The current status of moral injury: A narrative review and Rapid Evidence Assessment

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MELBOURNE

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Enquiries:
Dr Tracey Varker
Senior Research Fellow
Phoenix Australia –
Centre for Posttraumatic Mental Health
Level 3, 161 Barry Street
Carlton, Victoria 3053
Phone: 03 9035 5599
Email: tvarker@unimelb.edu.au
www.phoenixaustralia.org

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Acronyms

Acronym	Explanation
3MDR	Multi-modular Motion-assisted Memory Desensitization and Reconsolidation
ACT	Acceptance and Commitment Therapy
ACT-MI	Acceptance and Commitment Therapy for Moral Injury
BEP	Brief Eclectic Psychotherapy
BEP-MT	Brief Eclectic Psychotherapy for Moral Trauma
BSS	Building Spiritual Strength
CBT	Cognitive behavioural therapy
CPT	Cognitive Processing Therapy
DSM-5	Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition
DVA	Department of Veterans' Affairs
EMDR	Eye Movement Desensitization and Reprocessing
EMIS-M	Expressions of Moral Injury Scale – Military version
fMRI	Functional magnetic resonance imaging
GII	God Image Inventory
IOK	Impact of Killing
MC4	Mental Health Clinician Community Chaplain Collaboration
MISS-M	Moral Injury Symptom Scale- Military version
MIES	Moral Injury Events Scale
MIOS	Moral Injury Outcome Scale
MIQ-M	Moral Injury Questionnaire—Military Version
PCGT	Present centred group therapy
PE	Prolonged exposure

PICO	Population, intervention(s), comparison(s), outcome(s)
PMIE	Potentially morally injurious event
PTSD	Posttraumatic stress disorder
RCT	Randomised controlled trial
REA	Rapid evidence assessment
REAL	Reclaiming Experiences And Loss
SFM	Search For Meaning
SICPT	Spiritually integrated CPT
TrIGR	Trauma Informed Guilt Reduction
US	United States

Executive summary

The aim of this project was to review the literature in relation to how moral injury is conceptualised, models of moral injury, linkages between moral injury and common mental health issues, and the effectiveness of moral injury interventions in veteran and military populations. In order to answer these questions, a narrative literature review and a REA were conducted:

- A narrative review and synthesis of peer-reviewed and grey literature relating to key conceptualisations and models of moral injury, and research linking moral injury with PTSD, mood disorders, and suicidality. Findings showed that:
    - While the review focused on moral injury, it is important to understand moral injury in the context of normal moral emotions and a continuum of moral distress with moral injury at the most severe end of that continuum.
    - A range of definitions exist for moral injury, but few are empirically validated, and even fewer have been informed by veterans and others with lived experience of moral injury.
    - A range of clinical and non-clinical models have been proposed to explain moral injury, with clinical models focusing on psychiatric symptoms, and non-clinical models emphasising the spiritual, social, and political dimensions of moral injury. The utility of any model can be judged by the extent to which it informs an appropriate intervention. Overall, the models indicate that moral injury has biological, psychological, social, and spiritual components (i.e., biopsychosocial-spiritual) which require attention in order for an individual to recover.
    - Emerging evidence indicates that clinically, moral injury is a mental health issue independent of PTSD and depression, and contributes uniquely to risk of suicidality. Overall, there is a strong, complex relationship between moral injury, depression, PTSD, and suicidality in veteran and military populations.

- An update to the 2015 rapid evidence assessment (REA) which was previously undertaken for DVA, evaluating the quantitative evidence for interventions for moral injury. The findings of the update showed that:
    - Since 2015, the research field has grown significantly, with 20 new studies published. The intervention approaches could be categorised into three broad domains, which were biopsychosocial, spiritual, and biopsychosocial-spiritual. The majority of research was in the biopsychosocial domain, and very few studies focused solely on spiritual approaches. This reflects the fact that most psychological treatments do not have a spiritual component, and that spiritual-based treatments are not typical in psychiatry.
    - Measurement of moral injury treatment efficacy was diverse, with nearly two dozen different measurement approaches used to measure improvement after treatment, across a broad range of psychiatric, wellbeing, and spirituality indicators. The most commonly used measures were for PTSD and depression, which also reflects the fact that moral injury measures have only recently been developed.
    - The certainty of the evidence for all of the moral injury interventions identified in this review were ranked as unknown (i.e. insufficient evidence of beneficial effect). This was primarily due to two reasons: 1) a lack of consistent measurement of moral injury symptoms; and 2) studies having serious methodological issues, including poor quality study design, small sample sizes, and a lack of

replication of findings. This uncertainty in the evidence is reflective of how new the concept of moral injury is, and the lack (until very recently) of a specific measure for moral injury.

Overall, the reviews conclude that:

- As definitions, models, mechanisms, and measurement of moral injury improve, this will result in greater clarity and confidence in appropriate interventions.
- Although the quality of the evidence base is ranked as unknown, the biopsychosocial and spiritual impacts of moral injury suggest that overall a combined intervention approach may be optimal, whether that is via a biopsychosocial treatment augmented with a spiritual approach, or a truly integrated treatment approach.
- Such approaches need to consider the role of practitioners and ensure that clinical and spiritual practitioners work closely together. Future research should prioritise the development and testing of a multidisciplinary psychosocial spiritual model of intervention for moral injury, including consideration of how to effectively address the spiritual component of moral injury amongst veterans who are either non-religious or who have strong religious convictions for a particular religion

Introduction

In 2015, Phoenix Australia produced a Rapid Evidence Assessment (REA) for the Department of Veterans' Affairs, which examined the efficacy of interventions targeting moral injury in military personnel and veterans. This REA identified only two studies that investigated the effectiveness of an intervention for moral injury, and as a result treatments targeting moral injury in military personnel and veterans received an "Unknown" ranking (i.e. insufficient evidence of beneficial effect). The REA concluded that very little was known about the degree to which psychological or other treatments are able to address moral injury, and that the moral injury literature field was in early stages and little was known about its phenomenology, prevalence, or trajectories in military or veteran personnel.

In the past seven years, moral injury has grown significantly in the clinical and research literature. The aim of this report is to:

1. Review and synthesise literature on how moral injury is conceptualised from a clinical, characterological, philosophical, and spiritual perspective.
2. Examine the research linking moral injury and suicide outcomes, moral injury and posttraumatic stress disorder (PTSD), and moral injury and mood disorders.
3. Describe models of moral injury that are proposed in the literature.
4. Evaluate the effectiveness of interventions for veterans who have experienced moral injury.

The findings from aims 1-3 are presented in the narrative review (beginning page 11), while the findings for aim 4 are presented in the REA (beginning page 23). A general discussion and conclusion drawing together the findings of all the sections of the report follows on after the REA (beginning page 34).

An important note on the term 'moral injury' used in these reviews:

The term moral injury, for the purposes of this review, is referring to **a pervasive and enduring psychosocial-spiritual harm that is associated with** functional impairment. While it is not considered a psychiatric disorder in itself, it can lead to psychiatric disorders such as depression and PTSD and can be associated with suicidality.

This review does not cover other aspects of the moral stress continuum outside of moral injury, such as moral distress (the experience of troubling moral emotions) or moral pain (dysphoric moral emotions and cognitions), or moral emotions (non-pathological, normal emotional states experienced by humans).

Isn't this definition pathologising the normal human experience of moral emotions?

No. The definition makes an important distinction between moral distress, which is normal and serves an adaptive function for society, and moral injury which goes beyond the experience of distressing moral emotions, is pervasive and enduring in its impact across psychosocial and spiritual domains, and is associated with functional impact. Thus, moral emotions are not inherently problematic but moral injury is.

Does all moral injury need intervention?

Yes. While the experience of moral *distress* does not necessarily require intervention, when an individual experiences moral injury this should be addressed. This is because moral injury is associated with functional impairment, and can lead to mental disorder and suicidality.

Does all moral injury need addressing from a mental health perspective?

The spiritual elements of moral injury may be better addressed by a spiritual or religious practitioner, but the psychosocial aspects of moral injury may be better addressed by a mental health practitioner.

Don't non-clinical models propose that moral injury is not pathological?

No. Non-clinical models agree with clinical models that moral injury is a problem, and that it must be addressed. They differ in the critical features of the problem, and how it should be addressed.

The current understanding of moral injury: A narrative review

Introduction

It has long been recognised that military service can present moral challenges and dilemmas for members,[1] with training in military ethics intended to help prepare members for this.[2] Modern conflicts in particular often require soldiers to act in multiple roles (e.g., humanitarian aid, peacekeeping operations, and combat), in complex and dynamic environments where an individual's values are constantly challenged.[3] In these environments, military personnel may witness the immoral acts of others; fail to stop such actions; or perpetrate acts themselves that are inhumane, cruel, depraved, or violent and in doing so bring about pain, suffering, or the death of others;[2] as well as intentional killing.[4] Compounding this, the burden of multiple and longer deployments may affect moral decision making capacity, as losses of unit members and adversities mount, and mental health issues affecting emotional and cognitive resources arise.[5] It is important to note that many of the above-described issues can also occur outside of deployments.

There is potential for military personnel who are involved in events that transgress deeply held moral convictions to experience suffering and enduring harms to psychological, social, and spiritual health as a result. This phenomenon has been termed moral injury, and in the past decade, research into the concept of moral injury has exploded. Although first coined by Jonathon Shay (1994) in reference to the experiences of Vietnam veterans,[6] it was a seminal 2009 publication by Brett Litz and colleagues describing moral injury in military and veteran populations as a mental health issue that may arise in the aftermath of an individual "perpetrating, failing to prevent, bearing witness to, or learning about acts that transgress deeply held moral beliefs and expectations," that ignited the field.[7] Over the past 13 years since that definition was proposed, a growing field of research in a wide range of disciplines including psychiatry, philosophy, and theology, across a range of trauma-affected populations (although predominately military and veteran) has been generated. This research has investigated the biopsychosocial and spiritual outcomes of moral injury. Importantly, while moral injury was relatively recently acknowledged within psychiatry, it has been proposed that in reality, it is a very old syndrome that has existed as long as humans have had moral and ethical beliefs and values that can be transgressed.[8]

The interest in moral injury represents an important shift in psychiatry for military and veteran populations.[9] For decades, the dominant narrative in clinical and research literature for military and veteran populations was focused on posttraumatic stress disorder (PTSD). With PTSD Criterion A potentially traumatic events being life-threatening by nature, theoretical models of PTSD were based on a fear paradigm.[5] However, a fear-based approach to understanding military and veteran experiences fails to fully capture events characterised primarily by violations of moral code. Over the past decade, empirical work has addressed the distinction between traumatic events that involve *life threat* and those that involve *violations of moral code* by self or others.[5] Notable examples of events defined primarily by *violations of moral code* in military and veteran populations include exposure to, or witnessing killing or disproportionate violence, harming civilians, the inability to act for the protection of women and children, moral compromise, personnel or organisational betrayals, and challenging homecomings.[5,10]

Moreover, research has found that these moral violating events are common. An early study found that in a sample of United States (US) veterans with PTSD, 66% of events experienced during combat were primarily life-threatening in nature (i.e., potentially traumatic events), while 34% of events experienced during combat were defined as primarily moral violations.[5] Similar research found that 42% of US combat veterans endorsed having been exposed to at least one type of moral violation during their service,[11] and in a study of over 1000 US veterans seeking treatment for PTSD, moral violations were identified as the Criterion A event leading to PTSD in a significant subset of patients.[12] These events have been termed *potentially morally injurious events* (PMIEs), recognising that such events do not inevitably lead to moral injury in the same way that potentially traumatic events do not inevitably lead to PTSD.

Efforts have been made in recent years to operationalise and validate psychometric measures that accurately measure exposure to these events, resulting in the development of two available tools, the Moral Injury Questionnaire—Military Version (MIQ-M)[13] and Moral Injury Events Scale (MIES).[14] Further work on PMIEs has meant that there is general consensus in the field that PMIEs can be categorised into one of three types: perceived transgressions by self; perceived transgressions by others; and perceived betrayal.[15] Prevalence research in a nationally representative sample of US veterans shows that perceived transgression by self are the least commonly reported PMIE, with roughly 11% of reports relating to personally engaging in behaviour that violated their own moral code, compared to 23% of reports endorsing having witnessed others commit an immoral act and 25% of reports feeling betrayed.[16]

In summary, there is general agreement that many veteran and military populations will encounter PMIEs that do not fit within current potentially traumatic event conceptualisations, and a significant proportion will remain haunted by these experiences.[17] Despite this progress in measuring *exposure* to moral violations, there remains a lack of clarity about the *specific symptoms* or *outcomes* that may signify the development of a moral injury following PMIE exposure. Litz et al. (2009) hypothesised that moral injury includes a combination of PTSD symptoms, particularly re-experiencing, coupled with ongoing 'moral emotions'[a] such as shame, guilt, anger, and self-punishing behaviours, which can include self-harm, as well as denying food, pleasure, social enjoyment, and negative self-talk.[7]

Since this seminal proposal, there is some expert consensus that moral injury includes affective, cognitive, social, and spiritual changes (see Table 1).[18-20] A ground-up qualitative examination of the range of outcomes reported by veterans and serving members with lived experience of moral injury identified four domains of impact: 1) feelings of guilt, shame, anger, sadness, anxiety and disgust; 2) intrapersonal outcomes including lowered self-esteem, high self-criticism, beliefs about being bad, damaged, unworthy or weak, and self-handicapping behaviours such as denying oneself pleasure and self-sabotaging opportunities to succeed; 3) interpersonal outcomes including loss of faith in people, avoidance of intimacy and lack of trust in authority figures; and 4) existential and spiritual outcomes including loss of faith in previous religious beliefs, and no longer believing in a just world.[21] There is also recognition that these changes can exist across a continuum of harm, with moral emotions at one end, and the more enduring and pervasive moral injury at the other.[22,23] In addition, early research indicates that exposure to PMIEs is uniquely linked with PTSD, depression, and suicide risk, warranting further discussion of each of these mental health issues.[13]

[a] Moral emotions are defined as human emotions that are strongly linked to the interests or welfare of society or other people, such as shame, guilt, anger, contempt and disgust.

Table 1. Domains of changes in moral injury

Outcomes	Definitions
Emotional	• Enduring shame, guilt, anger, disgust
Intrapersonal	• Self-criticism, self-blame • Beliefs of being bad, unworthy, unlovable or unforgivable • Self-handicapping behaviours
Interpersonal	• Loss of faith in people • Avoidance of intimacy • Lack of trust in authority figures
Spiritual/religious	• Existential changes associated with shattered beliefs about morality and humanity

There has been disagreement within the field about whether the symptoms and outcomes of moral injury are captured within our current understanding of PTSD, and addressed in current approaches to treatment.[24,25] However, accumulating data indicates that moral injury meaningfully diverges from our current trauma understanding. For example, in a recent research study with nearly 1,000 military personnel seeking PTSD treatment, individuals reporting their Criterion A event as a PMIE had greater complexity in their clinical symptom presentations. Research has also focused on how different types of PMIEs can produce different outcomes. For example, self-directed PMIEs have been associated with shame and guilt; self-blame; feelings of being unlovable, unforgivable, or incapable of moral decision-making; and self-handicapping behaviours.[23] In general, events involving individual responsibility are more likely to lead to negative internally directed (self-referential) emotions and cognitions (e.g., guilt, shame, lack of self-forgiveness), whereas events involving other responsibility are more likely to lead to negative externally-directed emotions and cognitions (e.g., anger, trust issues, lack of other-forgiveness). Betrayal, on the other hand, has been associated with anger, moral disgust, beliefs and attitudes related to mistrust of others, and revenge fantasies for the responsible person or persons. All events can be associated with spiritual/existential issues (e.g., loss of faith, questioning morality). Until resolved, these internal conflicts can in turn exacerbate social problems (e.g., isolation, aggression, legal issues) and mental health symptoms (e.g., anxiety, depression, PTSD, substance abuse, suicide risk).

Reflecting the lack of certainty around the specific symptoms or outcomes that define moral injury, there are only two current measures, viz. EMIS-M and the Moral Injury Symptom Scale- Military version[26] but the limitations are that neither have followed best practice approaches to test construction and validation or established content validity by starting with qualitative evaluation of moral injury outcomes in people exposed to PMIEs. This limits the advancement of knowledge and clinical practice regarding this important construct, as a valid definition is key to reliable measurement.[18] The recently released Moral Injury Outcome Scale (MIOS),[27] which includes participation of Australian veterans and current serving personnel, is intended to fill this important gap.

In summary, while much remains unknown or extensively debated in the area of moral injury, there is consensus amongst the field that: 1) military and veteran populations are exposed to events of a moral

nature that can lead to psychological distress and ongoing harm; 2) a distinction needs to be maintained between exposure to moral violations (i.e., PMIEs) and moral injury (i.e., the psychosocial and spiritual sequelae of PMIEs), 3) and that current fear-based conceptualisations of life-threatening events do not adequately capture the entire range of moral violations and subsequent distress. As such, the aim of this narrative review is to review and synthesise areas of the moral injury research and clinical field that remains in debate, specifically:

1. How is moral injury conceptualised in the literature from a clinical, characterological, philosophical and spiritual perspective?
2. What models of moral injury are proposed in the literature?
3. What is the research linking moral injury and PTSD, moral injury and mood disorders, and moral injury and suicidality?

Methodology for searching the literature

We searched multiple databases using the key terms “Moral injur*” OR “spiritual injur*” OR “morally injurious” OR “moral distress” OR “spiritual distress” OR “moral dissonance” OR “spiritual dissonance” OR “moral conscience” OR trauma adj7 ethic* OR trauma adj7 belief* OR trauma adj7 believing OR trauma adj7 moral* OR traumatic adj7 ethic* OR traumatic adj7 belief* OR traumatic adj7 believing OR traumatic adj7 moral* Figure 1 displays a PRISMA flow diagram for article selection.[28] Because there was scant mention of the term moral injury and no scientific studies prior to Litz et al. (2009), we limited searches to 2009 onwards. A concurrent grey literature search was conducted using the Google search engine. Please note, the REA presented later in this review uses a separate methodology and results to this narrative review.

Results of the literature search

A total of 697 records were reviewed for this narrative review, and data extracted from 51 studies Preference was given to peer-reviewed systematic reviews in high-ranking journals, as well as seminal studies since 2009. The literature consisted of conceptual and empirical articles. Empirical studies employed quantitative, qualitative, and mixed methods, and were primarily cross-sectional designs and military-related samples. The findings in relation to the terminology used to describe moral injury across disciplines are presented first, followed by findings in relation to proposed models for understanding the construct. After which, studies describing the relationships between moral injury, PTSD, depression, and suicidality respectively will be discussed, and the implications for research and treatment in the field more broadly.

Definitions of moral injury

Unsurprisingly, the development of a new concept has led to significant debate around terminology. A comprehensive, multi-disciplinary systematic review of moral injury definitions published in 2020 reveals that from 124 research studies, 12 different key definitions for moral injury were employed.[29] Only two of the 12 definitions were grounded in empirical evidence, and half of them were used rarely (i.e. in less than 2% of the literature). The systematic review also noted a shift across time, in that early definitions focused on

PMIEs, rather than the psychological outcomes of these events. More recently, definitions have focused on the pervasive and enduring outcomes from PMIEs.

The most frequently reported definition is Litz's seminal definition from 2009, which is cited in 77% of all research studies. In this definition moral injury refers to the enduring psychosocial and spiritual harms that can result from exposure to situations or events that occur in high stakes situations and involve transgression of one's deeply held moral convictions of right and wrong, or perceived betrayal by those in positions of authority.[7] Litz and colleagues have argued for the importance of functional impairment as a means of distinguishing non-clinical levels of moral distress from moral injury.[27]

The systematic review conducted an analysis of themes across the 12 definitions, which resulted in the emergence of nine themes.[29] Most definitions had themes related to 'ethics' (i.e., what is right and wrong), 'betrayal' (i.e., at an intrapersonal and/or interpersonal level), and 'origin' (i.e., encounter with PMIE). The 'origin' theme had conflicting definitions, as some papers suggest that a specific event or high-stress environment is the foundation of such injuries, whereas other definitions implicated one's beliefs or perspective on morality as the origin or cause of these wounds. The association of moral injury symptoms with functional impairment to differentiate moral injury from less severe moral distress has not been addressed in current definitions. Overall, the review concludes that the most critical piece missing from definitions is evidence that comes from military and veteran personnel about their views on the term, as well as other populations with lived experience of moral injury. Since the systematic review was published in 2020, additional terms have also emerged.[30] The majority of definitions are generated from researchers, clinicians, chaplains or other individuals working in the treatment of military and veteran psychiatry. Giving voice to lived experience is an important next step toward solidifying definitional clarity, as well as ensuring acceptance of any terms.

In addition to a lack of veteran input into terminology, there is also disagreement amongst researchers around appropriate terms. Some researchers have voiced concerns with both the words 'moral' and 'injury'. For example, some have argued that the term moral injury is negatively valanced and implies that actions in combat were inherently immoral.[31] Military personnel are often faced with difficult decisions in the heat of battle that involve life and death and sometimes conflict with their personal morals and sense of duty as well as lawful orders required to country and commanders.[31] The term "inner conflict" has been proposed as a more neutral term. Alternative proposals also include the concept of moral trauma, as opposed to injury.[30] Such wording implies that PMIEs are subsets or related to potentially traumatic events, however, there are PMIEs that do not constitute trauma. While it is critical to establish acceptable terminology, it is important that these terms are generated or validated by both veteran and military populations, as well as being data driven. Unfortunately, there remains no empirical evidence for the majority of newly introduced definitions, and new definitions should consider core themes of ethics, betrayal, and origin, as these feature in all other definitions. Researchers continue to develop new definitions as the understanding of the construct develops and researchers seek terminology that is inclusive of veteran experiences. However, much more research is needed to strengthen the face validity and reliability of the construct, and while new definitions are being introduced, they are not being widely used.

Models of moral injury

While the moral injury field is in its infancy, the concept of moral injury has been praised for pushing the understanding of trauma toward the inclusion of ethical and sociological perspectives.[32,33] This review will describe seven models of moral injury: five from the clinical literature, and two from non-clinical literature (i.e., philosophy; theology), although we note that one model shares multi-disciplinary features. The implications of each model for intervention is also noted.

Clinical models

The most substantiative model in the field is Litz et al.'s (2009) framework, which extends existing models of PTSD based on fear paradigms, to encompass the psychosocial-spiritual harms associated with moral transgressions. Litz's conceptual model begins with an event that transgresses the individual's moral code giving rise to inner conflict. If attributions about the event are global, internal, and stable (e.g., because of what I did I am an evil person) they lead to enduring moral emotions and subsequently withdrawal and lost opportunity for corrective experience. Two assumptions underpinning the model are that moral emotions are signs of an intact conscience and thus moral repair is possible, and that the two routes to moral repair are emotional processing of the memory (similar to prolonged exposure in the treatment of PTSD) and exposure to corrective life experience. Emotional processing allows harmful and unforgiving beliefs to be uncovered and examined, which is a pre-condition for creating opportunities for corrective experience that counters negative views of oneself or others. This may involve good deeds that encourage positive judgements about oneself or witnessing the worthy actions of others that promote positive appraisals of others. These are core interventions in Adaptive Disclosure, the moral injury treatment model developed by Litz and colleagues.[34]

Shay's original model, developed in 1994, and later expanded in the past decade, is largely clinical but with origins in Greek philosophy, particularly around ancient concepts of war, heroism, and duty.[35] Shay's model differs from Litz's transgressive model primarily in its assumptions about the origin or cause of moral injury. Specifically, whereas Litz's model focuses on moral transgression on the part of self or others, Shay's model focuses on betrayal from a military leader and the breakdown of trust as core to the experience of moral injury. The remainder of the model shares integrative features with Litz in terms of symptoms and healing approaches, which overall, emphasise that while some aspects of PTSD treatment are applicable, additional elements are needed to address the unique features of moral injury.

The 'mode' model by Rozek and Bryan borrows heavily from the cognitive-behavioural literature, which proposes that many psychological issues, in the form of symptoms and behavioural patterns, occur because of some combination of pre-dispositional risk factors, an activating event (such as stress, trauma, or a PMIE) and the subsequent activation of a given mode.[36] Mode model uses a cognitive-behavioural framework for describing the clinical presentation of many psychological issues and for guiding treatment planning, and shares many similarities with not only PTSD, but other psychological disorders understood through the cognitive-behavioural lens. As a result, mode model posits that treatment of moral injury is suited to any cognitive-behavioural focused treatments, including Prolonged Exposure (PE) and Cognitive Processing Therapy (CPT).

There are two other key models within the clinical literature, namely a functional model developed by Farnsworth and a meaning-making model developed by Currier. The functional model proposes that moral

emotions are a normative response to PMIEs and reflect an intact social-moral system within an individual. They serve an important function in drawing attention to the violation of a moral value and opportunity to act in accord with one's values.[37,38] Farnsworth (2019) argues that the core problem in moral injury is not moral emotions such as guilt and anger but rather the social, psychological and spiritual suffering that comes from attempts to manage, control or cope with these emotions. According to this model, recovery from moral injury involves changing the way the individual relates and responds behaviourally to moral pain through acceptance of moral wrongs and associated moral pain, and commitment to values-based actions (Acceptance and Commitment Therapy).

The meaning-making model, developed by Currier, is similar to the functional model, in taking a cognitive behavioural approach.[39] This model suggests that moral injury occurs as a result of cognitive dissonance, or an inability to make meaning between an individual's sense of purpose, identity, beliefs and values and their evaluation of the transgressive experience. This model has been tested in a sample of US veterans of Iraq and Afghanistan, by examining the relationship between exposure to PMIEs, meaning made of the event and mental health outcomes. The study found that those who experienced the most MIEs were least likely to make meaning from their experiences. Further, the study found that the extent to which veterans had made meaning of their experiences, was a significant mediator of the relationship between MIEs and mental health outcomes. Importantly, there was also a strong direct effect of exposure to MIEs on mental health outcomes, suggesting that difficulty with meaning making is not the only factor at play. Nevertheless, this model supports interventions for moral injury that promote adaptive meaning making of MIEs.

Overall, the key models of moral injury within the clinical literature share an important similarity, in that they can be considered from a biopsychosocial and spiritual framework. Specifically, all five of them recognise the role of spiritual/religious domains in moral injury. For psychiatry, this represents the first time a mental health issue has expanded beyond biopsychosocial to include spiritual/religious elements. Further recent work has used data driven approaches to understanding spiritual and religious domains of moral injury, and importantly, how to incorporate these within clinical contexts. For example, in two samples of veterans from a range of conflicts, two sub-types of moral injury were identified, one characterised by psychological outcomes, and one characterised primarily by spiritual struggles.[23] While both involved concerns related to morality, the spiritual sub-type involved high levels of struggle with a deity, God, or other divine notion as a result of their experiences. These sub-types may have important treatment implications (see the Rapid Evidence Assessment section of this report for further discussion). Although preliminary, this empirical approach to investigating spiritual/religious domains in the clinical literature has led to evidence emphasising this may be stronger for particular veterans and speaks to a highly personalised, highly inclusive theological approach, which excludes neither atheist or religious veterans, to ensure the spiritual healing of veterans with moral injury.

Outside the clinical literature, there has been more of an emphasis on philosophical (i.e., social and political) and characterological (i.e., self and identity) lens, rather than a clinical focus (i.e., symptoms). Researchers in this field argue that clinical models do not appropriately capture all components of moral injury,[40] and are lacking particularly in the spiritual/religious, social, and political dimensions.[33] Both clinical and non-clinical literature agree there is a strong spiritual component of moral injury, yet these are integrated into clinical models with varying degrees, and most fail to capture the full spiritual/religious context. From a social perspective, researchers argue that clinical models focus on the morality within an individual as if morality occurs in a social vacuum, and fail to capture the social context of morality, in terms of how social structures,

including the military, perceive morality, in addition to how social contexts vary over time which may alter perceptions of morality. From a political perspective, researchers in the philosophical and theological literature have argued there is a strong political dimension to moral injury that is neglected in clinical models.[33]

Non-clinical models

A recent non-clinical model based around character posits that moral injury results from the undoing of character, in the Aristotelian context of character and identity.[41] Specifically, moral injury arises when the experience of suffering caused by moral failure is integrated within and reflects one's character and identity. Moral injury, then, is a less than virtuous state of character arising from suffering or even death brought about by one's own or another person's moral failure. While theoretical only, there is a proposition on how to turn the character understanding of moral injury into an evidence base, with authors suggesting measures that address change to self, identity, and values, rather than clinical symptoms.

A second model introduces the concept of complex moral injury in which previously held moral assumptions are shattered. Complex moral injury is understood as arising from experiences that go beyond the transgressions of commission or omission to include acts relating to values conflicts, moral overwhelm or detachment, senselessness, and surreal experiences (characterised as bizarre and incongruent events such as a soldier who believes that his military service will make a difference in the world giving candy to starving children).[42] These alternate PMIEs are defined as being 'non-culpable' and non-transgressive in nature but events that fundamentally challenge an individual's core beliefs about the world and give rise to non-specific guilt, spiritual conflict, demoralization, and a loss of faith, meaning, and hope. The authors argue that while moral repair has been shown to be successful when targeting perpetration-based moral injury, it is less likely to be effective when applied to the types of moral injury events described in complex moral injury that fall outside of omission or commission-based PMIEs. Instead, they propose spiritual caregiver-led interventions based on acceptance and meaning making,

At this stage, the most critical gap for any definition or model of moral injury is an evidence base. While different disciplines emphasise specific aspects of moral injury, there is consensus across disciplines, that any model of moral injury must consider it from a biopsychosocial-spiritual domain, as the traditional medical approach (i.e., biopsychosocial) fails to capture the beliefs, religion/spirituality, and meaning making that is intrinsically linked to moral injury. However, it is also critical that aspects of moral injury typically outside the domain of psychiatry, are nevertheless subjected to rigorous scientific methods to validate and confirm their role.

Moral injury and PTSD

The relationship between moral injury and PTSD is complex, and overlaps at both the origin (i.e., PMIE) and symptomatology stage. Research has shown that exposure to PMIEs accounts for PTSD symptoms above and beyond combat exposure among combat service members, indicating a unique impact of PMIEs on PTSD.[43] Such a finding may account for the high degree of variability in the prevalence, course, and non-response to treatment of PTSD in military and veteran populations.[44] However, moral injury and PTSD remain distinct, with a recent systematic review of 13 studies representing 6373 participants revealing that PMIEs accounted for 9.4% of the variance in PTSD.[45] Moreover, research has shown that PTSD and moral

injury are related but distinct constructs, and as such, an individual can have PTSD without moral injury, moral injury without PTSD, or both together.[26,46,47]

Beyond origin events, a second important difference in moral injury and PTSD is in regards to symptom profile.[7] From a symptom perspective, PTSD is characterised by being a fear-based disorder, while all models of moral injury centre on the moral emotions of anger, shame, and guilt. Trauma-related conditions arise from exposure to a trauma event, which in the case of PTSD, results in the altered belief about safety (e.g., "the world is a dangerous place in which I live in fear"), as distinct from moral injury which is multifaceted and involves a person's altered beliefs about meaning, purpose, faith or spirituality (e.g., "there is no greater purpose in life").[32] A novel neuroimaging study has found differences in brain activity and metabolism for the two disorders, which map onto the differences in symptomatology. Specifically, an fMRI study found that morally injurious experiences illicit changes in different brain areas than other traumatic events.[48] Researchers propose that more evidence around neuroimaging after treatment is needed, to see if areas of the brain related to forgiveness change after moral injury treatment, analogous to the changes seen after PTSD treatment in fear extinction. The distinction between these two constructs is important from a clinical perspective: if treatment is focused solely on traditional PTSD-associated symptoms (fear, anxiety and fear-related anger), providers may be neglecting the guilt, shame, betrayal-related anger and forgiveness components of moral injury that may impact clinical presentation and treatment.

Moral injury and mood disorders

Research into depression and bipolar disorder were investigated, with limited research on moral injury and depression, and no identified literature on moral injury and bipolar disorder. Symptom profiles of depression and moral injury differ significantly, unlike PTSD and moral injury's symptom overlap. A systematic review identified seven studies investigating depression and moral injury and found that exposure to PMIEs accounted for 5.2% of the variance in depression, which is smaller than the relationship between PMIEs and PTSD.[45] Another way of looking at that finding is that 94.8% of the relationship between depression and moral injury is explained by factors other than exposure to PMIEs, such as other unrelated factors. Nevertheless, exposure to PMIEs has been associated with an increased risk of developing depression in Canadian and Israeli military and veteran populations.[44,49] This finding mirrors research from PTSD showing that exposure to potentially traumatic events increases risk of developing depression as a posttraumatic mental health condition, and that depression is highly co-morbid with trauma. Emerging work indicates that the relationship between PMIEs and depression differs based on type of PMIE. For example, one study found that PMIEs relating to other and self were associated with depression, but not PMIEs relating to betrayal,[44] whereas other research has found that PMIEs relating to self were associated with depression, but not the other types.[11] These findings speak to the potential for a unique relationship between PMIE exposure and depression, but with conflicting findings and a small number of studies, more work is needed to explain the relationship between moral injury and depression.

Moral injury and suicidality

Many studies have demonstrated that moral injury is associated with suicidal ideation and self-injurious behaviour.[16,19,46,50-52] This relationship occurs both through exposure to PMIEs, as well as through the symptoms of moral injury, and is over and above the relationships between other risk factors for suicidality, such as PTSD and depression. For example, veterans with exposure to PMIEs were two times more likely to experience suicidality than those who were not exposed to PMIEs.[11] In addition, key symptoms of moral injury, such as guilt and shame, have also been associated with suicide ideation and suicide attempts.[53] Importantly, while combat exposure, PTSD, and depression are all well-established risk factors for suicide, they cannot account for the relationship between moral injury and suicidality. In other words, there remains a unique relationship between moral injury and suicidality. For example, in a small early study of 131 veterans, moral injury was independently associated with suicide risk.[13] Extending upon this, data from a nationally representative sample of 1,321 combat-exposed veterans showed that while PTSD and depression symptoms explained up to 50% of the variance in suicidality, reports of exposure to PMIEs accounted for approximately 3%–9% in suicide-related outcomes.[16] Research explaining the relationship between moral injury and suicidality is in its infancy, but early work has posited that low levels of 'meaning in life' may be explaining the relationship, in that moral injury decreases levels of meaning in life, which increases risk of suicidality.[51,54] Although additional research is needed, current findings suggest the importance of the presence of meaning in life as a possible target for interventions that work to attenuate suicide risk in veterans with moral injury.[51]

Implications

Overall, the findings from research indicates that moral injury as a mental health issue is independent of PTSD and depression, and contributes uniquely to risk of suicidality. Evidence from a single cross-sectional study suggests that adverse mental health outcomes are more likely following PMIEs that involve transgression on the part of the self rather than others. Further research is required before we can be confident in this finding but it does point to the importance of measuring different types of PMIE rather than using an aggregate severity measure. More generally, further research is needed on the relationship between moral injury and other common posttraumatic mental health issues, including PTSD, depression, and suicidality, as the majority of research comes from small studies, divergent trauma-affected groups, and/or using non-validated measures of moral injury. In addition, there is a strong, complex relationship between all four of these common posttraumatic issues in veteran and military populations (i.e., moral injury, depression, PTSD, and suicidality), that will require detailed research to untangle.[44] The majority of studies so far have used cross-sectional research, making it particularly difficult to understand causality and directionality.

Discussion and Implications

This review identifies several avenues of future research in the area of moral injury. Firstly, in the area of refining our understanding of the origin of moral injury, a key question to be addressed is whether PMIEs are constrained to transgressive acts or should also include non-transgressive and non-culpable acts that nevertheless challenge one's worldview (the notion of complex moral injury). Further, the interactive effect of events deemed life-threatening and morally injurious requires further study, specifically, whether PTSD

Criterion A PMIEs carry a greater risk for psychopathology than non–Criterion A PMIEs. Research involving civilians is likely to be particularly valuable in this regard, as several non-military PMIEs (e.g., betrayal of loved one, neglecting loved one, ignoring suffering of others) do not involve a high degree of actual or threatened death, injury, or violence.[18] It may be that Criterion A PMIEs are more likely to lead to PTSD while non–Criterion A PMIEs are more likely to lead to depression symptoms and social estrangement.[18] Such a nuanced understanding of the distinctions and overlap of potentially traumatic events and PMIEs has significant potential to progress our understanding of moral injury and refine treatments. However, the challenges that researchers face in conducting research into the precise nature of PMIEs are not trivial. The nature of PMIEs may lead to reluctance to disclose or discuss the event due to social or legal repercussions,[55] as well as the socially withdrawing behaviours evoked by emotions such as shame and guilt.[56]

Secondly, the role of spirituality and religion in moral injury remains controversial, for several reasons, and much more research is needed in this area. Issues pertaining to spirituality have traditionally been the domain of chaplains and other spiritual advisors and are not addressed in standard mental health interventions. The construct of moral injury challenges this status quo in its encompassing psychosocial and spiritual domains. Although much of the literature agreed that spirituality is important for addressing moral injury, more research is needed to understand how to effectively incorporate spirituality to facilitate healing of moral injury among military members and veterans, in a way that is truly personalised and inclusive of veterans who are both non-religious and those with strong religious convictions.[57] Although the proportion of people with ties to traditional religious groups has been decreasing,[58] data from US veterans indicates that 40% were religiously affiliated or engaged in spiritual activities or practices on a regular basis. Importantly for the rest of the world, the majority of research has been conducted on US veterans, for whom spirituality and religion differs from other veteran and military populations.

Recovery from moral injury must expand beyond our current understandings of trauma recovery. Previously, clinicians and researchers working with military and veteran populations focused most of their attention on the impact of life-threat trauma, failing to pay sufficient attention to the impact of events with moral and ethical implications.[7] In addition, moral injury does not fall squarely into the domain of mental disorder, in that some features such as blame of self and others can often be considered fitting and appropriate to particular circumstances, rather than irrational and misguided.[7] The distinction is that the experience of moral emotions can be normal and adaptive, whilst moral injury with its broad emotional, cognitive, affective, behavioural, social and spiritual outcomes, is pervasive and impairing. It remains unclear as to how moral injury would fit within current medical nomenclature, such as the DSM-5, based on biopsychosocial models of psychopathology, given its spiritual dimension. As of 2022, there is no current intent to formalise moral injury within the DSM-5.

The role of moral injury models in guiding the recovery process is significant. While a pathology-oriented perspective on mental health disorders assumes that reducing symptoms equates with recovery from the disorder, some models of moral injury, such as the functional model posits that some aspects of moral injury (moral emotions specifically) are appropriate to the circumstances.[37,38] As such, proponents argue that recovery must involve a change in how morally injured individuals relate and respond behaviourally to their valid and adaptive moral pain in order to heal.[38] One indicator of moral healing may include the presence of positive moral emotions (e.g., awe, pride, elevation, gratitude), that emerge in the presence of lived values. More research expanding on moral injury models will help inform treatment approaches.

Given the complexity of moral injury, recovery must also find a way forwards between the biopsychosocial as well as spiritual needs of an individual. In practice, this may require a holistic model of care, with both medical, nursing and allied health personnel to work alongside chaplains and other spiritual practitioners. This will ensure that clinical approaches do not adopt a stance that excludes the significance of spirituality, nor minimises spiritual interventions due to professional demarcation at the expense of client wellbeing.[32] Such an approach must be sensitive to military and veteran personnel with a variety of spiritual and religious beliefs, as well as those without spiritual beliefs. In practice, this may involve integration of mental health care with doctrine specific religious and spiritual practitioners for some clients, and an atheist appropriate approach delivered by health practitioners for others. Finally, the relationship between moral injury, PTSD, depression, and suicidality needs to be better understood in order to respond effectively to veterans with complex clinical presentations.

Conclusion of narrative review

While this narrative review has covered the major conceptualisations of moral injury, it has also ultimately highlighted what we don't know. Limitations of the existing literature include the absence of a consensus definition of moral injury, disagreement about what does and does not constitute a potentially morally injurious event, clinical investigations characterised by cross-sectional research or small sample sizes and until recently,[27] the absence of a gold standard measure of morally injurious outcomes. Despite reviewing many hundreds of papers, most of the research in this area is theoretical, or qualitative, with a few small empirical studies, as outlined in the REA section of this report to follow.

What is clear is that the current understandings and approaches to veteran and military trauma do not adequately capture the entire range of moral violations and subsequent distress, as it stands.[5] Conceptualisations of moral injury began in Greek philosophy and literature, were emphasised by clinical literature, and have now been expanded using spiritual and religious literature. While the field will continue to debate this, ultimately, the most important thing is finding effective interventions or approaches to improve outcomes for veteran and military populations who are experiencing the pervasive and enduring impacts of moral injury. Effective interventions may require a biopsychosocial-spiritual holistic model of care.

Effectiveness of interventions for moral injury: A Rapid Evidence Assessment

In 2015 an REA was undertaken for DVA which examined the effectiveness of interventions for moral injury. In the subsequent seven years since the REA was undertaken, our understanding of the construct of moral injury has improved, and approaches to treating moral injury have advanced significantly. As such, it was considered timely to conduct an REA, looking at more recent findings for interventions for moral injury, and building on the findings of the 2015 REA. The aim of the REA was to examine the effectiveness of interventions for veterans who have experienced moral injury.

Method

The REA is a research methodology that uses similar methods and principles to a systematic review, but makes concessions to the breadth and depth of the process, in order to suit a shorter timeframe. The advantage of an REA is that it utilises rigorous methods for locating, appraising, and synthesising the evidence related to a specific topic of enquiry. To make an evidence assessment rapid, however, the methodology places a number of limitations in the search criteria and in how the evidence is assessed. For example, REAs often limit the selection of studies to a specific time frame (e.g., last 10 years), and limit selection of studies to peer-reviewed published, English studies (therefore not including unpublished pilot studies, difficult-to-obtain material, and/or non-English language studies). Also, while the strength of the evidence is assessed in a rigorous and defensible way, it is not necessarily as exhaustive as a well-constructed systematic review and meta-analysis. A major strength, however, is that an REA can inform policy and decision makers more efficiently by synthesising and ranking the evidence in a particular area within a relatively short space of time and at less cost than a systematic review/meta-analysis.

Defining the research question

The components of the question were precisely defined in terms of the population, the interventions, the comparisons, and the outcomes (PICO – refer to Appendix 1). Operational definitions were established for key concepts for each question, and from this specific inclusion and exclusion criteria were defined for screening studies for this REA. As part of this operational definition, the population of interest was defined as veteran or military personnel who have experienced moral injury; the intervention was defined as any psychological, social, emotional or spiritual intervention which targets moral injury; and the outcomes were defined as improvements in any of the following: symptoms of moral injury, mental health symptoms (e.g. PTSD, depression, anxiety, alcohol and drug abuse, self-harm), functioning or quality of life, and psychological well-being (e.g. shame, guilt, demoralisation, self-handicapping/self-destructive behaviours, aggression). Only studies with quantitative outcomes were included. All populations were eligible for inclusion, however, priority was given to veteran and military populations.

Search strategy

A database search was conducted on 1st April 2022 to identify any new moral injury intervention studies that were published after the literature search date for the 2015 REA. To identify the relevant literature,

systematic bibliographic searches were performed to find relevant trials from the following databases: Medline, PsycINFO, Embase, Central Register of Controlled Trials, Proquest, Philosphers Index, CINHAL, SocINDEX, Academic Search Complete, Web of Science and Scopus. Search terms specific to the interventions and moral injury were included in searching the Title/s and Abstract/s. Additionally, the grey literature was searched using Google Advanced Search Function. The following clinical trial registries were also searched to identify any relevant trials that are currently underway: ClinicalTrials.gov, Australian New Zealand Clinical Trials Registry (ANZCTR), and International Clinical Trials Registry Platform (ICTRP).

Information management

A screening process was used to code the eligibility of papers acquired through the search strategy. Citations were imported into the online systematic management tool, Covidence, where duplicates were removed. All records that were identified using the search strategy were screened for relevance against the inclusion criteria. Initial screening for inclusion was performed by one reviewer using Covidence, and was based on the information contained in the title and abstract. Full text versions of all studies which satisfied this initial screening were obtained. In screening the full text paper, one reviewer made the decision on whether the paper should be included or excluded, based on the pre-defined inclusion and exclusion criteria. If the paper met the criteria for inclusion, then it was subject to data extraction. At both stages, any questions were discussed with a second reviewer.

Papers were included in the review of the evidence if they met all of the following inclusion criteria:

1. Internationally and locally published peer-reviewed research studies
2. Research papers that were published from **January 2015** to **March 2022**
3. Grey literature (except for excluded items) published from **January 2015** to **March 2022**
4. Quantitative outcome data related to moral injury
5. Human adults (i.e., ≥ 18 years of age)
6. English language

Studies were excluded if they were:

1. Non-English language
2. Papers where a full-text version was not readily available
3. Validation studies
4. Animal studies
5. Grey literature: media, websites, newspapers, magazines, television, conference abstracts, theses
6. No quantitative outcome data reported
7. Papers where the study focus was not relevant to the treatment of moral injury.

The following information was extracted from studies that met the inclusion criteria: (i) study description, (ii) intervention description, (iii) participant characteristics, (iv) relevant outcome domains, and (v) main findings.

In addition, clinical trial registrations were included in the review of the evidence if they met all of the following inclusion criteria:

1. Registered on ANZCRTN or clinicaltrials.gov
2. Propose to use a veteran or military sample

3. Propose quantitative outcome data related to moral injury
4. Propose to include human adults (i.e., ≥ 18 years of age)
5. English language

Evaluation of the evidence

Quality and risk of bias was assessed for each study, based on factors related to study design and methodology such as confounding, participation selection, the measurement of outcomes, and missing data for non-randomised trials. Individual studies receive a quality and risk of bias assessment judgment of Low risk, High risk, Unclear risk.

Once quality and bias of risk was obtained for each individual study, the studies were divided into three intervention type categories (i.e., biopsychosocial, biopsychosocial-spiritual, and spiritual interventions). The studies were further divided according to how they had measured their primary (i.e. main) outcome for assessing the effectiveness of the moral injury intervention. The three main primary outcomes that were measured were moral injury, PTSD and depression. These groupings of studies were then rated using the REA method.[59] This approach takes into account **quality/strength** of the evidence (i.e., risk of bias, number of studies, level of evidence), **consistency** of results (i.e., results are likely to be replicable), **generalisability** of evidence (i.e., the outcomes are similar to the research question), and **applicability** (i.e., the body of the evidence is applicable to the context of the country and health system of interest). This REA framework results in four possible rankings relating to overall quality of the evidence.

Table 2. Quality of Evidence

Ranking	Quality of Evidence
Supported	Clear, consistent evidence of beneficial effect
Promising	Evidence suggestive of beneficial effect but further research required
Unknown	Insufficient evidence of beneficial effect – further research required
Not supported	Clear, consistent evidence of no effect or negative/harmful effect

Results

Twenty-two studies were identified as meeting the inclusion criteria (see Figure 1). Of these, two studies[60,61] were from the 2015 REA and 20 new studies were identified in the updated search.[62-81] A detailed description of each study can be found in the evidence profiles in Appendix 3 and 4. Of the 22 studies that met the inclusion criteria for review, 19 originated from the US, and one each from Canada, the United Kingdom, and The Netherlands. Across this updated REA and the previous one, 16 studies were published in the last five years (2018 to 2022), five studies between five and 10 years ago (2012-2017) and one study more than 10 years ago (2011).

The included studies were diverse in terms of the intervention approaches that were tested, and in the ways in which they assessed the effectiveness of the moral injury intervention. The intervention approaches were categorised into three domains, based on the intervention components. The three categories were biopsychosocial, biopsychosocial-spiritual, and spiritual. The components of each intervention category are outlined in Table 3. The various measures which were used to assess the effectiveness of the moral injury interventions are presented in Figure 2. There was sufficient data to assess studies based on whether the intervention for moral injury was effective in reducing moral injury symptoms, PTSD symptoms, and depression symptoms, with insufficient data to assess the efficacy of the remaining measurement methods. The 22 studies were all judged to be at High Risk of having quality and risk of bias issues due to low quality methodologies, and for studies that used RCT methodology, for measurement issues.

In addition, seven clinical trials were detected. Five of these trials were focused on pilot studies that were developing and testing the feasibility and/or efficacy of a new treatment for moral injury. One trial is testing whether a moral injury treatment was effective for PTSD, and the final trial was testing whether a moral injury treatment was effective in improving psychosocial symptoms.

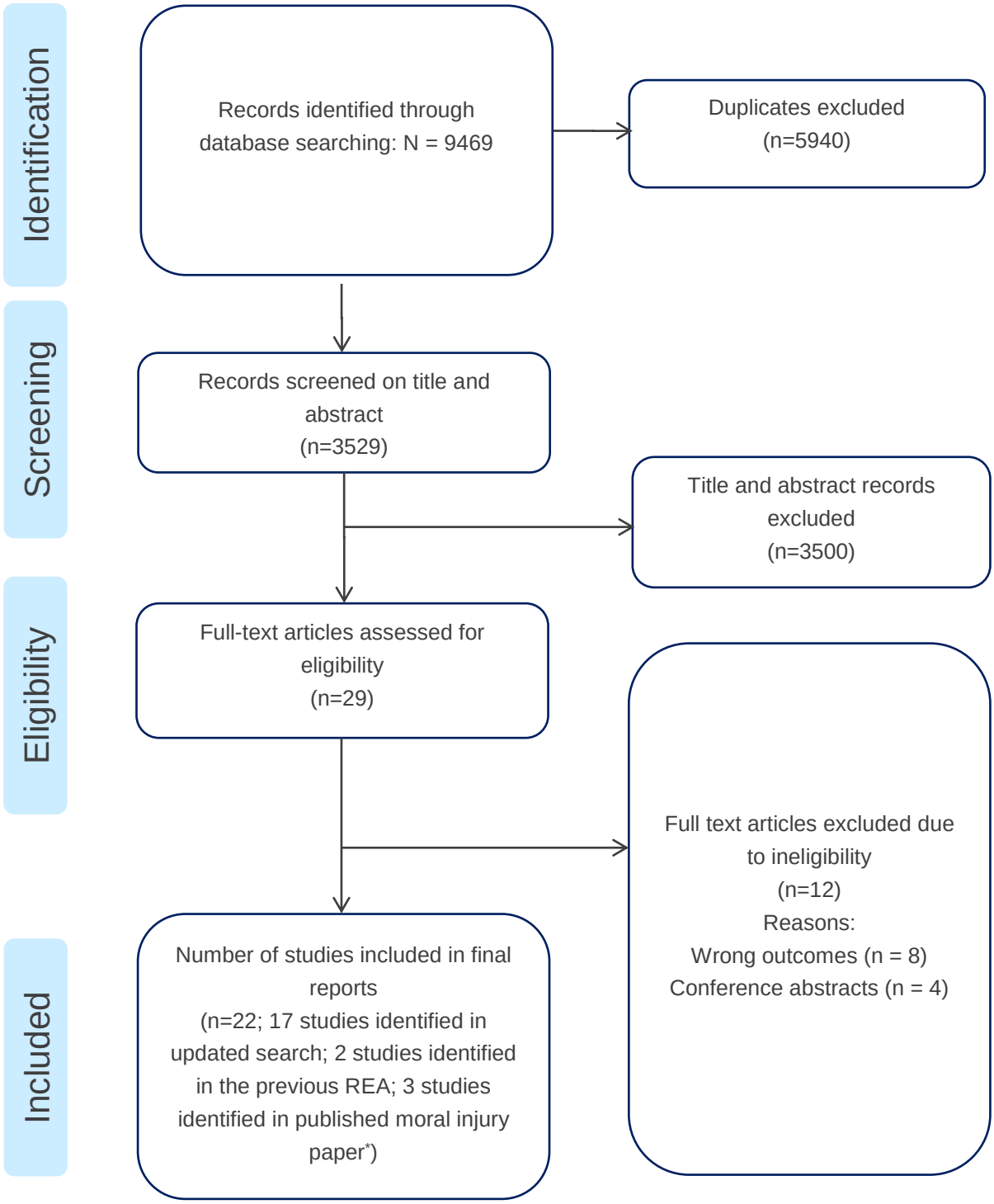

Figure 1: Flowchart representing the number of records retrieved at each stage of the rapid evidence assessment

*Jones KA, Freijah I, Carey L, et al. Moral Injury, Chaplaincy and Mental Health Provider Approaches to Treatment: A Scoping Review. *Journal of Religion and Health.* 2022:1-44.

Table 3. Intervention Categories

Intervention type	Components
Biopsychosocial	Any type of psychological or psychosocial intervention, typically delivered by a mental health practitioner
Biopsychosocial-spiritual	An intervention with psychological or psychosocial components as well as spiritual components, which may be delivered by a single practitioner or co-delivered by a mental health and spiritual or religious practitioner
Spiritual	Any type of spiritual intervention, typically delivered by a spiritual or religious practitioner

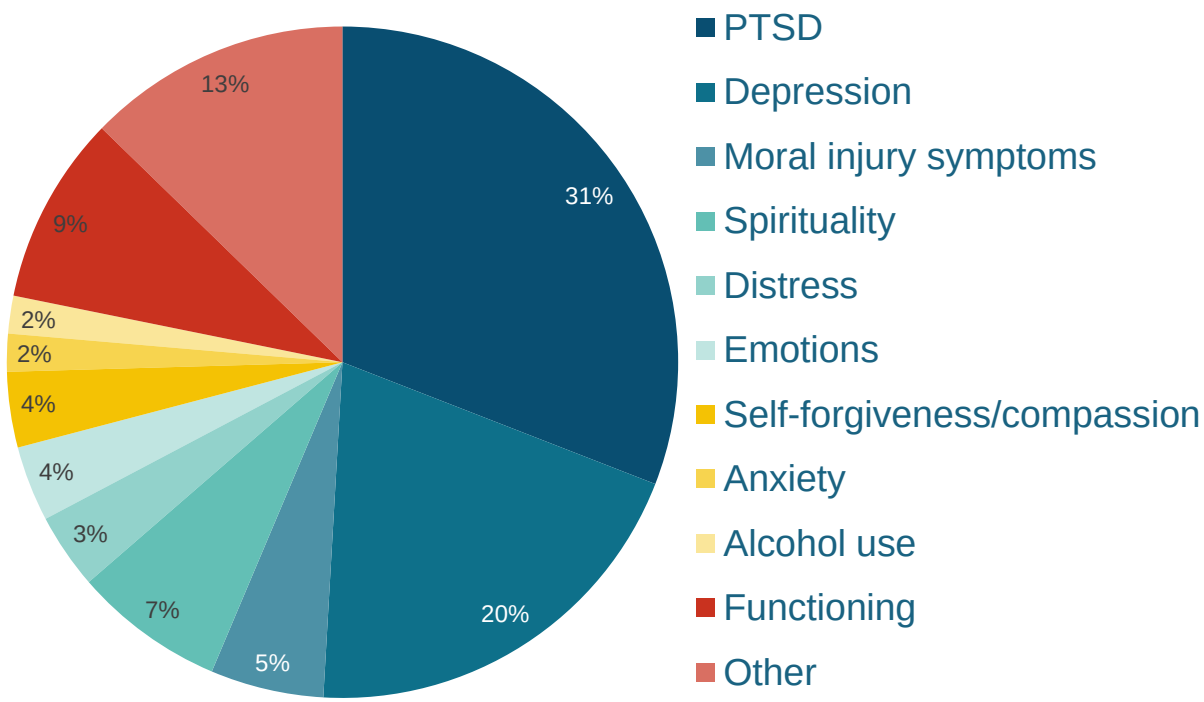

Figure 2. Measurement in moral injury treatment studies

The majority of studies investigating the effectiveness of moral injury interventions for veterans have used moral injury, PTSD, and depression as measurement outcomes. The effectiveness of interventions on each of these outcomes in turn is presented here.

What is the effectiveness of interventions for veterans with moral injury, **in reducing symptoms of moral injury**?

In total, four studies investigated the effectiveness of moral injury interventions on moral injury symptoms.[69,70,74,80] The low number of studies reflects the fact that a validated measure of moral injury symptoms did not exist until a few years ago. All of the studies identified that used a moral injury measure were published within the last two years. Now that validated measures of moral injury are available, we would expect that there will be an increasing number of future studies using these measures.

Biopsychosocial

Three studies investigated the effectiveness of biopsychosocial interventions for veterans with moral injury, on moral injury symptoms. The interventions were Acceptance and Commitment for Moral Injury (ACT-MI), Brief Eclectic Psychotherapy for Moral Trauma (BEP-MT); and Multi-modular Motion-assisted Memory Desensitisation and Reconsolidation (3MDR). Two of these studies were case studies where statistical significant testing was not undertaken or reported in the paper,[69,70] and one was a small wait-list cross-over pilot trial of 40 Canadian veteran and military personnel.[74] In the latter study, 3MDR was effective in reducing moral injury symptoms at post-treatment. However, due to methodological limitations of the three studies, including small sample sizes, and low quality designs, **the certainty of the evidence for biopsychosocial interventions to reduce symptoms of moral injury in veterans with moral injury was rated as Unknown.**

Spiritual

One study investigated the effectiveness of a spiritual intervention for veterans with moral injury, on moral injury symptoms. It was a structured chaplain intervention, reported on using a case study methodology involving two US veterans.[80] Given the limitations associated with a single-case study of two people, **the certainty of the evidence for spiritual interventions to reduce symptoms of moral injury in veterans with moral injury was rated as Unknown.**

Biopsychosocial-Spiritual

No studies investigated the effectiveness of a biopsychosocial-spiritual intervention for veterans with moral injury, on moral injury symptoms.

What is the effectiveness of interventions for veterans with moral injury, **in reducing PTSD symptoms**?

In total, 20 studies investigated the effectiveness of moral injury interventions for veterans with moral injury, in reducing PTSD symptoms. Thirteen of these investigated biopsychosocial interventions, which ranged broadly from standard PTSD treatments such as Prolonged Exposure (PE), EMDR, and CPT, to emerging interventions such as art therapy, to modified versions of standard psychological treatments of ACT and Brief

Eclectic Psychotherapy (BEP) for moral injury, to new psychological treatments designed specifically for moral injury such as Adaptive Disclosure (AD) and Impact of Killing (IOK). Two studies were identified that delivered a spiritual intervention, and the final five studies were biopsychosocial-spiritual.

Biopsychosocial

Thirteen studies were identified that delivered a biopsychosocial intervention to veterans with moral injury and measured effectiveness through reduction of PTSD symptoms.[61,69-79] Eight of the 13 studies were case studies,[60,69-72,77,79] while the remaining studies were pre-post designs, or RCTs. Due to the large number of case studies, which are the lowest level of evidence, description of the pre-post and controlled studies has been prioritised here.

Three controlled studies were identified in the literature search. In an RCT of 122 US marines and sailors with PTSD, participants were randomised to receive either AD or CPT.[75] Participant exposure to moral injury was not reported. AD significantly reduced symptoms of PTSD at post-treatment, and non-inferiority analyses indicated it was no less effective than CPT for the treatment of PTSD. In a small wait-list cross-over pilot trial of 40 Canadian veterans and military personnel, Multi-modular 3MDR was effective in reducing PTSD symptoms at post-treatment.[74] In a final small, wait-list pilot trial, 33 veterans with PTSD who had previously completed trauma-focused treatment were randomised to receive IOK, a CBT based treatment.[76] The participants all reported distress regarding killing or feeling responsible for the deaths of others in war. The IOK group experienced a significant improvement in PTSD symptoms compared to controls post-treatment.

In a large pre-post study of 161 US active serving and veteran personnel with PTSD and high rates of moral injury (between 59-75% of sample), a three week CPT based intensive program, veterans reported large reductions in PTSD from pre- to post-treatment.[73] Non-inferiority analyses demonstrated equivalence across those with and without morally injurious event exposure, meaning that PTSD symptoms did not reduce significantly more or less in veterans who also had moral injury exposure. In a small case series, 10 US veterans reporting guilt and distress from combat experiences received Trauma Informed Guilt Reduction (TrIGR), and reported significant reductions in PTSD symptoms post-treatment.[78] In a small (N = 44) pre-post study of US marines, AD was found to significantly reduce symptoms of PTSD at post-treatment.[61]

Despite the number of studies testing biopsychosocial interventions with PTSD as an outcome, including some RCTs, there were several important issues that affected the quality and level of confidence in the evidence for biopsychosocial interventions. Specifically, many studies failed to measure or report on symptoms of moral injury in the sample, and for some studies, the inclusion criteria for participants in the study was moral injury exposure only, rather than currently experiencing moral injury symptoms. This means our ability to generalise the findings of these studies to veterans with moral injury symptoms is low. Other issues included very small sample sizes and studies with High Risk of bias and quality issues. As such, **the certainty of the evidence for biopsychosocial interventions to reduce symptoms of PTSD in veterans with moral injury was rated as Unknown.**

Spiritual

Two studies were identified that delivered a spiritual intervention to veterans with moral injury and measured effectiveness through reduction of PTSD symptoms.[68,80] One of these was a case study of two veterans and

the second was a small case series of 13 US veterans who received Mental Health Clinician Community Chaplain Collaboration (MC4). Neither of these studies conducted statistical significance testing. As such, **the certainty of the evidence for spiritual interventions to reduce symptoms of PTSD in veterans with moral injury was rated as Unknown.**

Biopsychosocial-spiritual

Five studies investigated the effectiveness of a biopsychosocial-spiritual intervention for veterans with moral injury, through reduction of PTSD symptoms.[62-64,66,67]

Two studies investigated the efficacy of Building Spiritual Strength (BSS).[62,63] In a small RCT, US veterans (n= 54) were randomly assigned to BSS or a wait-list control group. Those who received BSS showed significant reductions in PTSD symptoms.[62] In a larger RCT, 138 US veterans were randomised to receive BSS or present centred group therapy (PCGT). There were significant reductions in PTSD symptoms for both groups pre to post-treatment, however there were no differences between groups, and these reductions were not maintained at follow-up.[63]

In a pre-post study of 24 veterans who received Search for Meaning (SFM), a chaplain and mental health co-facilitated group program, significant reductions in PTSD symptoms were seen post-treatment.[67] A case series of 15 US veterans reported reductions in PTSD symptoms after receiving Reclaiming Experiences And Loss, developed collaboratively by mental health and spiritual care providers,[66] and one case study tested the effectiveness of spiritually integrated CPT (SICPT), with neither using statistical analyses.[64]

Overall, the methodological issues of the five studies were significant, and included lack of control group, small sample sizes, and measurement issues. For the largest, highest quality study there was no maintenance of symptom improvement at follow-up. As such, **the certainty of the evidence for biopsychosocial-spiritual interventions to reduce symptoms of PTSD in veterans with moral injury was rated as Unknown.**

What is the effectiveness of interventions for veterans with moral injury, **in reducing symptoms of depression**?

Biopsychosocial

Nine studies investigated the effectiveness of biopsychosocial interventions for veterans with moral injury in reducing depression symptoms. These ranged broadly from standard PTSD treatments such as PE and CPT, to modified versions of standard psychological treatments of ACT and BEP for moral injury, to new psychological treatments designed specifically for moral injury such as AD. One of these studies was an RCT, with three pre-post studies, and five case studies.

In an RCT of 122 US marines and sailors with PTSD, participants were randomised to receive either AD or CPT.[75] Participant exposure to moral injury was not reported. AD significantly reduced symptoms of depression at post-treatment, and non-inferiority analyses indicated it was no less effective than CPT. While the RCT had significant strengths in terms of quality and bias, the lack of measurement around moral injury

means the overall quality of the trial is very low. In a large pre-post study of 161 US active serving and veteran personnel with PTSD and high rates of moral injury (between 59-75% of sample), a three week CPT-based intensive program, veterans reported large reductions in depression from pre- to post-treatment.[73] In a case series of 44 US active-serving marines, who received AD, there was a significant reduction in symptoms of depression.[61] In a small case series, 10 US veterans reporting guilt and distress over combat received Trauma Informed Guilt Reduction (TrIGR), reported no significant reductions in depression symptoms post treatment.[78]

In a case study of ACT, depression symptoms were measured pre and post treatment, but with no significance testing.[69] In one case study of PE, depression symptoms did not significantly change over the course of treatment,[71] whereas they did in a second case study of PE.[79] In a fourth case study of PE and CPT, depression symptoms were measured pre and post treatment, but with no significance testing.[72] In a fifth case study of cognitive therapy, depression symptoms were measured pre and post treatment, but with no significance testing.[77] Similarly to the PTSD studies, the overall quality of each study was very low, due to design and measurement issues. As such, **the certainty of the evidence for biopsychosocial interventions to reduce symptoms of depression in veterans with moral injury was rated as Unknown.**

Spiritual

No studies investigated the effectiveness of a spiritual intervention in veterans with moral injury, with symptoms of depression as an outcome.

Biopsychosocial-Spiritual

Two studies investigated the effectiveness of a biopsychosocial-spiritual intervention on depression, for veterans with moral injury. In a study of 40 US veterans who participated in a novel 12-week moral injury group co-facilitated by a chaplain and psychologist, depression symptoms reduced significantly.[81] However, there was no comparison group and the sample size was small. A case series of 15 US veterans reported reductions in depression symptoms after receiving Reclaiming Experiences And Loss, developed collaboratively by mental health and spiritual care providers.[66]

Overall, methodological issues of the studies were significant. As such, **the certainty of the evidence for biopsychosocial-spiritual interventions to reduce symptoms of depression in veterans with moral injury was rated as Unknown.**

Summary

This REA update on moral injury interventions was based on a search of literature published since 2015. Since that time, an additional 20 studies were identified, meaning that a total of 22 studies have investigated the efficacy of interventions for the treatment of moral injury. In addition, a total of seven clinical trials were detected that are currently in the pipeline. The intervention approaches covered in published studies could be divided into three broad categories, i.e. biopsychosocial, spiritual, and biopsychosocial-spiritual. The majority of research was in the biopsychosocial category, and very few studies focused solely on spiritual approaches. Measurement was also diverse, with nearly two dozen different measurement approaches used

to measure improvement after treatment, across a broad range of psychiatric, wellbeing, and spiritual indicators.

Despite a substantial increase in the number of studies forming the evidence base since the 2015 REA, the majority of the evidence was of poor methodological quality, resulting in significant uncertainty in the evidence. There are two main reasons for this, the first being that the majority of studies were case studies, which are considered to be one of the lower levels of evidence. Secondly, even within the higher quality studies, there are significant measurement issues around moral injury. Moral injury involves broad psychosocial and spiritual outcomes, including emotions, self-perception, interpersonal functioning and spiritual/existential beliefs.[57] Yet most of the reported studies used changes in PTSD and depression symptoms to assess the effectiveness of moral injury interventions. With the recent availability of the Moral Injury Outcome Scale, which assesses each of these domains, it is expected that there will be more consistency in measurement of moral injury in trial evaluations in the future. Unfortunately, there remains no certainty about the best approach to address moral injury on the basis of the research to date.

Despite the unknown level of evidence supporting intervention, we can elucidate a number of important learnings from the interventions currently being trialed. Firstly, reflecting the need for a biopsychosocial–spiritual approach to moral injury, new spiritual interventions are being developed and tested, that treat the broader context of moral injury, including community and social aspects.[68] This is complemented by the clinical trial registrations reviewed, the majority of which are testing and developing new moral injury treatments. While promising, there are several points of caution to note. Exactly how these spiritual interventions work alongside biopsychosocial interventions remains unknown, in terms of whether they are best considered as augmentation or independent interventions. In addition, these interventions need to be rigorously evaluated using validated measures, ideally both spiritual-based and psychiatric measures, rather than relying exclusively on qualitative methods. Quantitative outcome measures are needed to enable comparison between studies and within a study, between those who have and have not received the intervention[59] Promisingly, one of the two spiritual based treatments employed a valid spiritual measure, the God Image Inventory (GII). The subscale used from this measure was God Acceptance, with items such as “I am sometimes anxious about whether God still loves me” and “I have sometimes felt that I have committed the unforgivable sin.” While validated psychometric measures are needed to explore changes in spiritual dimensions after treatment for moral injury, what remains unknown is how strongly such items resonate with veteran and military personnel who have experienced moral injury.

Concurrently to the development of new spiritual interventions, the interventions reviewed here indicate that evidence-based biopsychosocial interventions such as Acceptance and Commitment Therapy are being modified to have a moral injury focus.[69,70] While these interventions expand the trauma focus to include aspects of moral injury, they are still lacking a strong spiritual component. Biopsychosocial-focused interventions should consider expanding to include spiritual components, as well as consider employing outcome measures that incorporate spiritual outcomes, such as the recently developed Moral Injury Outcome Scale (MIOS). Lastly, while the evidence reviewed here indicated that there are seven trials in the pipeline, none of them are at the stage of efficacy testing, meaning their findings will speak more to promising new interventions worthy of more rigorous RCTs and their results alone will not be sufficient to recommend a given intervention for moral injury.

A final word of note is around language of interventions and outcomes. Intervention terms and outcome measurement have a powerful impact on patients. With Impact of Killing (IOK) for example, the label was created after feedback from veterans indicated that not using the word “killing” further exacerbated feelings of shame. In addition, spiritual measures, while important, may be exclusionary to veterans of non-faith or non-Christian faith backgrounds.

Limitations

The findings from this review should be considered alongside its limitations. In order to make this review ‘rapid’, some restrictions on our methodology were necessary. These limitations included: the omission of non-English language papers and reference lists of most included papers not being hand-searched to find other relevant studies. Similarly, although we did evaluate the evidence in terms of its strength, consistency, and generalisability, these evaluations were not as exhaustive as in a systematic review methodology. We made a qualitative judgement based on the level of evidence about the certainty of our estimates of prevalence. We did not use a meta-analysis methodology to combine or synthesise the results in a statistical way. The information presented in this review is a summary of information presented in available papers. We recommend readers source the original papers if they would like to know more about a particular intervention or study.

Conclusions of REA

In the past two years alone, methodology for investigating interventions for moral injury have improved significantly with the inclusion of validated measures of moral injury symptoms. The diverse approaches covered here across the biopsychosocial-spiritual spectrum represent the diverse nature of moral injury as a construct. As definitions, models, mechanisms, and measurement of moral injury improve, this will reflect greater clarity and confidence around appropriate interventions. With such diversity in spirituality amongst veteran and military populations, future research will also need to consider intervention matching to ensure the right intervention for a given individual’s biopsychosocial-spiritual needs. Given the rate of publication in the field, an update to this REA should be conducted in 2-3 years.

Overall conclusion and discussion

There has been a surge of interest in moral injury research in recent years focusing on efforts to understand the construct of moral injury and to respond to those affected. While aspects of moral injury are well understood, much remains unknown about the definitions, models, and relationships with other established mental health issues in veteran and military populations.

Promisingly, a range of new interventions for moral injury are being developed, focusing on different aspects of the biopsychosocial-spiritual spectrum. Although the quality of the evidence base is low and uncertain, the biopsychosocial and spiritual impacts of moral injury suggests that a combined intervention approach may be optimal, whether that is via a biopsychosocial intervention augmented with a spiritual approach, or a truly integrated approach. Moreover, such approaches need to consider the respective and complementary role of clinical and spiritual practitioners. Future research should prioritise the development and testing of a multidisciplinary psychosocial spiritual model of care for moral injury.[57]

While moral injury is most researched within veteran and military populations, moral injury is not unique to them, and research has now expanded to police and other first responders, as well as healthcare workers in the context of the COVID-19 pandemic.[8] While non-veteran and military populations were eligible for inclusion in the REA, only one such study was located. This developing evidence base will also serve to inform future veteran and military approaches to moral injury.

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APPENDIX 1

Population Intervention Comparison Outcome (PICO) framework

This question was formulated within a Population Intervention Comparison Outcome (PICO) framework. Application of a PICO framework helps to structure, contain and set the scope for the research question. Inclusion of intervention and comparison components is dependent on the question asked, and may not be appropriate for all question types.

- **What are the effective interventions for veterans who have experienced moral injury?**
    - **PICO format**: In veterans who have experienced moral injury, is there evidence that psychological, social, emotional, or spiritual interventions will lead to improved mental health outcomes?

Patient, Problem, Population	Intervention	Comparison (optional)	Outcome
Patient – veterans who have experienced moral injury Problem – moral injury Population – veterans (ex-serving members of the military)	Any psychological, social, emotional or spiritual intervention which targets moral injury	Any comparison (no limits)	Improvements in any of the following: - symptoms of moral injury - mental health symptoms (e.g. PTSD, depression, anxiety, alcohol and drug abuse, self-harm) -functioning or quality of life - psychological well-being (e.g. shame, guilt, demoralisation, self-handicapping/self-destructive behaviours, aggression)

APPENDIX 2

Example search strategy

The following is an example of the search strategy conducted in the EMBASE database for the REA.

Step	Search terms	No of records
S1	"moral injur*".mp	450
S2	"spiritual injur*".mp.	17
S3	"morally injurious".mp.	101
S4	"moral distress".mp.	1668
S5	"moral trauma".mp.	4
S6	"spiritual distress".mp.	505
S7	"moral dissonance".mp.	4
S8	"spiritual dissonance".mp.	3
S9	"moral conscience".mp.	58
S10	((trauma or traumatic) adj6 (ethic* or belief* or believing or moral*)).mp.	873
S11	betrayal.mp.	789
S12	1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11	4141
S13	chaplain*.mp.	2596
S14	Padre*.mp.	1174
S15	Madre*.mp.	2127
S16	Imam*.mp.	3672
S17	Minister.mp.	3892
S18	Ministers.mp.	1728
S19	(monk or monks).mp.	1030

Step	Search terms	No of records
S20	(pastor or pastors or pastoral).mp.	4656
S21	(rabbi or rabbis).mp.	292
S22	"spiritual care".mp.	4670
S23	intervention*.mp.	1724107
S24	(treatment* or therap* or psychotherap*).mp.	13648223
S25	"adaptive disclosure".mp.	7
S26	(counseling or counselling).mp.	231488
S27	psychologist*.mp.	33032
S28	psychiatrist*.mp.	56328
S29	"mental health provider*".mp.	2166
S30	"mental health professional*".mp.	8651
S31	"mental health practitioner*".mp.	1051
S32	"mental health therapist*".mp.	88
S33	support.ab,kf,ti.	1495498
S34	13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30 or 31 or 32 or 33	15356458
S35	12 and 34	2404
S36	limit 35 to english language	2342
S37	limit 36 to yr="2015 -Current"	1563

APPENDIX 3- Study measurement

Measure	Borges	de la Rie	Evans	Gray	Held (2018)	Held (2021)	Jones	Litz	Maguen	Murray	Norman	Paul	Starnino	Cenkner	Harris 2011	Harris 2018	Pearce	Pernicano	Smigelsky	Ames	Pyne	
PTSD	●	●	●	●	●	●	●	●	●	●	●	●	●		●	●	●		●	●	●	19
MI (S)	●	●					●													●		4
MI (E)		●									●										●	3
Dep	●		●	●	●	●		●		●	●	●		●					●			11
Anx												●										1
AUD				●																		1
E/Reg							●															1
Psych dist		●							●									●			●	4
Psych WB														●								1
Psych flex	●																	●				2
Funct	●		●					●	●	●												5
PTC				●																		1
PTG				●										●								2
Spirit													●	●		●					●	4
Self-C/F														●							●	2

APPENDIX 4- Evidence Profiles

A glossary of abbreviations contained in these tables is located on pages 64-65

Biopsychosocial (n=13)					
Authors & year *Country*	**Study setting**	**Population (sample size) Mean age [SD] Gender (%)**	**Design**	**Intervention (I) and Comparison (C) and participants for I and C**	**Relevant outcome domains**
Artra (2014) *US*	Residential retreat	Combat veterans with PTSD and exposure to MIEs (N=8; Male 100%) Age range: 35-67 years *Screening for moral injury involved confirming that participants had been grieving in distress for > 6 months and had experienced moral injury*	Pre-post	**The Warrior's Journey** Five continuous days (60 contact hours) *A residential expressive arts grief retreat intended to facilitate meaning making for the loss of others, the personal self, and the sense of soul. The task for participants is to reconstruct meaning from shattered world assumptions stemming from personal and moral loss.* Co-facilitated by a civilian psychotherapist and a male combat veteran	PTSD symptoms - PCL-M
This was a mixed-methods study in which the quantitative phase examined the effectiveness of The Warrior's Journey in reducing PTSD symptoms. The qualitative phase explored meaning-making through interpretation of the art produced by participants. It is important to note that participants were selected from several retreats by the author based on the most and least change in PTSD scores (n = 7) and the author's intuition (n = 1). There was a significant reduction in PCL-M scores from pre (*M* = 58.00, *SD* = 15.68) to post (*M* = 29.38, *SD* = 9.04) intervention, *p*<.001. Effect size was not reported.					

Biopsychosocial (n=13)					
Authors & year ***Country***	**Study setting**	**Population (sample size) Mean age [SD] Gender (%)**	**Design**	**Intervention (I) and Comparison (C) and participants for I and C**	**Relevant outcome domains**
Borges (2019) *US*	VAMC	Veteran with PTSD, suicide ideation and exposure to PMIEs (N=1; Male) Age: Early 30s *Screening for moral injury involved assessment using the MIQ-M (score: 66/80)*	Case study	**Acceptance and Commitment Therapy for Moral Injury (ACT-MI)** 12 weekly individual telehealth sessions (90mins) *Transdiagnostic treatment focused on acceptance of moral pain using values rather than challenging the moral pain. This includes value clarification, mindfulness, emotion-regulation, distress tolerance skills.* Delivered by clinical psychologist	Moral injury symptoms - EMIS-M PTSD symptoms - PCL-5 Depressive symptoms - PHQ-9 Functioning - VLQ - PROMIS – social measures - Bold Moves Weekly Review ACT-MI-related processes - AAQ-II - CFQ-MI
The Service Member reported reductions in moral injury symptoms, PTSD symptoms, and depressive symptoms from pre-treatment to follow-up. In terms of functioning, improvements were reflected in an increased score on the PROMIS measure of satisfaction with social roles and activities and a decreased score on the PROMIS measure of social isolation. Furthermore, the Service Member reported changes engaging with his values over the course of treatment. Additionally, he increased his frequency in engaging with his values and also explored new valued-domains. Finally, the Service Member reported a greater willingness to accept his moral pain. Finally, assessments of suicide risk during each session showed changes in risk throughout treatment from 'low acute, high risk' at the outset, to 'intermediate acute' midway through, returning to 'low acute' at the end of treatment. However, no significance or effect size statistics were reported for any of the quantitative outcomes, meaning it is unknown if any of these changes are significant.					

Biopsychosocial (n=13)					
Authors & year ***Country***	**Study setting**	**Population (sample size) Mean age [SD] Gender (%)**	**Design**	**Intervention (I) and Comparison (C) and participants for I and C**	**Relevant outcome domains**
de la Rie et al. (2021) *NL*	Dutch mental health institute	Refugee (who served in the military in his country of origin) with PTSD and exposure to PMIEs (N=1; Male) Age: withheld *Screening for moral injury involved assessment using MIAS (score: 31)*	Case study	**Brief Eclectic Psychotherapy for Moral Trauma (BEP-MT)** 16 weekly individual sessions *Comprises of cognitive- behavioural, psychodynamic, constructivist, and systemic psychotherapy components, including psychoeducation, imagery exposure, letter writing, finding meaning and activation.* Delivered by a therapist	Moral injury - MIAS Moral emotions - Emotion rating scales (shame, guilt) PTSD symptoms - CAPS-5 (Dutch version) - PCL-5 General psychopathology - BSI
Following BEP-MT, there was a reduction in moral injury symptoms (MIAS score reduced from 31 to 28) and moral emotions (both shame and guilt reduced from 10 to 5). There was also a reduction in PTSD symptoms scores (CAPS-5 from 25 to19; PCL-5 from 49 to 36) such that the participant no longer met criteria for PTSD post-intervention, and the psychological distress score (BSI from 2.08 to 1.06). Significance and effect size statistics were not reported.					

Biopsychosocial (n=13)					
Authors & year ***Country***	**Study setting**	**Population (sample size) Mean age [SD] Gender (%)**	**Design**	**Intervention (I) and Comparison (C) and participants for I and C**	**Relevant outcome domains**
Evans et al. (2021) *US*	Outpatient clinic	Active-duty service member with PTSD and exposure to MIEs (N=1; Male) Age: 27 years *Screening for moral injury involved describing the manifestations of moral pain from three traumatic experiences*	Case study (from ongoing RCT)	**Massed Prolonged Exposure (PE)** (for PTSD) 15 individual sessions over 3 weeks (90mins) plus three follow-up booster sessions at 1, 3, and 7 weeks posttreatment *A cognitive-behavioural psychotherapy comprising of psychoeducation, in vivo exposure, imaginal exposure, and processing* Delivered by therapists	PTSD symptoms - CAPS-5 - PCL-5 Depressive symptoms - PHQ-9 PTSD-related functional impairment - B-IPF
PTSD symptoms were assessed with the PCL-5 at five time points, namely baseline (T1), session 5 (T2), session 10 (T3), post-intervention (T4; session 15), and 1-month follow-up (T5). Symptoms scores on the PCL-5 maintained through the first two time points (57) before spiking after T3 (67), subsequently decreasing at T4 (55), and further decreasing at T5 (47). PTSD symptoms also reduced as assessed by the CAPS-5 at T1 (43) and T5 (35). At the 1-month follow-up (T5), the participant maintained his PTSD diagnosis. Depressive symptoms were assessed at all five time points, with no reduction from T1 (19) to T5 (19). There was, however, an improvement in functional impairment, assessed with the B-IPF at T1 (32) and T5 (22) (a reduction indicates reduced impairment. The author described the PCL-5, CAPS-5, and B-IPF score reductions as significant, however no statistics were reported. Aside from the quantitative outcomes, the participant reported reductions in several moral emotions (guilt, remorse, anger, and contempt), and increases in both engagement with values-based activities and willingness to embrace moral pain.					

Biopsychosocial (n=13)					
Authors & year *Country*	**Study setting**	**Population (sample size) Mean age [SD] Gender (%)**	**Design**	**Intervention (I) and Comparison (C) and participants for I and C**	**Relevant outcome domains**
Gray et al. (2012) *US*	Marine Corps base camp	Active-duty Marines and Navy Corps personnel with PTSD (N=44; Male 95%) Age: 18-29 years (73%) 30-39 years (14%) ≥40 years (13%) *Primary treatment focus:* *- Prototypical PTSD symptoms (fear, life-threatening, or disgust-related traumatic events) (N=13)* *- Moral injury-related distress (n=19)* *- Traumatic loss-related distress (n=18)* *(Total exceeds 100% as some participants experienced PTSD and either moral injury or traumatic loss in equal measure)*	Pre-post	**Adaptive Disclosure (AD)** Six weekly individual sessions (90mins) *An emotion-focused psychotherapy developed specifically for AD personnel to address MI, traumatic loss/grief and impacts of life-threatening experiences. Sessions focus on identifying the index event, psychoeducation, imaginal exposure, and experiential processing.* Delivered by therapists (psychologists)	PTSD symptoms - PCL-M Depressive symptoms - PHQ-9 Alcohol use - AUDIT
There was a significant reduction in PTSD symptoms from pre-treatment (PCL-M: *M* = 60.13, *SD* not reported) to post-treatment (PCL-M: *M* = 50.55), *p* = .001. There was also a significant reduction in depressive symptoms from pre-treatment (PHQ-9: *M* = 14.32) to post-treatment (PHQ-9: *M* = 10.97), *p* = .001. Improvements in PTSD and depressive symptoms were of a medium-large magnitude, Cohen's *d* = .79 and .71, respectively. The reduction in problematic alcohol use from pre-treatment (AUDIT = 7.80) to post-treatment (AUDIT = 6.49) failed to reach significance. However, post-treatment, a smaller percentage (27.3%) of participants met or exceeded the AUDIT cut-off score of 8 which is indicative of alcohol use disorders, compared to pre-treatment (34.1%).					

Biopsychosocial (n=13)					
Authors & year ***Country***	**Study setting**	**Population (sample size) Mean age [SD] Gender (%)**	**Design**	**Intervention (I) and Comparison (C) and participants for I and C**	**Relevant outcome domains**
Held et al. (2018) *US*	Non-VA outpatient mental healthcare centre	Veterans with PTSD and exposure to PMIEs (N=2; Males) Case 1: 43 years Case 2: 36 years *Screening for moral injury involved describing the manifestations of moral pain from traumatic experiences*	Case studies	Case 1: **Prolonged Exposure (PE)** (for PTSD) 9 weekly individual sessions (90mins) Case 2: **Cognitive Processing Therapy (CPT)** (for PTSD) 12 weekly individual sessions (50mins) *See Paul et al. (2014) and Held et al.(2021) for intervention descriptions* Both interventions delivered by therapists	PTSD symptoms - PCL-5 Depressive symptoms - PHQ-9
For participant 1 who received PE, both PTSD and depressive symptoms reduced from pre-treatment (PCL-5 = 55; PHQ-9 = 22) to post-treatment (PCL-5 = 25; PHQ-9 = 13). By the end of treatment, participant 1 no longer met the probable PTSD threshold of 31 on the PCL-5. Anecdotally, he described feeling significantly reduced guilt and tighter social connections at termination. For participant 2 who received CPT, both PTSD and depressive symptoms reduced from pre-treatment (PCL-5 = 65; PHQ-9 = 15) to post-treatment (PCL-5 = 13; PHQ-9 = 4). From session 9 onward, participant 2 no longer met the probable PTSD threshold of 31 on the PCL-5. Anecdotally, he reported reduced feelings of guilt and shame and expressed a desire to reengage in life and reconnect with friends and family, whom he had avoided as a result of his trauma. Significance and effect size statistics were not reported for symptoms score reductions.					

Biopsychosocial (n=13)					
Authors & year ***Country***	**Study setting**	**Population (sample size) Mean age [SD] Gender (%)**	**Design**	**Intervention (I) and Comparison (C) and participants for I and C**	**Relevant outcome domains**
Held et al. (2021) *US*	Outpatient mental healthcare centre	Veterans (N=150) and active-duty personnel (N=11) with PTSD (Male 91%) M=39.9 [8.3] years *Screening for moral injury involved assessment using the MIES. Index traumas were also coded by the treating clinician.* *- History of MIE exposure: n=129 (80%)* *- Morally injurious index trauma: n=82 (39%)*	Pre-post	**Massed CPT** (for PTSD) 14 daily individual CPT sessions (50mins) + 13 group CPT sessions (120mins) + 13 daily group mindfulness sessions (75mins) + 12 daily group yoga sessions (50mins) + psychoeducation + case management, over 3 weeks *Cognitive-behavioural treatment for PTSD that addresses safety, trust, power, control, self-esteem, and intimacy through identifying, challenging, and replacing unhelpful thoughts /beliefs and a written account of the traumatic experience* Note. CPT was not modified for individuals exposed to PMIEs Delivered by clinicians	PTSD symptoms - PCL-5 Depressive symptoms - PHQ-9
In terms of overall symptom reduction, participants reported large reductions in PTSD (Cohen's *d* = 1.35–1.96) and depression symptoms (Cohen's *d* = 0.95–1.24) (scores not reported) from pre- to post-treatment. In terms of whether symptom reductions were impacted by exposure to MIEs or type of morally injurious index trauma, neither predicted changes in symptom outcomes from the ITP. Symptom reduction based on PCL-5 and PHQ-9 change scores from pre- to post-treatment also did not differ based on moral injury history or index trauma type. Additionally, neither moral injury history nor index trauma type predicted remission status at post-treatment (PCL-5 *p*s > .393; PHQ-9 *p*s > .570), using clinical cut-offs on the PCL-5 (score of 33) and PHQ-9 (score of 10). Finally, non-inferiority analyses at posttreatment also demonstrated equivalence across those with and without morally injurious event exposure and index events.					

Biopsychosocial (n=13)					
Authors & year ***Country***	**Study setting**	**Population (sample size) Mean age [SD] Gender (%)**	**Design**	**Intervention (I) and Comparison (C) and participants for I and C**	**Relevant outcome domains**
Jones et al. (2020) *Canada*	Not reported	Veterans and active-duty personnel with PTSD (N=11; Male 91%) Range: 30-59 years - 9% between 30-39 - 82% between 40-49 *Screening for moral injury not reported.*	Pre-post data from an ongoing RCT	**Multimodular motion-assisted memory desensitization and reconsolidation (3MDR)** 6 weekly individual sessions (90mins) *A virtual reality-based therapy administered on a treadmill and in a synchronized virtual reality environment (with sound and visuals)* Delivered by a therapist	Moral injury symptoms - MISS-M PTSD symptoms - CAPS-5 - PCL-5 Emotion regulation - DERS-18
Preliminary data for 11 participants who completed a 3MDR intervention for PTSD in an ongoing RCT, was reported on. The preliminary results demonstrated a statistically significant reduction in PTSD symptoms from pre-treatment (CAPS-5: *M* = 46.8, *SD* = 3.7; PCL-5: *M* = 49.7, *SD* = 12.7) to post-treatment (CAPS-5: *M* = 14.4, *SD* = 3.2, *p* = .01; PCL-5: *M* = 43.7, *SD* = 17.3, *p* = .05), with 27% of participants no longer meeting the DSM-5 diagnostic criteria for PTSD post-treatment. Statistically significant pre-post decreases in emotional regulation difficulties (DERS-18; pre: *M* = 54.1, *SD* = 9.6; post: *M* = 50.6, *SD* = 12.9, *p* = .05) and moral injury (MISS-M; pre: *M* = 58.1, *SD* = 12.9; post: *M* = 52.27, *SD* = 14.2, *p* = .04) were also observed. Effect sizes for symptoms score reductions were not reported.					

Biopsychosocial (n=13)					
Authors & year ***Country***	**Study setting**	**Population (sample size) Mean age [SD] Gender (%)**	**Design**	**Intervention (I) and Comparison (C) and participants for I and C**	**Relevant outcome domains**
Litz et al. (2021) *US*	Military garrison	Active-duty Marines and Sailors with PTSD (N=122; Male 90%) M=29.3 [6.4] years *Screening for moral injury not performed*	RCT	**I: Adaptive Disclosure (AD)** (N=62) 8 weekly individual sessions (90mins) *An emotion-focused psychotherapy developed specifically for AD personnel to address MI, traumatic loss/grief and impacts of life-threatening experiences. Sessions focus on identifying the index event, psychoeducation, imaginal exposure, and experiential processing.* Delivered by therapists (psychologists) **C: Cognitive Processing Therapy – Cognitive Therapy version (CPT-C)** (N=60) 12 weekly individual sessions (60mins) *CPT without the written account of the trauma*	PTSD symptoms - CAPS-IV - PCL-M Depressive symptoms - PHQ-9 Functioning - VR-12
Non-inferiority results between treatment arms for change scores from baseline to posttreatment showed that the mean difference in CAPS-IV change scores was 0.33 and the confidence interval (CI) did not include the predefined NI margin (95% CI =-10.10, 9.44). Furthermore, the mean difference in PHQ-9 change scores was -1.01 and the CI did not include the predefined margin (95% CI = -3.31, 1.28), as was the case for the VR-12 Physical Component and VR-12 Mental Component subscale scores (0.27; 95% CI = -4.50, 3.95, and -2.10; 95% CI = -7.03, 2.83, respectively). The differential effect size for CAPS-IV was Cohen's *d* = 0.01 (nonsignificant), therefore Adaptive Disclosure was found to be no less effective than CPT-C.					

Biopsychosocial (n=13)					
Authors & year ***Country***	**Study setting**	**Population (sample size) Mean age [SD] Gender (%)**	**Design**	**Intervention (I) and Comparison (C) and participants for I and C**	**Relevant outcome domains**
Maguen et al. (2017) *US*	VHA (outpatient clinic and hospitals) and veteran centres	Combat veterans with PTSD who had received prior exposure-based PTSD treatment (N=33; Male 100%) Age: *M* = 61.2 [13] years *Screening for moral injury involved endorsing distress from killing or being responsible for the death of another in a war zone, with ongoing distress regarding these events*	RCT	**I: Impact of Killing (IOK)** (N=17) 6-8 weekly individual sessions (60-90mins) *A CBT intervention designed to be adjunctive to TF-CBT (e.g., PE, CPT). Has explicit focus on the act of killing and acknowledges that the killing may have crossed personal/ shared morals thereby causing MI. Focus on self-forgiveness and making amends.* Note. Does not have an emphasis on the spiritual dimensions of MI. Delivered by a therapist (psychologist) **C: Waitlist** (N=16)	PTSD symptoms - PCL-M General psychopathology - BSI Functioning - M2C
For the IOK group, there was significant reduction in the PCL-M total score from baseline (BL) (*M* = 48.6, *SD* = 14.5) to follow-up (FU) (*M* = 41.3, *SD* = 11.2), *p* = .05, but the control group did not report a significant change (BL: *M* = 52.9, *SD* = 11.3; FU: *M* = 50.7, *SD* = 10.6). Compared to the control group, the decrease in the PCL-M score was significantly greater, *p* = .033, ω^2 = .12. Similarly, for the IOK group, there was a significant reduction in the BSI total score from BL (*M* = 59.6, *SD* = 39.8) to FU (*M* = 41.9, *SD* = 24.9), *p* = .02, but the control group did not report a significant change (BL: *M* = 58.7, *SD* = 30.9; FU: *M* = 63.2, *SD* = 34.6). Compared to the control group, the decrease in the BSI score was significantly greater, *p* =.0068, ω^2 = .20. Finally, the IOK group reported a statistically significant reduction in the M2C score (BL: *M* = 44.2, *SD* = 14.2; FU: *M* = 38.2, *SD* = 13.8; *p* = .05), however this change was not significantly different from the reduction for the control group (BL: *M* = 46.2, *SD* = 12.1; FU: *M* = 44.6, *SD* = 14.1).					

Biopsychosocial (n=13)					
Authors & year *Country*	**Study setting**	**Population (sample size) Mean age [SD] Gender (%)**	**Design**	**Intervention (I) and Comparison (C) and participants for I and C**	**Relevant outcome domains**
Murray and Ehlers (2021) *UK*	Hospital	Doctor exposed to PMIEs (N=1; Female) Age: 30s *Informal screening for moral injury based on response to trauma events*	Case study	**Cognitive Therapy for PTSD (CT-PTSD)** (addressing MI) 12 weekly individual sessions (90mins) *Ehlers and Clark's (2000) cognitive model of PTSD adapted to include MI related content* Delivered by a therapist	PTSD symptoms - CAPS-5 - PCL-5 Depressive symptoms - BDI-II Functioning - WSAS
There were reductions on all measures from pre to post treatment: CAPS-5 pre-treatment = 34, post-treatment = 2; PCL-5 pre-treatment = 44, post-treatment = 0; BDI-II pre-treatment = 23, post-treatment = 1; and WSAS pre-treatment = 19, post-treatment = 2. Significance and effect size statistics were not reported.					
Norman et al. (2014) *US*	VA hospital	Veterans with guilt and distress related to trauma exposure (N=10; Male 90%) *Screening for moral injury involved veterans indicating (verbally or on a screening measure) that they were struggling with guilt related to a combat trauma*	Pre-post	**Trauma Informed Guilt Reduction Therapy (TIGRT)** 4-7 weekly individual sessions (90mins) *Transdiagnostic psychotherapy to address guilt, shame, and MI stemming from combat related traumatic events over 4 modules* Delivered by a therapist	Moral emotions - TRGI PTSD symptoms - CAPS Depressive symptoms - PHQ-9
There was a significant reduction in the CAPS score from pre-treatment (M = 81.4, SD = 20.34) to post-treatment (M = 62.0, SD = 36.5), $p < .05$, Cohen's d = 1.98. The reduction in PHQ-9 score from pre-treatment (M = 14.2, SD = 6.2) to post-treatment (M = 9.3, SD = 8.04) was not significant, however the magnitude of change was large, Cohen's d = 1.44. Similarly, scores on the three guilt subscales of the TRGI reduced, but not significantly, with large effect sizes, Cohen's d = 1.14 – 1.53.					

Biopsychosocial (n=13)					
Authors & year *Country*	**Study setting**	**Population (sample size) Mean age [SD] Gender (%)**	**Design**	**Intervention (I) and Comparison (C) and participants for I and C**	**Relevant outcome domains**
Paul et al. (2014) *US*	VAMC	Veteran with PTSD and exposure to PMIEs (N=1; Male) Age: 27 years *Participant was described as having PTSD characterised by symptoms of guilt and shame, consistent with moral injury*	Case study	**Prolonged Exposure (PE)** (for guilt and shame) 9 weekly individual sessions *A cognitive-behavioural psychotherapy comprising of psychoeducation, in vivo exposure, imaginal exposure, and processing* Delivered by a therapist	PTSD symptoms - CAPS - PCL-M Depressive symptoms - BDI-II Anxiety symptoms - BAI
Reliable reductions (determined by the reliable change index, RCI) were observed for all symptoms scores from baseline (T1) to post-treatment (T2), and 6-month follow-up (T3): CAPS = 65, 24, 20, RCI = 17.17; PCL-M = 59, 20, 24, RCI = 9.91; BDI-II = 31, 7, 7, RCI = 8.47; and BAI = 43, 4, 6, RCI = 12.94.					

Spiritual interventions (n=2)					
Authors & year ***Country***	**Study setting**	**Population (sample size) Mean age [SD] Gender (%)**	**Design**	**Intervention (I) and Comparison (C) and participants for I and C**	**Relevant outcome domains**
Ames et al. (2021) *US*	VAMC	Veterans with PTSD and exposure to PMIEs (N=2; Male 100%) Case 1: 68 years Case 2: 72 years *Screening for moral injury involved describing trauma experiences*	Two case studies (from ongoing RCT)	**Structured Chaplain Intervention** 12 weekly individual sessions (50mins) *Structured spiritual forum for veterans to process trauma and MI using a spiritual perspective. Each session focuses on one dimension of MI (e.g., feeling betrayed, shame, loss of trust).* Delivered by: Chaplains	Moral injury symptoms - MISS-M-SF - MISS-M-LF PTSD symptoms - PCL-5
After completing the intervention, both cases self-reported improvement in moral injury and PTSD symptoms. For case 1, the PCL-5 score reduced from 58 to 26, the MISS-M-SF score reduced from 66 to 55, and the MISS-M-LF score reduced from 303 to 245. For case 2, the PCL-5 score reduced from 38 to 25, the MISS-M-SF score reduced from 52 to 47, and the MISS-M-LF score reduced from 241 to 180. Results were described as significant, however due to the very small sample it was not possible for statistical tests to be conducted.					

Pyne et al. (2021) *US*	VA PTSD clinic	Veterans currently being treated for PTSD (N=13; Male 69%) M=56.8 years [8.8] *Screening for moral injury involved scoring at least one of the six MIES impact items at moderately or strongly agree*	Pre-post	**Mental Health Clinician Community Chaplain Collaboration (MC4)** 6-12 individual sessions every 1-2 weeks by phone or in person over a 3-month period *Spiritual counselling with a focus on forgiveness (self, God, and others) and community reintegration* Delivered by community clergy (6 pastors, 3 chaplains, and 4 lay persons) - each worked with one veteran	Moral emotions (shame, guilt) - SSGS PTSD symptoms - PCL-5 Psychological distress - STOP-D God acceptance - GII (Acceptance subscale) Self-forgiveness - Heartland Forgiveness Scale
There was minimal change on all measures for the entire sample, however participants who attended four or more sessions had greater improvements than those who attended less. With respect to relevant symptom scores, changes between pre and post intervention (i.e., 3-month follow-up) were as follows: guilt pre: *M*=12.3, *SD*=5.2; post: *M*=13.8, *SD*=6.0; shame pre: M=12.6, *SD*=5.0; post: *M*=12.8, *SD*=5.9; PTSD pre: *M*=50.5, *SD*=16.2; post: *M*=48.1, *SD*=18.1; distress pre: *M*=27.5, *SD*=10.4; post: *M*=27.0, *SD*=11.3. The God Acceptance score increased from *M*=30.7, *SD*=7.3 to *M*=32.6, *SD*=1.8. And the self-forgiveness score increased from *M*=27.3, *SD*=5.1 to *M*=29.9, *SD*=9.0. Importantly however, due to the small sample size, statistical tests examining the significance of any changes were not conducted.					

Authors & year *Country*	Study setting	Population (sample size) Mean age [SD]* Gender (%)	Design	Intervention (I) and Comparison (C) and participants for I and C	Relevant outcome domains
Biopsychosocial-spiritual interventions (n=7)					
Cenkner et al. (2021) *US*	VA Mental Health Clinic (outpatient)	Combat veterans exposed to PMIEs (N=40; Male 100%) (90% with PTSD) M=60.6 years [12.85] *Screening for moral injury involved the MIQ-M, and open-ended questions for querying difficulties in functioning related to moral injury*	Pre-post	**Moral Injury Group (MIG)** 12 weekly group sessions (90m) *Treatment consists of psychoeducation (e.g., MI, moral emotions) and a community ceremony consisting of music, ritual, spiritual discipline, which is an opportunity for veterans to testify about their MIEs and challenge the community to express responsibility* Co-facilitated by a Veterans' Affairs chaplain and psychologist	Depressive symptoms - PHQ-9 Psychological health - SOS-10 Religious and spiritual struggles - RSSS Self-compassion - SCS-SF
Participants completed an average of 9.45 (*SD*=2.82) sessions of the 12-week group, and 80% (n=32) completed the group. Group completion was defined as attending at least nine sessions and the community ceremony event in week 10. For non-concurrent treatment participants (n=23), post-group there were medium effect sizes, ω^2 =0.05-0.08, for reductions in depressive symptoms (PHQ-9 pre *M*=12.18, *SD*=6.56; post M=*8.53*, SD=*5.35*), improvements in psychological functioning (SOS-10 pre *M*=30.79, *SD*=12.63; post *M*=40.12, *SD*=10.44), and self-compassion (SCS-SF pre *M*=34.05, *SD*=7.92; post *M*=35.82, *SD*=9.08), and reduced spiritual struggles (RSSS pre *M*=54.86, *SD*=22.39; post *M*=44.53, *SD*=18.49). Results for concurrent treatment participants (n=17) were similar. For those participants, post-group there were reductions in depressive symptoms (PHQ-9 pre *M*=12.65, *SD*=5.84; post *M*=9.00, *SD*=5.11), improvements in psychological functioning (SOS-10 pre *M*=28.38, *SD*=12.41; post *M*=35.73, *SD*=10.05) and self-compassion (SCS-SF pre *M*=30.53, *SD*=8.11; post *M*=36.40, *SD*=5.88) and reduced spiritual struggles (RSSS pre *M*=58.80, *SD*=19.02; post *M*=53.00, *SD*=18.42). There were no significant interactions between time and concurrent treatment status, therefore the effects associated with participating in a concurrent treatment while engaging in the MIG were minimal.					

Authors & year *Country*	Study setting	Population (sample size) Mean age [SD]* Gender (%)	Design	Intervention (I) and Comparison (C) and participants for I and C	Relevant outcome domains
Harris et al. (2011) *US*	VAMC (n=18) or a community religious organisation (n=8)	Veterans with trauma exposure (N=54; Male 89%) (65% with PTSD) M=45.54 years [13.52] *Screening for moral injury involved assessment of spiritual history (method of assessment not described)*	RCT	**I: Building Spiritual Strength (BSS)** (n=26) 8 weekly group sessions (120mins) *Spiritually integrated, group counselling intervention designed to reduce symptoms of PTSD and promote psychospiritual development. It focuses on spiritual distress resolution by using the veteran's existing meaning making or faith orientation to help them address their traumatic experiences.* Delivered by psychologists with specialised training or experience in spirituality **C: Waitlist** (n=28)	PTSD symptoms - PCL
Participants in the BSS group had significant reductions in self-reported PTSD symptoms (baseline: *M*=41.34, *SD*=17.44; posttreatment *M*=37.00, *SD*=16.36) as compared with those in the control condition (baseline: *M*=49.45, *SD*=16.81; posttreatment *M*=49.68, *SD*=18.26). In a subsequent paper, Harris et al. (2018) reported that the pre-post effect size for the BSS condition was far greater than for the wait-list condition (Cohen's *d*=2.30 compared to Cohen's *d*=0.01). However, in terms of diagnosis, at posttreatment 46% of the BSS group still met criteria for probable PTSD (at intake: 50%), and 69% of the control group met criteria for probable PTSD (at intake: 66%).					

Authors & year *Country*	Study setting	Population (sample size) Mean age [SD]* Gender (%)	Design	Intervention (I) and Comparison (C) and participants for I and C	Relevant outcome domains
Harris et al. (2018) *US*	VAMC	Veterans or active-duty personnel (N=138; 76% male) with PTSD or subthreshold PTSD M= 57 years [13.67] *Screening for moral injury involved collection of self-report measures of spiritual distress during the baseline screening*	RCT	**I: Building Spiritual Strength (BSS)** (n=71) 8 weekly group sessions (120mins) *See Harris et al. (2011) for description* Group facilitators were chaplains who had additional qualifications in mental health **C: Present Centred Group Therapy (PCGT)** (n=67) 8 weekly group sessions (120mins) *Non-trauma focussed supportive counselling intervention*	PTSD symptoms - CAPS-IV - PCL-C Spiritual distress - RSSS
Of the 71 participants randomised to BSS, 43 (60.6%) completed, and of 67 participants randomised to PCGT, 45 (67.2%) completed. Self-reported PTSD symptoms reduced significantly at post treatment in both groups; this effect was lost at follow-up. Clinician-rated PTSD symptom severity reduced significantly from pre to post treatment, with no differences differ between groups. 68–70% of participants demonstrated clinically significant decreases in PTSD symptoms. With respect to spiritual distress, a significant group-by-time interaction (F [1, 145.27]=10.48, p=0.001) for the Divine subscale of the RSSS meant that BSS participants reported a significantly greater reduction (i.e., improvement) in scores for this subscale from T1 (M=10.02, SD=5.69) to T3 (M=7.85, SD=4.22) compared to PCGT participants (T1: M=8.51, SD=4.00; T3: M=8.96, SD=3.90).					

Authors & year *Country*	Study setting	Population (sample size) Mean age [SD]* Gender (%)	Design	Intervention (I) and Comparison (C) and participants for I and C	Relevant outcome domains
Pearce et al. (2018) *US*	VAMC	Reconstructed Case Study Age: 39 *Screening for moral injury involved describing the trauma experiences involving PMIEs*	Case study	**Spiritually Integrated CPT (SICPT)** 12 weekly or twice-weekly individual sessions (6-12 weeks) (50-60mins) *Individualised psychotherapy focusing on correcting erroneous interpretations through gradual exposure, processing and cognitive restructuring using spiritual resources and rituals, adapted to the individual's specific beliefs.* Delivered by a therapist	PTSD symptoms - PCL-5
There was a reduction in PTSD symptoms, from pre-treatment (PCL = 57) to posttreatment (PCL =31). No statistical analyses were performed.					

Authors & year *Country*	Study setting	Population (sample size) Mean age [SD]* Gender (%)	Design	Intervention (I) and Comparison (C) and participants for I and C	Relevant outcome domains
Pernicano (2022) *US*	Not reported	Veterans with PTSD exposed to MIEs (N=35; Male 77.1%) M=50.8 years [13.9] *Screening for moral injury involved a chart review and a phone call to assess readiness. Partway through the study, participants also completed the MIQ-M to identify severity of MI exposure*		**Acceptance and Forgiveness Therapy (AFT)** 8 or 10 weekly group sessions (length of sessions not reported) *A psychospiritual group intervention guiding veterans with moral injury from a trauma-focused to restorative view of self. Treatment goals are "right-sizing" responsibility, emotional processing of morally injurious events, self-acceptance, self or other forgiveness, and meaning-making. Involves evidence-based psychological interventions, spiritually-oriented practices, and various self-expression modalities such as 'Cracked Glass Bowl' drawings which represent damage, hope, and healing.* Groups co-led by a mental health-trained Chaplain and mental health provider	Psychological distress - BSI-18 Psychological flexibility - AAQ-II
Data for 35 participants who completed both pre and post measures were included in the analysis. There were significant reductions in the three BSI-18 subscales of somatisation (pre: M=63.89, SD=9.92; post: M=59.43, SD=10.82, p<.001, Cohen's d = .760), depression (pre: M=70.51, SD=8.02; post: M=64.57, SD=9.50, p<.001, Cohen's d = .779), anxiety (pre: M=69.66, SD=8.64; post: M=64.63, SD=9.64, p<.001, Cohen's d = .750), and global severity (pre: M=70.23 SD=6.81; post: M=65.26, SD=8.91, p<.001, Cohen's d = .891). Additionally, there was an improvement in psychological flexibility, AAQ-11 pre: M=31.35, SD=11.30; post: M=38.85, SD=9.46, p<.001, Cohen's d = .790. Furthermore, post-group 'Cracked Glass Bowl' drawings were interpreted as reflecting renewed purpose, greater self-acceptance, and meaningful engagement with others.					

Authors & year *Country*	Study setting	Population (sample size) Mean age [SD]* Gender (%)	Design	Intervention (I) and Comparison (C) and participants for I and C	Relevant outcome domains
Smigelsky (2022) *US*	Outpatient mental health clinic within the VA health care system	Treatment-seeking veterans exposed to PMIEs (N=19; Male/Female % not reported) Age not reported *Screening for moral injury involved the use of a narrative approach that reflected items on the MIEs*		**Reclaiming Experiences and Loss (REAL)** 12 weekly group sessions (90mins) *A group therapy underpinned by the assumption that moral injury involves an existential struggle brought about by loss. It emphasizes self-examination of one's inner world and the morally injurious event through the lens of loss, and actively facilitates grief work. Losses are embraced as catalysts for lives of meaning and purpose.* Groups co-facilitated by a social worker and a chaplain with mental health training	PTSD symptoms - PCL-5 Depressive symptoms - PHQ-9
Four participants did not complete the group, due to health complications (n=1), scheduling issues (n=2), and self-reported spontaneous remission of distress (n=1), therefore data from 15 participants were included in the analysis. Post-group there was a reduction in symptoms of both PTSD (PCL-5 scores pre-group: *M*=60.0, *SD*=11.5; post-group *M*=30.4, *SD*=13.6) and depression (PHQ-9 scores pre-group *M*=18.3, *SD*=6.1; post-group *M*=5.5, *SD*=2.5). Significance and effect size statistics were not reported.					

Authors & year *Country*	Study setting	Population (sample size) Mean age [SD]* Gender (%)	Design	Intervention (I) and Comparison (C) and participants for I and C	Relevant outcome domains
Starnino, Angel, et al. (2019) *US*	VAMC	Treatment-seeking veterans with PTSD (N=24; Male/Female % not reported) Age not reported *No moral or spiritual injury screening reported*	Pre-post	**Search for Meaning (SFM)** 8 weekly group sessions (90mins) *Mindfulness based psychoeducational and processing group focusing on spiritual, existential, and cognitive components to examine spiritual injury associated with combat-related PTSD* Groups co-led by a Chaplain and a mental health practitioner	PTSD symptoms - PCL-5 Spiritual injury - SIS Religious coping - Brief RCOPE
This pre-post study evaluated the effectiveness of a spiritually-based group intervention, Search for Meaning (SFM), designed to treat trauma-related spiritual injury in reducing PTSD symptoms among veterans. Self-report data was collected from a convenience sample of 24 veterans who met criteria for probable PTSD and participated in one of five SFM cohorts. At posttreatment there were significant reductions in PTSD symptoms, spiritual injury, and negative religious coping. PCL-5 scores decreased from baseline (*M* = 53.96, *SD* 11.90) to post group (*M* = 46.54, *SD* 17.33), Cohen's d = 0.62, *p* = 0.02, with an average decrease of 7.42 (CI, 1.37 to 13.46). Spiritual Injury Scale (SIS) scores decreased from baseline (*M* = 20.08, *SD* 4.19) to post group (*M* = 18.42, *SD* 4.41), Cohen's d = 0.40, *p* = 0.03, with an average decrease of 1.67 (CI, 0.17 to 3.16). In terms of the Brief Scale of Religious and Spiritual Coping (RCOPE), there was a significant reduction in negative religious coping from baseline (*M* = 13.59, *SD* 6.16) to post group (*M* = 11.14, *SD* 4.19), Cohen's d = 0.40, *p* = 0.05, with an average decrease of 2.46 (CI, − 0.01 to 4.92), however there was no change in positive religious coping.					

Notes. 3MDR = Multimodular motion-assisted memory desensitization and reconsolidation; AAQ-II = Acceptance and Action Questionnaire; ACT-MI = Acceptance and Commitment Therapy for Moral Injury; AD = Adaptive Disclosure; AFT = Acceptance and Forgiveness Therapy; AUDIT = Alcohol Use Disorders Identification Test; BAI = Beck Anxiety Inventory; BDI-II = Beck Depression Inventory (second edition); BEP-MT = Brief Eclectic Psychotherapy for Moral Trauma; B-IPF = Brief Inventory of Psychosocial Functioning; BSI = Brief Symptom Inventory; BSI-18 = Brief Symptom Inventory-18; BSS = Building Spiritual Strength; CAPS = Clinician Administered PTSD Scale; CBT = cognitive behavioural therapy; CFQ-MI = Cognitive Fusion Questionnaire-Moral Injury; CPT = Cognitive Processing Therapy; CI = confidence interval; CPT-C = Cognitive Processing Therapy – Cognitive Therapy version; CT-PTSD = Cognitive Therapy for PTSD; DERS-18 = Difficulties in Emotion Regulation Scale; EMIS-M = Expressions of Moral Injury Scale-Military Version; GII = God Image Inventory; IOK = Impact of Killing; ITP = intensive treatment program; MC4 = Mental Health Clinician Community Chaplain Collaboration; MI = moral injury; MIAS = Moral Injury Appraisals Scale; MIEs = morally injurious events; MIES = Moral Injury Event Scale; MIG = Moral Injury Group; MIQ-M = Moral Injury Questionnaire–Military Version; MISS-M = Moral Injury Symptom Scale-Military Version; MISS-M-LF = Moral Injury Symptom Scale-Military Version Long Form; MISS-M-SF = Moral Injury Symptom Scale-Military Version Short Form; M2C = Military to Civilian Questionnaire; NI = non-inferiority; NL = The Netherlands; PCGT = Present

Centred Group Therapy; PCL = PTSD Checklist; PCL-C = PTSD Checklist-Civilian Version; PCL-M = PTSD Checklist-Military Version; PCL-5 = PTSD Checklist for DSM-5; PE = Prolonged Exposure; PHQ-9 = Patient Health Questionnaire-9; PMIEs = potentially morally injurious events; PROMIS = Patient Reported Outcomes Measurement Information System; PTSD = Posttraumatic stress disorder; RCT = Randomised controlled trial; REAL = Reclaiming Experiences and Loss; RCOPE = Scale of Religious and Spiritual Coping; RSSS = Religious and Spiritual Struggles Scale; SCS-SF = Self-Compassion Scale-Short Form; SFM = Search For Meaning; SICPT = Spiritually Integrated Cognitive Processing Therapy; SIS = Spiritual Injury Scale; SOS-10 = Schwartz Outcome Scale-10; SSGS = State Shame and Guilt Scale; STOP-D = Screening Tool for Psychological Distress; TF-CBT = trauma-focused cognitive behavioural therapy; TIGRT = Trauma Informed Guilt Reduction Therapy**;** TRGI = Trauma-Related Guilt Inventory; US = United States; VA = Veterans' Affairs; VAMC = Veteran Affairs medical centre; VLQ = Valued Living Questionnaire; VR-12 = Veterans RAND 12-item Health Survey; WSAS = Work and Social Adjustment Scale.