, religious/spiritual) [5–7]. Importantly, exposure to PMIEs is a necessary but not a sufficient determinant of distress and impairment. In general, personal transgressions are associated with

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internalizing outcomes, such as shame, self-blame, loss of pride, poor self-worth, and lack of self-compassion [8]. By contrast, when people are subject to PMIEs, they are at risk for externalizing problems, such as loss of trust in others and anger [8].

There is no consensus definition of the putative syndrome of moral injury, no caseness definition, inadequate and misapplied assessment tools [9], and until recently, no gold standard measure of moral injury symptoms. Consequently, the prevalence of moral injury as an outcome is unknown. A recent systematic review of measures of moral distress and injury outcomes identified a host of psychometric limitations of existing measurement tools [10]. Houle et al. also determined that the recently developed Moral Injury Outcome Scale (MIOS) [11] was the only measure that met criteria as a leading scale for clinical practice and research, whereas other measures, such as the Expression of Moral Injury Scale (EMIS) [12], Moral Injury and Distress Scale (MIDS) [13], and Moral Injury Symptom Scale (MISS) [14], were either provisionally recommended or weakly recommended. Some notable issues with these measures of moral injury outcomes include restricting exposure events to warzone experiences (e.g., Brief Moral Injury Screen [BMIS]) [15], not anchoring outcomes with an exposure event (e.g., EMIS outcomes are broadly anchored to "general military experiences"), and poor structural validity (e.g., MISS). The MIDS has some very good psychometric characteristics [13]. However, the content validity is problematic; the outcomes associated with bearing witness to grave inhumanity, observing others' transgressions, or being the direct victim of others' transgressive acts were not fully considered. Given that the MIOS was only recently developed, this scale has yet to be used in clinical research studies. In general, because to date there has been no gold standard measure of the construct there is a death of knowledge about factors that cause, maintain, and mitigate moral injury.

There has also been debate about whether moral injury is distinct from PTSD and depression, which is not surprising because the impact of any severe life stressor can lead to symptoms of these conditions [16, 17]. In the absence of evidence that reveals moral injury to be a distinct syndrome, it is commonly assumed that moral injury is a form of PTSD [18]. However, PMIEs do not always fit neatly into the current *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5)* [19] definition of a traumatic event.

Although clinical science about moral injury is nascent, there is burgeoning interest in clinical care communities. This is arguably because providers and researchers recognize the unique existential and phenomenological impact of grave acts of inhumanity and appreciate that putative moral injury cases entail targets that require specialized approaches. To assist providers, we provide a critical review of cognitive behavioral-based psychotherapies that have been adapted or developed to ostensibly treat moral injury. Please see Table 1 for a summary of the various interventions reviewed.

Cognitive Behavioral-Based Psychotherapies for PTSD

Many clinical researchers posit that existing evidence-based treatments for PTSD, namely prolonged exposure (PE) and cognitive processing therapy (CPT) [18, 20, 21], are adequate to address moral injury [18, 20, 22, 23]. The argument is that existing therapies sufficiently target PTSD symptoms when a traumatic event is a morally injurious experience, and they also help mitigate related sequelae (e.g., depression, guilt) [24, 25]. At present, this discourse, and any systematic application of PTSD therapies for presumed moral injury, is occurring in Veterans Affairs' PTSD specialty clinics.

Prolonged Exposure

PE is a first-line, evidence-based treatment for PTSD in the Departments of Veterans Affairs and Defense (VA/DoD) [26]. The treatment requires individuals to revisit their trauma and process emotions through imaginal and in-vivo exposures to stimulate new learning over the course of eight to fifteen, 90-min sessions [27]. PE was originally developed to treat civilian sexual assault survivors [28], and a recent meta-analysis found that there is a larger magnitude of change in civilian efficacy studies compared with military samples [29]. PE is based on emotional-processing theory, which posits that recovery from trauma requires exposure to corrective information to counteract ways of thinking and responding that were memorialized during and reinforced after trauma [30]. The optimal corrective experience is the reduction in conditioned fear that occurs when an individual emotionally processes a traumatic memory in a sustained, non-avoidant fashion to promote extinction of conditioned fear [30]. Yet, extinction is not necessary for PE to help people with PTSD. In practice, focused and non-avoidant processing of a traumatic event seemingly helps people experientially shift their negative beliefs about the implication of the experience, via a therapeutic dialogue after the exposure, and it addresses feelings and beliefs about agency and competence (i.e., feeling less helpless and more self-efficacious). In 2006, Foa and colleagues expanded the theory to include non-fear-based negative emotions that may have been present during one's trauma (e.g., shame, guilt, and anger) [31].

A leading argument that suggests PE is a potential treatment for moral injury is prior findings that PE leads to reductions in trauma-related guilt [21, 32], though this has been identified only in case studies. Some have recommended

Table 1 Summary of reviewed interventions for PTSD and putative moral injury

Intervention	Number of sessions	Format	Validated groups	Strengths for moral injury treatment	Limitations for moral injury treatment
Prolonged Exposure (PE)	8–15	Individual	Civilians, Military	-PE can lead to reductions in trauma-related guilt -Through the trauma interview, there is a built-in opportunity to assess for the presence of moral injury and moral emotions -Can use in-vivo assignments to target moral emotions and make amends (e.g., volunteering)	-Not applicable for non-Criterion A PMIEs -It is unknown whether exposure reduces moral emotions -Guidelines for using PE for moral injury treatment are primarily focused on perpetration-based events -Guidelines are largely centered on helping patients contextualize their experience and change beliefs about culpability, despite PE not being a cognitive therapy -No empirical evidence that PE reduces moral injury outcomes
Cognitive Processing Therapy (CPT)	12	Individual or Group	Civilians, Military	-There is evidence that CPT may reduce depression and trauma-related guilt, both of which overlap with moral injury -There is a direct approach to challenging distortions related to responsibility and guilt compared to other treatment protocols	-Socratic questioning is a core component, which may not be appropriate for moral injury treatment, as some beliefs may not be distorted -Some CPT experts have suggested including acceptance-based strategies or incorporating ways to make amends, but these strategies are not a formal part of this protocol and there is little guidance on how to implement these add-ons -No empirical evidence that CPT reduces moral injury outcomes
Spiritually-Integrated CPT (SICPT)	12	Individual	Military	-Adds a religious/spiritual component which can be somewhat personalized to one's unique beliefs and practices -When beliefs are accurate, rather than challenging them, other strategies are used (e.g., building compassion, self-forgiveness) -There is encouragement to build connections in one's faith community	-The treatment is purportedly for moral injury, and PTSD is considered a secondary problem; however, there is little guidance on how to apply the CPT manual and worksheets in this way -May not be applicable for patients who do not have a history of religious or spiritual beliefs -SICPT has never been empirically validated as a treatment
Cognitive Therapy for PTSD (CT-PTSD)	12	Individual	Civilian	-CT-PTSD experts suggest that a greater focus can be placed on values work and building deeper connections with others -Cognitive distortions are challenged, but for accurate beliefs, there is an emphasis on acceptance -Through imagery, patients can seek feedback from a "moral authority"	-Acceptance-based strategies are not part of CT-PTSD, and it is unclear how to incorporate these new elements into the CT-PTSD framework -No empirical evidence that CT-PTSD is appropriate for moral injury treatment, and all of these proposed changes are based on theory and opinion alone

Table 1 (continued)

Intervention	Number of sessions	Format	Validated groups	Strengths for moral injury treatment	Limitations for moral injury treatment
Acceptance and Commitment Therapy (ACT) for Moral Injury	6	Group	Military	-Acceptance and improved functioning are a core focus in ACT rather than a rigid focus on curing a "disease" -There is also emphasis on re-engaging with one's values to improve functioning and quality of life	-Currently only being evaluated in group format in VA hospitals -Only qualitative data has been gathered on these groups -No empirical evidence that ACT reduces moral injury outcomes
Adaptive Disclosure (AD) and Adaptive Disclosure-Enhanced (AD-E)	6–12	Individual	Military	-Was specifically developed to treat moral injury and traumatic loss, and there is a core assumption that these events differ from fear- or victimization-based traumatic events -Personalized treatment approach, which has recently been expanded (AD-E) for greater flexibility -Incorporates treatment strategies from multiple frameworks, including both CBT- and Gestalt-based techniques -First treatment to have an RCT with evidence of both PTSD symptom reduction and improved functioning	-No empirical evidence that AD or AD-E reduces moral injury due to the lack of available measures of moral injury outcomes
Impact of Killing (IOK)	6–10	Individual	Military	-Can be flexibly used as a standalone or supplemental treatment following trauma-focused therapy -Distortions are challenged, but there is a focus on acceptance of accurate beliefs about culpability -Treatment can be personalized based on one's cultural practices (e.g., adding a spiritual element)	-Treatment is limited to a low base rate, perpetration-based event (i.e., killing), which accounts for a very small percentage of PMIEs -There is no evidence that IOK is superior or non-inferior to other trauma-focused therapies -No empirical evidence that IOK reduces moral injury outcomes
Trauma-Informed Guilt Reduction Therapy (TrIGR)	6	Individual	Military	-Can be flexibly used as a standalone or supplemental treatment following trauma-focused therapy -Brief treatment focused on guilt and shame as moral emotions	-Tightly focused on guilt and shame, and thus, may not be useful if those are not the primary symptoms -Does not address externalizing symptoms that may stem from non-perpetration-based PMIEs -No empirical evidence that TrIGR reduces moral injury outcomes

Table 1 (continued)

Intervention	Number of sessions	Format	Validated groups	Strengths for moral injury treatment	Limitations for moral injury treatment
Building Spiritual Strength (BSS)	8	Group	Military	-Treatment can be delivered by any trained helping professional -Prioritizes working as a multidisciplinary team (e.g., consulting with chaplains) -Strong focus on improving functioning through spiritual development -Incorporates treatment strategies from multiple frameworks, including both CBT- and Gestalt-based techniques	-No empirical evidence that BSS reduces moral injury outcomes

PTSD posttraumatic stress disorder, *PMIE* potentially morally injurious events

strategies for adapting PE for moral injury treatment [18, 33]. Providers are advised to evaluate the presence of moral injury during the trauma interview, as well as any judgments or unhelpful beliefs their patient is holding about the event that led to shame, guilt, fear, and anger [33]. Once identified, the recommendation is that presumed thought distortions should be challenged and/or contextualized during the post-exposure dialogue. PE experts also suggest that separating guilt from shame and utilizing revised feelings to propel one towards making amends and resolving painful emotions are necessary elements of treatment [18, 33]. Nevertheless, the core change agents appear to be emotional- processing of moral emotions and experiences in the hope that PE would reduce the intensity of the experiences, along with helping the person contextualize a transgression, which entails helping them appreciate the mitigating and peri-event constraints or pressures (e.g., the fog of war, poor training and leadership) that would, in theory, shift one's beliefs about their culpability [33]. During the imaginal exposure, providers are advised to use probes to elicit information about the peritraumatic context, construed as meaning elements (e.g., related thoughts and feelings). Therapists are instructed to use in-vivo exposure hierarchies that target guilt and shame, when appropriate, to bolster the possibility of new learning and potentially altering event-related beliefs. PE experts suggest that PE should be modified to include helping people make amends for transgressions by including these tasks as in-vivo exercises (e.g., writing letters, visiting burial sites, volunteering) [33].

These suggested modifications to PE are problematic for several reasons [34]. First, it is an unaddressed empirical question whether repeated, sustained exposure reduces moral emotions and moral injury symptoms. Second, the guidelines for PE are tailored to help people with a perpetration-based moral injury, which is a limited portion of PMIEs. Third, the model applies a purely constructivist stance about culpability and responsibility-taking, failing to appreciate that culpability can be indisputable, and it leaves therapists with few strategies to help people who have transgressed in a willful and strategic manner, or who failed to protect others who they had a moral obligation to protect. Fourth, it appears that PE is modified to be primarily a cognitive therapy, which calls into question the degree to which exposure is necessary or sufficient [35]. Finally, there is no empirical evidence to suggest that modified PE helps address moral injury.

Cognitive Processing Therapy

CPT is also a first-line, evidence-based PTSD treatment, designed to be completed in 12, 50 to 60-min individual sessions or 90-min groups [26, 36]. Like PE, CPT was developed for use with civilian sexual assault survivors [37]. It is based on the cognitive therapy [38] and social-constructivist

models [39, 40] of treatment, aiming to mitigate distress by changing putatively distorted thoughts (i.e., "stuck points") [36]. More specifically, CPT aims to help patients revise their beliefs about the meaning of a traumatic event with respect to traumatogenic beliefs about themselves, people, and the way the world works using cognitive strategies (e.g., Socratic dialogue; worksheets). CPT has multiple components, including psychoeducation about PTSD and the connections between thoughts, feelings, and behaviors, processing a trauma memory in writing (which is optional), and challenging maladaptive beliefs about the trauma. Five specific themes are introduced over the course of therapy to help identify and target stuck points, namely, safety, trust, power/control, esteem, and intimacy. Although CPT has some efficacy for the treatment of PTSD, depression, and guilt [24, 36, 41, 42], moral injury has not been a target in trials.

CPT experts have suggested that CPT is sufficient to treat moral injury [20, 23]. They recommend taking extra time engaging in Socratic dialogue, given that one's deeply held moral beliefs may be resistant to quick changes, and challenging beliefs too quickly may lead to missing nuance in the stuck points (e.g., the balance between distortion and reality of one's beliefs) [23]. CPT may take a more direct approach than PE to challenging beliefs about responsibility, guilt, and self-blame, given that these themes are standardly addressed in CPT [36]. Providers using CPT to treat moral injury are also advised to help the patient contextualize their experience to work towards balanced beliefs about culpability, which is not part of formal CPT [23]. Regarding personal transgressions, patients are guided towards self-forgiveness, possibly through changes in their actions (e.g., making amends). However, some have criticized the use of Socratic questioning for moral injury given that one's distressing beliefs may not be distorted or inaccurate, and in fact, may be appropriate given the circumstances [43]. Furthermore, strategies that are not part of the manualized CPT protocol have been asserted as useful when using CPT to treat moral injury, but they have not been tested (e.g., acceptance-based strategies, making amends). Thus, guidance about how to incorporate these strategies within a CPT framework is needed.

There have been no randomized controlled trials (RCTs) of the effectiveness of PE or CPT with respect to moral injury. There have been several case studies, but these fail to provide sufficient evidence [21, 32].

Spiritually-Integrated CPT (SICPT)

There is general agreement in secular communities that moral injury can entail distress related to religious beliefs and spirituality [44–46], including struggles with one's beliefs, condemnation of self, trouble with self-forgiveness, loss of faith, or hopelessness. SICPT was adapted from CPT [36] by a multidisciplinary team to address faith and spirituality-related problems [47]. It is similarly a 12-session treatment with modified versions of the CPT worksheets. New session content includes psychoeducation about moral injury and spiritual resources, compassion training, identifying spiritual distress, utilizing forgiveness, and discussions about trust, making amends, esteem, power/control, intimacy, posttraumatic growth, and safety.

In SICPT, moral injury is putatively the primary target, as opposed to a focus on PTSD symptoms, and the authors claim that mitigating moral injury will help mitigate PTSD [47]. Further, distorted beliefs are challenged through individuals' religious/spiritual beliefs, practices, and values. When beliefs are accurate and not appropriate for restructuring, strategies for building compassion, self-forgiveness, or making amends, are used to target moral emotions. Patients are encouraged to become more active in their faith communities to build connections with others, and any struggles with one's faith (e.g., feeling punished by God) are normalized. There are also religion-specific supplements that can be utilized if patients identify strongly with a particular religion (for a case example [47]). SICPT has not been empirically evaluated.

Cognitive Therapy for PTSD (CT-PTSD)

CT-PTSD is a 12-session, trauma-focused therapy that was developed based on Ehlers and Clark's (2000) cognitive model of PTSD [48]. CT-PTSD is based on theory that false beliefs about being under current threat can maintain PTSD. More recently, this model has been adapted to aid in the conceptualization of moral injury [49]. Murray and Ehlers (2021) used the cognitive model to illustrate that overly negative beliefs about one's PMIEs can similarly lead to an ongoing sense of being under threat [49].

The goals of CT-PTSD are to change distorted or overaccommodated beliefs about the traumatic event and its outcomes and to mitigate behaviors that make one feel they are under threat. Murray and Ehlers (2021) proposed several ways to incorporate moral injury into this treatment [49]. First, psychoeducation about PTSD and moral injury is essential, as well as normalizing the emotional sequalae of these conditions. There should also be an emphasis on reclaiming values, increasing self-care, and building connections with other people, all while challenging beliefs that get in the way. The focus then shifts to making meaning of the event by concentrating on information related to the context of the situation (e.g., the role others may have played), and any distortions are challenged. Patients and therapists may return to the scene of the event together, when applicable, to help patients connect with their memories and to promote contextualization of the event. For accurate appraisals, the emphasis becomes acceptance and taking responsibility

for one's actions, while considering the pros and cons of continuing to punish oneself (e.g., by ruminating, holding onto anger) versus moving toward self-forgiveness. Like other purported treatments for moral injury [50], patients are asked to seek the opinion of moral authorities (e.g., a higher power) about how to move forward through imagery.

There are several limitations to utilizing CT-PTSD as a treatment for moral injury. Arguably the most important is that CT-PTSD has not be tested as a treatment for moral injury. Thus, all treatment recommendations are based solely on theory and anecdotes for what may be effective. Further, though the shift within a cognitive therapy to systematically help someone with clear culpability is a welcome addition, acceptance has not historically been a component of CT-PTSD [48].

Acceptance and Commitment Therapy (ACT)

ACT is a transdiagnostic behavioral intervention with goals of improving psychological flexibility, promoting acceptance of experiences in a nonjudgmental manner, and living a values-consistent life [51]. It is not trauma-focused like other suggested treatments for moral injury. Psychological flexibility is conceptualized as being fully present in the moment to experience life and work on changing behaviors to be more aligned with one's values [51]. Like PE, ACT patients are encouraged to sit with distressing emotions by observing them, nonjudgmentally, rather than avoiding them [31]. Unlike other EBPs that may focus on curing a "disease," ACT is more broadly focused on decreasing, rather than curing, one's suffering [51]. Providers consider suffering as a normal part of the human condition that may be mitigated by promoting a more values-driven life. ACT takes a more functional approach, largely focused on identifying processes that are maintaining distress while improving one's functioning and quality of life [5].

There is evidence that ACT can mitigate a variety of mental and behavioral health problems, including chronic pain, depression, anxiety, and shame, a moral emotion [52, 53]. Nieuwsma and colleagues (2015) posited some ways that ACT may be well-suited for treating moral injury [22]. Specifically, there is focus on accepting human suffering as normal, inevitable, and possibly meaningful, balancing one's understanding of morality, and utilizing forgiveness to live a more values-consistent life, rather than solely using forgiveness to mitigate guilt [22]. ACT allows one to focus on negative emotions (e.g., guilt, shame, or anger) as being something to compassionately recognize and normalize given one's experiences, rather than attempting to control or push negative feelings aside [22]. Providers can also help patients better understand how their values have been violated and identify ways to re-engage with those values [22].

At present, ACT for moral injury has been delivered in a group context with six, 75-min sessions, and qualitative data has been gathered on its usefulness [5, 54]. Acceptance and being able to connect with important values were aspects of the group that members considered particularly salient [5]. The initial study utilized a sample of 11 veterans in an 8-week, residential PTSD program but did not control for whether they were in other treatments at the time of their group participation; therefore, it is unclear whether their self-reported improvements were due to ACT or other interventions [5]. Recently, two pilot studies were completed to develop a protocol specifically for ACT for moral injury [54]. However, these studies primarily evaluated qualitative interviews, and improvement from moral injury symptoms was measured through the Moral Injury Questionnaire-Military (MIQ-M) [55], which fails to discriminate between exposure and outcomes. To date, the efficacy and effectiveness of ACT for moral injury is unknown; however, an RCT is reportedly in progress to determine its efficacy (see NCT03760731).

Novel Cognitive Behavioral-Based Psychotherapies for Moral Injury

Several novel treatments have been developed to target moral injury or specific components, such as guilt [56–58].

Adaptive Disclosure (AD) and Adaptive Disclosure-Enhanced (AD-E)

AD was developed as a six, 90-min session treatment to address outcomes from exposure to warzone events, including moral injury and traumatic loss [50]. A foundational assumption of AD is that moral injury and traumatic loss are phenomenologically and etiologically distinct from fear- and victimization-based traumatic events. AD utilizes a mixture of Gestalt [59] and CBT-derived techniques [43], such as imaginal exposure (i.e., narration and retelling of the event aloud) and experiential strategies (i.e., through dialogues with a compassionate moral authority about the meaning and implication of one's experience for moral injury cases), to foster motivation for corrective action [50]. Unlike other trauma-focused psychotherapies, AD employs a personalized treatment approach where components can be used flexibly. A pilot observational study of AD found clinically significant improvements in PTSD, depression, and posttraumatic cognitions [60], and an eight-session version of AD was found to be noninferior to CPT in an RCT [61].

In 2018, AD was expanded into AD-E, which includes 12 sessions with additional treatment components to make the approach even more flexible [56]. The expanded elements were letter writing (e.g., to someone who was victimized by

a personal transgression), mindfulness and loving kindness meditation, and a focus on healing and repairing activities in various social contexts [56], with the aim of increasing compassion of the self and others and repairing lost faith in humanity or one's own humanity [62]. In a recent RCT comparing AD-E and present-centered therapy (PCT) [63] for individuals with PTSD who endorsed either traumatic loss or moral injury as their traumatic event, the AD-E group had significant improvements in PTSD symptoms and functioning compared to the PCT group, though differential effect sizes were modest [56].

AD-E is the first therapy tested in a high quality RCT that showed differential efficacy in improving functioning (the primary endpoint) and reducing PTSD in individuals with moral injury traumas. Yet moral injury symptoms and functional impairment tied to these symptoms were not assessed in the AD-E trial because measures that were available at the time of data collection were insufficient for several reasons including, but not limited to, the conflation of exposure and outcomes and there being no consensus definition of moral injury as an outcome. Consequently, there is no evidence that AD-E leads to improvement in moral injury symptoms, per se.

Impact of Killing (IOK)

IOK was developed to treat combat veterans with distress related to taking someone's life [57]. IOK can be delivered either as a standalone or supplemental treatment for those who have completed other trauma-focused psychotherapies. It has recently been expanded to be delivered in 10 sessions [64]. IOK involves specific focus on challenging beliefs related to killing through Socratic dialogue, processing emotions, making meaning, acceptance and self-forgiveness, and creating a plan for continued healing after treatment [64, 65]. There is a focus on challenging beliefs that are distorted but acknowledging that other beliefs are appropriate and should be treated differently, like other proposed adaptations for cognitive therapies [23, 49]. For example, accurate appraisals about culpability may be targeted through promoting self-forgiveness and making amends, rather than challenging these beliefs. Given that views of self-forgiveness and making amends may vary widely by individual, these processes are collaborative to allow individuals to tailor these experiences to their cultural views and practices [64]. IOK also allows for space to incorporate a spiritual component that is largely guided by the veteran's beliefs about killing [64]. The ability to tailor the treatment specifically to the killing-related cognitions of the individual is a notable strength.

One pilot trial was conducted with 33 veterans, where IOK completers reported fewer PTSD symptoms, less distress associated with killing-related beliefs, and improved functioning (e.g., more social engagement) compared to waitlist controls [65]. Although these findings suggest that IOK may have some utility, there have not been any superiority or non-inferiority trials conducted to determine whether this treatment is more or comparably beneficial than other trauma-focused treatments. Moreover, IOK has not been tested with moral injury as an outcome. Finally, another critical issue is that IOK focuses exclusively on a singular, low-base-rate, personal transgression, namely killing, which means that the therapy is not appropriate for most moral injuries.

Trauma-Informed Guilt Reduction Therapy (TrIGR)

TrIGR is a six-session therapy designed to reduce guilt and shame among military personnel, either as a supplemental or standalone treatment [66]. TrIGR was developed based on the non-adaptive guilt and shame model [58], which posits why some individuals experience debilitating guilt after trauma exposure and others do not. For example, feeling guilt may be used as evidence that one did something wrong (i.e., emotional reasoning), leading to a cyclical pattern of guilt. Guilt was prioritized due to its association with greater PTSD symptoms, depression, and suicidal ideation [17, 58, 67], as well as prior findings that guilt is one PTSD symptom that may be more likely to persist after completing trauma-focused treatments [68].

The goal of TrIGR is to target guilt to mitigate the distress of moral injury among military personnel by helping patients contextualize their role in the event in a more balanced way and to express values in healthier ways (e.g., "I did something wrong, but that does not mean I need to suffer forever") [58]. After two psychoeducation sessions, the focus shifts to processing one's beliefs and feelings of guilt and shame. Cognitive distortions, such as hindsight bias, are challenged to help patients identify what options may have been available to them during the event. The final sessions are focused on pinpointing ways that one's values have been violated by the event and how to re-align one's life with important values.

A pilot trial was completed with 10 post-9/11 combat veterans with PTSD and who reported trauma-related guilt [58]. Large effects were seen in reductions in both PTSD and depressive symptoms from pre- to post-treatment [58]. An RCT with 145 post-9/11 veterans subsequently compared veterans who completed TrIGR or supportive therapy, which found that TrIGR completion led to greater reductions in PTSD, depression, and guilt [66]. No significant differences between TrIGR and supportive therapy were found on measures of general distress, trait shame, and quality of life [66]. A recent follow-up using this RCT data indicated that changes in guilt-related beliefs helped partially explain the relationships between TrIGR and PTSD and depression, though these were small to medium effects [69].

Table 2 Summary of key directions for future moral injury research

- There is no evidence that any of the reviewed treatments are efficacious in mitigating moral injury as a multidimensional and unique outcome, even among treatments that were purportedly designed to treat moral injury, such as AD and AD-E. This is because there was no consensus definition or adequate measure to assess for such outcomes until the release of the MIOS in 2022. Research is therefore needed on the epidemiology of moral injury as an outcome and to determine whether any of these treatments can successfully reduce moral injury outcomes and improve functional impairments related to moral injury symptoms
- As depicted in Table 1, most of the treatments for outcomes putatively related to moral injury were tested on Veterans, therefore, research in other high-risk populations (e.g., healthcare workers) is needed to expand and improve treatment options
- PTSD experts have posited that evidence-based treatments (e.g., PE, CPT, CT-PTSD) are appropriate for the treatment of moral injury. They have provided some guidance on ways these treatments can be utilized, however, some of these recommendations do not fit within the fear- and victimization-based theoretical frameworks in which these treatments were designed, and moreover, there is very little information on how clinicians can implement any of the proposed strategies within the manualized protocols. Finally, none of these guidelines have been empirically tested. Additional work is still needed to answer these questions
- Many of the PTSD treatments, including IOK, also appear to have guidelines that are much more applicable to perpetration-based PMIEs, which only account for a limited portion of events. Now that we have a better understanding of symptom-level differences based on PMIE type, it would be beneficial to consider whether guidelines specific to perpetration-based PMIEs are appropriate or relevant for non-perpetration-based events
- There are currently no consensus guidelines for treating moral injury. A practical approach to addressing the lack of evidence for these treatments is to learn about ways to improve outcomes in a variety of clinical settings by using measurement-based care. By using measurement-based care, researchers and clinicians can use the data to understand how to flexibly and effectively address moral injury outcomes and poor functioning

AD adaptive disclosure, *AD-E* adaptive disclosure-enhanced, *MIOS* moral injury outcomes scale (Litz et al., 2022), *PTSD* posttraumatic stress disorder, *PE* prolonged exposure, *CPT* cognitive processing therapy, *CT-PTSD* cognitive therapy for PTSD, *IOK* impact of killing, *PMIE* potentially morally injurious event

Because it is tightly focused on guilt and shame, TrIGR may not be appropriate when those symptoms are not the prominent concern [66]. Specially, TrIGR does not address externalizing symptoms that result from being subject to the transgressions of others. It is also still unknown whether TrIGR is an effective treatment for moral injury, as it has not been assessed as an outcome in the studies reported above. TrIGR has also only been studied with veteran samples, and it is unclear whether it will extend to other populations.

Building Spiritual Strength (BSS)

BSS is an eight-session, group intervention for trauma-exposed military personnel that focuses on spiritual development, improving well-being, and alleviating PTSD and moral injury through psychoeducation, mindfulness, and Gestalt and cognitive strategies [70–72]. Similar to AD, BSS utilizes the Gestalt "empty chair exercise" where patients speak about their difficulties to a higher power, while other group members provide support. One benefit of BSS is that it can be delivered by any trained helping professional, including chaplains, psychologists, and/or social workers. Collaboration with chaplains and other religious/spiritual professionals is an important component of this work given the intersections between one's faith and spirituality beliefs and views on morality.

There have been two RCTs conducted to determine the efficacy of BSS. In one trial, BSS was associated with a greater decrease in PTSD symptoms relative to a waitlist group [71]. However, BSS did not lead to greater PTSD symptom reduction compared to PCT, though BSS did lead to greater improvements in religious/spiritual-related distress compared to PCT [46]. No trial to date has assessed moral injury as an outcome, so it remains unknown whether BSS is an efficacious intervention for moral injury.

Conclusions and Future Directions

PTSD experts have proposed adaptations to existing treatments or developed new treatments with the goal of alleviating moral injury. Still, there is currently no empirical evidence that any of these approaches reduce moral injury; thus, these claims cannot be substantiated (please see Table 2 for an overview of recommendations for future research). Various therapies are associated with reductions in overlapping, but distinct conditions, such as PTSD [41, 60, 61, 65, 66], but there is minimal impact on functional impairment [73]. Moral injury does not appear to fit neatly in our current understanding of PTSD as a fear-based disorder, and existing PTSD treatments were developed using fear- and victimization-based models. Therefore, these models may be insufficient for treating moral injury because not all PMIEs involve fear or victimization and reports of Criterion-A trauma exposure are not necessary for individuals to endorse significant moral injury symptoms [43].

Prior treatment research has been limited by the lack of a psychometrically sound measure of moral injury outcomes, due in large part to construct and other validity issues [10]. With the recent development of such measures

(e.g., MIOS) [11], caseness decisions can be derived and moral injury-specific outcomes can be evaluated in future treatment studies. This will lead to a proliferation of clinical trials that test whether various psychotherapies are efficacious for moral injury.

The intervention literature has been largely military-focused, despite other populations being at risk for PMIE exposure (e.g., refugees, first responders, healthcare workers) [74, 75]. Since the COVID-19 pandemic, there has been a growing focus on moral injury among healthcare workers [75]. Yet, most of the treatments that are currently being recommended for moral injury are designed for use with veterans. As our understanding of moral injury in civilian populations expands, the conceptualization of this condition may also evolve, as there may be distinct impacts of moral injury, as well as differing risk and protective pathways [76]. Although recent measures of moral injury outcomes have been developed for military personnel and healthcare workers [11, 77], adaptation or development of measurement tools for other populations is still needed.

Due to these limitations, there are no consensus clinical guidelines for treating moral injury. Litz (2023) recently asserted that an efficient way to address the lack of evidence for these treatments would be by learning how to improve outcomes within various clinical contexts through measurement-based care [78]. Routine outcome monitoring throughout treatment could allow providers to track clinically significant symptom changes and generate concrete evidence about what is and is not effective. Personalizing care requires providers to test various treatment strategies and adjust one's approach based on a patient's treatment response. By promoting measurement-based care using measures like the MIOS, providers and researchers can use point of care metadata to discover and test ways to more flexibly and efficaciously target moral injury symptoms and related functional impairments.

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Data Availability No datasets were generated or analysed during the current study.

Declarations

Competing Interests The authors declare no competing interests.

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