Defining Conceptual Boundaries of Moral Injury and Post-Traumatic Stress Disorder in Military Population: A Systematic Review

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Abstract. Moral injury is one of the main emotional distress in military personnel. Findings suggest that in wartime there are an endless number of potentially morally injurious events, which determine maladaptive cognitions, moral emotions of guilt and shame, and inefficient behaviour. Notwithstanding the strong association between moral injury and post-traumatic stress disorder (PTSD) recognized in the number of studies, there is still a gap of accurate data aligned with identifying the differences between moral injury and PTSD in terms of treatment and healing. This study aims to establish conceptual boundaries of moral injury, post-traumatic stress disorder and systematically review the empirical literature on them in military personnel. Specifically, we explored and summarized co-occurrence of moral injury and PTSD in military personnel and evaluated the association between moral injury and PTSD, as well with other emotional distress. An intensive bibliography search screening, extraction and report focusing in moral injury and PTSD was conducted following the PRISMA recommendations. The results indicate that the key aspects of comparison of moral injury and PTSD include definition and symptomology, measurement, neural underpinning, and treatment. Considering the consequences of poor social well-being, emotional sufferings and inefficient behavioral patterns, interventions focusing on moral injury separately from PTSD-focused evidence-based protocols are much needed.

Keywords: *moral injury, post-traumatic stress disorder, military personnel, conceptual boundaries.*

Засєкіна Лариса, Кокун Олег, Глова Ірина, Бойко Марта. Визначення концептуальних меж моральної травми й посттравматичного стресового розладу у військових: систематичний огляд.

Анотація. Моральна травма є вид емоційного дистресу у військовослужбовців. Результати досліджень свідчать про те, що у воєнний час існує суттєва кількість потенційно морально травматичних подій, які зумовлюють спотворені когніції, моральні емоції провини та сорому, а також неадаптивну поведінку. Незважаючи на кореляційний зв'язок між моральною травмою та посттравматичним стресовим розладом, визнаний у низці досліджень, досі існує прогалина в наукових даних, пов'язаних з визначенням відмінностей між моральною травмою та посттравматичним стресовим розладом з погляду лікування та

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зцілення. Це дослідження має за мету встановити концептуальні межі понять моральної травми, посттравматичного стресового розладу та систематично проаналізувати літературу щодо спільних та відмінних проявів цих конструктив у військовослужбовців. Зокрема, ми дослідили й узагальнили випадки спільного перебігу моральної травми та посттравматичного стресового розладу у військовослужбовців й оцінили зв'язок цих конструктів із іншими супутними симптомами психічного здоров'я. Інтенсивний бібліографічний пошук, скринінг, вилучення та звіт, присвячений моральній травмі та посттравматичному стресовому розладу, проведено відповідно до рекомендацій PRISMA. Результати вказують на те, що ключовими аспектами порівняння моральної травми та посттравматичного стресового розладу є визначення цих понять та їхня симптоматика, діагностика, нейронна зумовленість та лікування. Ураховуючи наслідки низького соціального благополуччя, емоційних страждань і неадаптивних поведінкових моделей, вкрай необхідні методи інтервенцій, орієнтовані на моральну травму, окремо від науково-базованих протоколів лікування посттравматичного стресового розладу.

Ключові слова: *моральна травма, посттравматичний стресовий розлад, військовослужбовці, концептуальні межі.*

Introduction

Moral Injury and Potentially Morally Injurious Events

Moral injury (MI) is one of the major concerns recognized in military population (Farnsworth et al., 2014). MI relates to emotional distress felt when individuals perpetrate, witness or fail to prevent actions which transgress their core moral or ethical beliefs (Litz et al., 2009). Evidence consistently suggests that transgressive acts can be justified in the context of war and yet still be morally injurious (Farnsworth et al., 2014; Litz et al., 2009). In addition, Fleming (2021) points out that MI roots are deeper than perpetrating, witnessing or failing to prevent actions and are aligned with moral and ethical paradoxes during wartime. He defines seven of them, namely political ideas vs actual experience, professional role vs organizational procedure, myth of war vs reality of war, religious belief vs military values, order vs chaos, dead vs alive.

Findings suggest that in wartime there are endless number of potentially morally injurious events (PMIEs). They include killing or injuring others, rape, atrocities, engaging in retribution or disproportionate violence, or failing to save the life of others (Braitman et al., 2018; Currier et al., 2018; Farnsworth et al., 2014). PMIEs are associated with self-harm and suicidality, substance use and social problems, and an increased risk of post-traumatic stress disorder (PTSD) and depression. Houle et al. (2020) point out eight major features of PMIEs-related distress, namely change in moral attitude, increased sensitivity and reactivity to moral situations, loss of trust in self and others, disruptions in identity and relatedness to others, weakening religious beliefs, rumination, persistent behavioral and emotional patterns. PMIEs also relate to a range of emotional distress, including guilt, anger, shame, depression, social isolation and self-blame (Griffin et al., 2019; Litz et al., 2018).

How best to measure the MI and to treat it is still one of the major concerns in the field. The findings consistently suggest that treatment must be focused to include

MI and guilt components as opposed to standardised PTSD treatment programs (Frankfurt & Frazier, 2016; Griffin et al., 2019; Litz et al., 2009). Koening et al. (2017) provided rationale for Spiritually Oriented Cognitive Processing Therapy (SOCPT), a version of standard cognitive processing therapy for the treatment of MI in military population. The obtained results indicate that evidence-based treatment for MI should include spiritual beliefs of military personnel.

The most frequent measures with high psychometric properties are Moral Injury Events Scale (MIES) (Nash et al., 2013) and Moral Injury Symptom Scale–Military Version (MISS-M) (Koening et al., 2018). However, these tools require translation, adaption and standardization in different languages and cultural settings.

Most MI studies have been conducted on military personnel in the US, UK and Canada (Bryan et al., 2018; Currier et al., 2018; Koening et al., 2017; Williamson et al., 2020). However, as Plouffe et al. (2021) point out the internal consistency of MIES in Canadian military personnel is high, although the dimensionality of the scale remained still unclear (Plouffe et al., 2021). There is a qualitative study of MI in Nigeria population, focused on circumstances of exposure to morally injurious situations (Okulate et al., 2021), and cultural adaptation and standardization of MI scales on the sample of veterans and military personnel in Netherlands (Nieuwsma et al., 2021). In an Israeli population there have been few studies on MI and the experience of PMIEs (Dekel et al., 2016; Levi-Belz and Zerach, 2018). It is estimated that 21% of Israeli combat soldiers have displayed potentially morally injurious behaviours and 34% have witnessed another soldier do so (Levi-Belz and Zerach, 2018; Zerach & Levi-Belz, 2018). The recent findings suggest that MI is associated with collective trauma of the genocide in the Holodomor survivors and their offspring in Ukraine (Zasiekina, 2020) and family trauma in childhood. MI has negative consequences for veteran psychological wellbeing and adversely affects daily functioning, with several difficulties relating to employment described, including increased trouble coping with occupational stress, authority figures and interpersonal difficulties (Williamson et al., 2019a). In addition, combatants with MI were more likely to engage in risky behaviours or use substances though this was strongly mediated by distress (Feingold et al., 2019). More recent attention has focused on women military personnel. Researchers attempted to evaluate the MI and PTSD impact on perinatal outcomes during the period following women veterans' separation from military service. The results from this study indicate that both PTSD symptoms and MI are associated with adverse perinatal outcomes (Nillni et al., 2020).

All studies reviewed use measures currently designed for a US military population. However, there have been no studies to assess MI in civilians during armed conflict and wartime. The prevalence of MI within a general military sample through a targeted qualitative study identified patients with a morally injurious component in a PTSD, evidence-based therapies for MI vs PTSD treatment.

Further research of MI in civilian and military samples during wartime applying both qualitative and quantitative measures will have important theoretical and practical implications.

PTSD in Military Population

PTSD seems to be the most frequently occurring negative mental health outcome of traumatic events that involve life threat and elicit in an individual such feelings as fear, helplessness and/or horror (Gates et al., 2012; Rahman & Brown, 2021; Tanielian & Jaycox, 2008). The most known examples of such traumatic events are combat, natural disasters, physical or sexual assaults (Bomyea et al., 2012). PTSD has received special attention because it results in significant social and economic burdens and it is related to many negative health outcomes (Rauch et al., 2010), such as physical and mental health difficulties, including depression and suicide (Bomyea et al., 2012). PTSD can affect 7–8% of the general population, but its occurrence is much more often among certain subgroups, such as active-duty military personnel and veterans (Gates et al., 2012).

According to the Fifth Statistical and Diagnostic Guide to Mental Disorders (DSM-5; American Psychiatric Association, 2013), PTSD symptoms include: intrusion symptoms (nightmares, flashbacks, emotional distress and physical reactivity after exposure to traumatic reminders), avoidance (trauma-related thoughts or feelings, external reminders of the trauma, like people, places, activities and conversations), negative alterations in cognitions and mood (inability to remember important aspects of the trauma, blaming oneself or others for causing the trauma, overly negative thoughts and assumptions about oneself or the world, diminished interest in activities, feeling isolated), alterations in arousal and reactivity (irritability or aggression, hypervigilance, heightened startle reaction, risky or destructive behaviour, difficulty concentrating and sleeping).

At the same time, there is still no consensus on specific trauma types and their corresponding PTSD symptom profiles (Fajarito & Guzman, 2017; Graham et al., 2016), as well as the corresponding severity of manifested symptoms (Graham et al., 2016). Moreover, individual differences existing before, during, or after trauma may be important in order to understand why some people suffers PTSD while others recover naturally (Bomyea et al., 2012).

PTSD is a leading mental health problem among military personnel who have served in wars along with depression, substance abuse, impairment in social functioning and inability to work (Hoge et all., 2004; Hruby et all., 2021; Kamphuis et all., 2021; Shen et al., 2009). PTSD is associated with numerous deleterious outcomes both for veterans and active-duty service personnel, and PTSD has substantial costs for individuals, their families and society overall (Gates et al., 2012; Koven, 2018).

In addition, we can include the following negative *personality outcomes*, related to PTSD of military personnel which have emerged in various studies: significantly decreased life satisfaction (Hashemi Dezaki et al., 2021), diminished interest in, and detachment and estrangement from others (Graham et al., 2016), increased anxiety, anger and aggression (Dami et al., 2018; Gates et al., 2012) and appeared suicidal ideations (Jakupcak et al., 2009).

The negative *health* effects of PTSD on military personnel are: higher risk of cardiovascular, respiratory, gastrointestinal, nervous system and autoimmune disorders (Gates et al., 2012), accelerated weight gain and obesity (Hruby et al., 2021; Takemoto et al., 2021) and increased fatigue (Shastry et al., 2022).

The main adverse *society outcomes* are: reduced military readiness of military personnel and worsened accomplishment of military goals (Dami et al., 2018); marital and family problems (Gates et al., 2012; Koven, 2018); social withdrawal (Dami et al., 2018); job instability (unemployment and underemployment (Koven, 2018; Smith et al., 2005); alcoholism, drug abuse, homelessness, and criminal acts (Koven, 2018).

According to various researchers, the PTSD frequency in veterans can be up to 30% (Kokun et al., 2020). According to Gates et al. (2012), the PTSD frequency in deployed U.S. military personnel was within 14–16%. Numerous authors revealed that PTSD among veterans of the Enduring Freedom and Iraqi Freedom operations was within 11–23%: 11–17% according to Hoge et al. (2004), 13–15% in Lapierre et al. (2007), 21.8% in Seal et al. (2009) and 23% in Fulton et al. (2015). As for Ukrainian military personnel who participated in the armed conflict in eastern Ukraine in 2014–2016, 20.2% of them had a predictive PTSD diagnosis (Kokun et al., 2020). Ferrajão and Oliveira (2015) determined that 30% of Portuguese veterans suffered from chronic PTSD. Also, Seal et al. (2009) revealed that active-duty veterans younger than 25 years had higher PTSD rates compared with active-duty veterans older than 40 years.

Paige et al. (2019) revealed four types of potentially traumatizing war zone experiences: threats to life, committing a moral injury, observing a moral injury and traumatic loss. However, the most important PTSD risk factor for military personnel is combat exposure (Pietrzak et al., 2011), as personnel deployed in a combat role with higher combat exposure are at higher PTSD risk (Hines et al., 2014; Sipos et al., 2014). In particular, Cesur et al. (2012) found that active-duty U.S. soldiers serving in combat zones were at greater PTSD risk than their active-duty counterparts serving in non-combat zones outside the United States.

The immediate combat stressors causing PTSD in military personnel to the most degree are: frequent enemy firefights (Cesur et al., 2012); being exposed to "friendly" fire and land mines/traps (Pietrzak et al., 2011); being surrounded by an enemy (Kokun et al., 2020); danger of being injured, killed or ambushed (King et al., 1995; Kokun et al., 2020); wounds or injuries (Cesur et al., 2012); physical killing of an enemy (Kokun et al., 2020); personally witnessing someone from one’s unit or an ally unit being seriously wounded or killed (Cesur et al., 2012; Pietrzak et al., 2011; Shen et al., 2009); personally witnessing someone non-combatant being seriously wounded or killed (Cesur et al., 2012; Shen et al., 2009); personally witnessing handled or uncovered human remains (Guyker et al., 2013; Kokun et al., 2020); ruined buildings, machinery, structures, and landscape (Kokun et al., 2020).

The need for timely and targeted screening of PTSD as part of post-deployment clinical examinations for troops returning from military conflicts was specified by Kang et al. (2003) and Seal et al. (2009). The issue of both vulnerabilities for PTSD

development and protection against it depending on military personnel factors is also quite important (Sheerin et al., 2018). In particular, such vulnerability factors for military personnel's PTSD were mentioned: an avoidant coping style (Sheerin et al., 2018; Thomassen et al., 2018); higher levels of negative self-beliefs (Sheerin et al., 2018); negative attributions, rumination and appraisals, fear of emotion, and looming cognitive styles (Bomyea et al., 2012). It should also be borne in mind that reservists were exposed to traumatic experiences at a higher rate than the regular forces (Browne et al., 2007).

Protective factors for PTSD symptoms included hardiness/resilience resources (Kamphuis et al., 2021; Thomassen et al., 2018); cognitive flexibility (Sung et al., 2019); existing meanings in life (Fischer et al., 2020); horizontal unit cohesion (Campbell-Sills et al., 2022). However, we should note that scientific data on vulnerability for PTSD development and protective factors associated with PTSD are clearly insufficient, since, as we can see, only single and non-systematic studies on this subject are available. Moreover, there is still a gap of accurate data aligned with difference of MI and PTSD in terms of treatment and healing.

Therefore, the present study aims to systematically review the empirical literature on MI and PTSD in military personnel to explore and summarize co-occurrence of MI and PTSD in military and evaluated association between MI and PTSD, as well with other emotional distress.

Methods

To assess the association of MI and PTSD, this study aimed to systematically review the empirical literature on MI and PTSD in military personnel. Specifically, we explored and summarized the published literature to examine the co-occurrence of MI and PTSD in military personnel and evaluated the published studies to better understand the association between MI and PTSD, together with other emotional distress. For this purpose, the study applied parallel literature searches in Scopus, Medline (PubMed), PsycINFO (EBSCOhost) and Web of Science (Clarivate) using the key terms "moral" and "injury", "PTSD", "traumatic stress", "stress disorder", "acute stress", combined with terms relating to "military", "combatants", "veterans", "active-duty". These databases were selected based on their significant coverage of psychological and philosophical literature as well as accessibility for the researchers. The study extracted only articles, and books chapters. Additional inclusion criteria included that the studies assessed the association between MI and PTSD, were empirical research studies with reliable and valid results, and recruited participants from military personnel. After searching in these databases, we compared the identified list of articles with the results of another literature search in Research4Life, an initiative which provides institutions in lower income countries with online access to academic and professional peer-reviewed content as a way to improve teaching, research and policymaking in health and other life, physical and social sciences. An initial review and selection protocol assessed the biases of each study and identified

the appropriateness and quality of the available evidence. Figure 1 illustrates a step-by step procedure of the literature search and selection process. The extracted data from the selected studies were then entered into a pre-designed protocol form which summarized the key methodological aspects (research aims; study design; measures; participants) and the obtained results and major findings of the reviewed studies. Screening and selection of studies was conducted by the first and the third authors. Thirty studies met all eligibility criteria (for PRISMA 2020 flowchart see Figure 1) (Page et al., 2021).

Results

Our final review includes 30 peer-reviewed articles representing empirical studies, with sample sizes ranging from 68 to 9,566. Table 1 indicates methodological issues and major findings of studies examining association between MI and PTSD, including cross-sectional, randomized/control and longitudinal designs.

The Features of Relations Between MI and PTSD

According to the performed analytical review of the selected research articles (Table 1), 15 articles examined the features of relations between MI and PTSD in different contexts and each of these articles reported significant or strong relations between MI events and PTSD symptoms (Aldridge et al., 2019; Bryan et al., 2018; Currier et al., 2018, 2019, 2020, 2021; Jordan et al., 2017; Kinney et al., 2022; Koenig et al., 2020; Levi-Belz et al., 2020; Nichter et al., 2021; Nieuwsma et al., 2021; Nillni et al., 2020; Plouffe et al., 2021; Zerach & Levi-Belz, 2018).

In particular, Aldridge et al. (2019) determined a significant link between PTSD and morally injurious events for British military veterans, accounting for 43% of the variance, with a medium effect size. Bryan et al. (2018) showed that guilt and shame caused by MI events were independently associated ($p < .001$ and $p = .002$) with PTSD symptoms in US military personnel and veterans. All studies performed by Currier et al. (2018, 2019, 2020, 2021) with different samples of US and UK veterans showed that greater MI-related outcomes were strongly linked with severity of PTSD symptom.

Koenig et al. (2020) showed that total MISS-M scores in US active-duty military and veterans were more strongly associated with PTSD symptom of D cluster (negative cognitions and emotions) in both bivariate and multivariate analyses. The network analysis applied by Levi-Belz et al. (2020) revealed strong bridge associations between the PTSD nodes and most of the PMIEs nodes for Israeli combat veterans. The authors also found that the nodes of PMIE-betrayal and PTSD NACM symptom cluster had a bridging function between other PMIEs and PTSD.

Therefore, the above analysis has proven unequivocally that morally injurious events are one of the most important factors that cause PTSD in military personnel. In previous works (in particular, Paige et al. 2019), committing and observing a MI mostly referred to potentially traumatizing war experiences but appropriate empirical

evidence was not presented. At the same time, we are generally inclined to believe that morally injurious events on average (because individual variations are quite possible) are less likely to cause PTSD in military personnel than immediate combat stressors. This is evidenced, in particular, by studies performed by Williamson et al. (2021), which found that the likelihood of meeting criteria for probable PTSD was the greatest in those who had had experienced a non-morally injurious trauma.

As for the factors that may mediate such a link between MI and PTSD, they have received very little attention in various studies. Thus, only Jordan et al. (2017) showed that the relations between betrayal-based PMIEs and PTSD were mediated by anger, and there was marginal evidence of mediation of the relations between perpetration-based PMIEs and PTSD by shame and guilt. Dennis et al. (2017) determined that involvement in wartime atrocities was predictive of increased PTSD severity after controlling for overall combat exposure.

MI and PTSD Are Often Co-Occurring but Yet Are Different

Our review revealed an agreement across studies in defining MI ranging from perpetrating, witnessing or failing to prevent actions which transgress one's core moral beliefs to suffering of moral paradox and core ethical dilemmas. Although several distinct approaches were applied to examine association between MI and PTSD in the reviewed studies, all articles conceptualized MI as a unique form of emotional distress and distinguish it from PTSD. Our findings suggest four key aspects of comparison of MI and PTSD: *definition and symptomology, neural underpinning, measurement, and treatment.*

Considering *definition* of MI and PTSD, the basic common feature is that both are emotional distress and sufferings after experiencing traumatic event. However, PTSD is mental disorder, which is currently represented in DSM-5-TR, including direct or indirect exposure to a traumatic event, followed by symptoms in four categories: intrusion, avoidance, negative changes in thoughts and mood, and changes in arousal and reactivity (APA, 2013). MI is separate from PTSD construct, containing moral emotions, mostly of guilt and shame, and reflecting changes and intrusive character of thoughts and mood, which are not represented in DSM. Therefore, it is reasonable to presume that MI often co-occurs with PTSD, however, MI has specific core beliefs, emotions, and behavioural patterns, which are not usually met during PTSD-focused therapy. The recent findings suggest that MI and PTSD *symptoms* have dissociable neural underpinnings, and specific behavioral patterns in morally injurious events are different in neural responses (Sun et al., 2019). Specifically, Sun et al. (2019) found that MIES sub-scales, that is, transgression and betrayal, are dissociated by spontaneous fluctuations indexed by amplitude of low frequency fluctuation (ALFF) as well as functional connectivity during resting-state functional magnetic resonance imaging scanning. ALFF in the left inferior parietal lobule (L-IPL) was positively associated with MIES subscores of transgressions, negatively associated with subscores of betrayals, and not related with PTSD symptoms. This study indicated important findings *aligned with neural underpinning* of moral injury vis-à-vis PTSD, and has significant practical implications for potential MI-focused interventions.

The core beliefs in MI are aligned with loss of trust towards others, feelings of self-worthlessness, increased responsibility, and blaming oneself, while PTSD is connected with continuous threat of harm and catastrophizing cognitions (Boska and Capron, 2021). As mentioned above, these cognitions are closely associated with cluster D in PTSD (Koenig et al., 2020). The core cognitions lead MI to its common comorbidities with feelings of shame and guilt. Moreover, the feelings of guilt were independently associated with severity of current suicidal ideation besides the effects of depression, PTSD symptoms, and the depression-by-PTSD (Bryan et al., 2018). PTSD contains mostly catastrophic core beliefs, aligned with fear of reoccurrence of traumatic event. Therefore, fear, terror and helplessness are more common for PTSD compared with MT, whereas MI is often associated with depression and suicidality (Bryan et al., 2018; Currier et al, 2018; Held et al., 2021; Williamson et al., 2021). The core beliefs and emotions related to self-blame lead to specific patterns of behaviour, namely apologizing and seeking forgiveness (Boska & Capron, 2021). The results in the reviewed articles demonstrated declines in social well-being, with self- and other-directed MI reactions (Chesnut et al., 2021; Currier et al., 2019). The more specific behaviour for individuals with PTSD is avoiding everybody and everything which remind the traumatic event (APA, 2013).

The articles reviewed for this systematic analysis have demonstrated an increased scholarly interest to possible associations between PTSD and MI and other emotional distress. Evidence consistently suggests that there is association between both MI and PTSD and depression and suicidality, alcohol use disorders and anger reactions. In addition, the studies demonstrate that both MI and PTSD relate to different aspects of military personnel life, namely poor well-being, work and social adjustment, and undeveloped conflict resolution skills. In addition, MI and PTSD are connected not only to traumatic event but also adverse childhood experiences (Williamson et al., 2020). However, the greater number of reviewed articles connect MI more likely with PMIEs while adverse childhood experiences more often relate to PTSD (Jordan et al., 2017; Levi-Belz et al,, 2020; Nichter et al., 2021).

Our review also revealed the most frequent measure for assessing MI and PTSD as separate constructs. Nearly half of the articles (12 of 30) represent studies applied MIES, which has high psychometric properties. Koenig et al. (2020) and his team apply mostly MISS-M and emphasize its high reliability, convergent, and discriminant validity. EMIS-M and MIQ-M are more rarely utilized to assess MI in military personnel. More than a half of the reviewed studies (16 of 30) applied PCL for assessing PTSD, with PCL-5 is the most frequent tool among them.

Considering the consequences of poor social well-being, emotional sufferings and inefficient behavioral patterns, treatments focusing on MI separately from PTSD-focused models are much needed. Addressing MI in individuals, the reviewed studies suggest close association between positive effects of MI healing and religiosity and spirituality as factors of meaningful life (Ames et al., 2018; Corona et al, 2019; Koenig et al., 2017). In addition, guilt and shame-focused interventions are applied (Capone et al., 2021). Therefore, spiritually oriented cognitive processing therapy and trauma-informed guilt reduction therapy can reduce MI (Capone et al., 2021; Koenig et al., 2017; Volk & Koenig, 2019). However, more studies with experimental design exploring the efficacy of MI-focused interventions are needed.

Conclusion

Our study found that MI can be conceptualized as a unique form of emotional distress and is distinguished from PTSD. MI is a separate construct from the PTSD construct, containing moral emotions, mostly of guilt and shame. MI reflects changes and an intrusive character of specific thoughts and mood, which are not represented in DSM. At the same time, morally injurious events unequivocally are one of the most important factors that cause PTSD in military personnel. There is an association between both MT and PTSD and depression and suicidality, alcohol use disorders and anger reactions.

We suggested four key aspects for comparing MI and PTSD: definition and symptomology, measurement, neural underpinning, and treatment. MI often co-occurs with PTSD, however, has distinct core beliefs, emotions, and behavioural patterns, which are not usually met during PTSD-focused therapy. Therefore, interventions are needed focusing on MI separately from PTSD-focused models. More studies using experimental designs which explore the efficacy of MI-focused interventions in military personnel are also needed.

A final finding from our review is that almost all studies used measures currently designed for a US military population. However, there have been no studies to assess MI in civilians during armed conflict and wartime. This unexplored population can provide a deeper insight into MI and further research of MI in civilian and military samples during wartime applying both qualitative and quantitative measures will have important theoretical and practical implications.

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