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Moral Injury in UK Veterans: The Role of Self-Criticism and Self-Compassion

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Portfolio Abstract

This portfolio summarises research seeking to address gaps in our understanding of the presentation of Moral Injury (MI) and the manifestation of this in UK Armed Forces veterans. A systematic literature review investigating the effectiveness of MI interventions trialled with veterans conducted in preparation for this research project, highlighted heterogeneity of theoretical underpinnings, definition, aetiological understanding, and selected intervention targets. As such, it was determined that a better understanding of the mechanisms of MI was required to aid identification of evidence-based intervention targets to enhance intervention options and effectiveness for this presentation and population. A cross-sectional study design was followed to investigate the relationship between variables theoretically reported to underlie MI. Potentially Morally Injurious Experiences (PMIEs) were hypothesised to be associated with MI severity and this association was hypothesised to be mediated by trauma-related shame and trauma-related guilt. Secondly, given the theoretical links between self-criticism, self-compassion, and shame, and the utility of Compassion Focused Therapy (CFT) for presentations whereby shame is a prominent feature, it was hypothesised that self-compassion and two facets of self-criticism (hated-self and inadequate-self) would moderate the hypothesised mediation models. Results suggested that the association between PMIEs and MI severity was mediated by trauma-related shame but not trauma-related guilt which has implications for the theoretical conceptualisation of MI. Equally, this mediation model was only significant for the PMIE-type of doing something against one's moral values but not witnessing or being directly affected by someone doing something against one's moral values, indicating differential mechanistic pathways depending on the PMIE had. Furthermore, whilst none of the hypothesised moderated-mediation models were indicated to be significant, self-compassion and the hated-self facet of self-criticism were both significantly associated with trauma-related shame and trauma-related guilt. This suggests self-compassion and hating oneself to be mechanistically relevant to the presentation of MI, however, further research is required to aid better understanding of this. The findings provide preliminary empirical evidence of the potential utility of CFT as an intervention to support veterans experiencing MI. However, due to the cross-sectional design, causation cannot be assumed and as such further investigations are warranted.

Statement of Contribution

Arianna Paricos: Project design (lead); applying for ethical approval (lead); writing the review of literature (lead); recruiting participants (lead); scoring questionnaires (lead); entering data and data analysis (lead); writing – original draft (lead); review and editing (contributing).

Thomas Schroder: Project design (contributing); applying for ethical approval (supporting); methodology (supporting); final draft review (lead); supervision (lead).

Michael Baliousis: Project design (supporting); methodology (contributing); data analysis (supporting); final draft review (contributing); supervision (contributing).

Rachel Sabin-Farrell: Project design (contributing); methodology (supporting); recruiting participants (supporting); final draft review (contributing); supervision (contributing).

Moral Injury in UK Veterans: The Role of Self-Criticism and Self-Compassion

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The authors have no relevant financial or non-financial interests to disclose.

Abstract

Objective: The study sought to understand the role of self-criticism and self-compassion in the mechanisms of Moral Injury (MI) in a sample of UK Armed Forces (AF) veterans. We aimed to explore the associations between type of Potentially Morally Injurious Experience (PMIE) with MI severity. We hypothesised trauma-related shame and trauma-related guilt would mediate this association. We also hypothesised self-compassion and two forms of self-criticism: inadequate-self and hated-self, would moderate the association between PMIE-type and trauma-related shame/guilt in the mediation model. **Method:** A cross-sectional design with an online questionnaire battery of standardised measures was used to collect demographic data, participant experiences of MI, trauma-related shame, trauma-related guilt, self-compassion, and self-criticism. 123 UK AF veterans completed the questionnaire battery. The mean age of the sample was 56.65(*SD*=11), 83.1% of participants were male, and 93.2% reported their ethnicity as white. **Results:** Doing something against one's moral values was significantly associated with MI severity, but witnessing something or being directly affected by someone doing something against one's moral values was not. Trauma-related shame, but not trauma-related guilt significantly mediated the association between doing something against one's moral values and MI severity. No significant moderating associations were found; however, self-compassion and the hated-self facet of self-criticism were significantly associated with trauma-related shame and trauma-related guilt when other variables were controlled for. **Conclusions:** This study provides preliminary evidence of the role of self-compassion and self-criticism in the presentation of MI. Further research exploring these mechanisms is recommended to aid the identification of appropriate intervention targets.

Key words: Moral injury, veterans, self-compassion, self-criticism

Clinical Implications Statement

There has been limited empirical investigation of MI in UK AF veterans and the role of self-compassion and self-criticism in this presentation has been scarcely explored. There is a breadth of focus in MI research regarding definition, aetiology, measurement, and intervention, with limited consensus. This study sought to empirically investigate the mechanisms of MI to aid identification of appropriate intervention targets. The association between self-compassion and the hated-self facet of self-criticism with trauma-related shame provides preliminary support for the potential utility of Compassion Focused Therapy (CFT) as an intervention approach to support UK AF veterans with MI.

Moral Injury in UK Veterans: The Role of Self-Criticism and Self-Compassion

In the last three decades, there have been several conflicts involving the UK Armed Forces (UK AF; Chalmers et al., 2014) and the mental health impact of this on military personnel has been explored (Williamson et al., 2019). Recent findings suggest higher rates of common mental health difficulties (such as anxiety and depression), PTSD, and alcohol and substance misuse in UK veterans, comparative to the general population (Sharp et al., 2024) [section 1.01 of extended thesis]. However, actual numbers may be higher due to mental health stigma in the veteran community acting as a potential barrier for vocalisation of difficulties and treatment-seeking (Williamson, Greenberg, & Stevelink, 2019) [section 1.02 of extended thesis]. Veteran mental health is a key area of national focus, with a parliamentary set goal for the UK to be the best place to be a veteran by 2028 (Ministry of Defence, 2018) [section 1.03 of extended thesis]. NHS recommendations highlight the pertinence of improving assessment and intervention for veteran trauma (NHS England, 2021) [section 1.04 of extended thesis]. Further understanding of the mental health needs of UK veterans is therefore required.

Meta-analytic findings have demonstrated poorer outcomes for veterans following engagement in evidence-based PTSD interventions, comparative to other populations, irrespective of presentation severity (Haagen et al., 2015; Watts et al., 2013) [section 1.05 of extended thesis]. The traumatic events experienced during active duty may not always fit the fear and victimisation trauma models underpinning PTSD and the corresponding evidence-based interventions (Jinkerson, 2016). For example, PTSD interventions derived from the cognitive model of PTSD (Ehlers & Clark, 2000) [section 1.06 of extended thesis] place emphasis on fear-based memories and client self-efficacy in coping with intrusion and hyperarousal associated with threat and danger perception (Sharp et al., 2012; Taylor, 2017). However, individuals that have experienced active duty may have also encountered scenarios of combat-related moral dilemmas which do not necessarily fit a threat-based model of trauma, such as killing in combat or failing to protect civilians (Litz, 2016). Non-life threat traumas experienced by military personnel have been associated with more guilt, self-blame, and suicidal ideation than life-threat traumas (Litz et al., 2018; Nichter et al., 2021). This is an important consideration when discussing intervention efficacy. If traumatic circumstances are not that of oneself being in danger, but instead from engaging in actions not aligned with one's moral beliefs, existing PTSD models and interventions may not be entirely applicable. Therefore, the trauma response to morally challenging circumstances requires distinct theoretical understanding and intervention development/focus.

Moral Injury

The term 'Moral Injury' (MI) was coined by Jonathan Shay (1994), a psychiatrist who observed through clinical work that the PTSD diagnosis frequently given to veteran clients inadequately captured the common presentation demonstrated by this population. MI was conceptualised as distress arising from betrayal of one's sense of what is right from an authority figure (Shay, 2014) [section 1.07 of extended thesis]. Building on this concept, Litz et al. (2009) developed a model of MI which drew and expanded on the social-cognitive theory of PTSD (Benight & Bandura, 2004), the two-factor theory of PTSD (Keane et al., 1985), emotional processing theory (Foa et al., 1989), the cognitive model of PTSD (Ehlers & Clark, 2000), and adversity stress models (Charuvastra & Cloitre, 2008; Elwood et al., 2009) [sections 1.06 and 1.08 of extended thesis]. They defined Potentially Morally Injurious Experiences (PMIEs) as *'perpetuating, failing to prevent, bearing witness to, or learning about acts that transgress deeply held moral beliefs and expectations'* (Litz et al., 2009, p.700)

[section 1.09 of extended thesis]. They proposed MI arises from incongruity between one's moral beliefs and the actions one has engaged in, witnessed, or learned of, leading to dissonance. This dissonance can perpetuate fears of judgement, criticism, and rejection for acts engaged in. PMIEs are suggested to lead to MI through a contextually intertwined appraisal of the self with the PMIE. If one attributes the cause of the morally infringing act as global (not specific to the event), internal (specific to one's character), and stable (permanent), this can give rise to persisting experiences of 'moral emotions' such as shame (Litz et al., 2009). Alternatively, if the cause is viewed as event-specific, external to the self, and changeable, one is more likely to experience event-related guilt (Litz et al., 2009). Guilt can be an adaptive response in motivating alterations of one's conduct (Malti, 2016). Whereas shame is suggested to be more harmful due to the negative impact on the self and identity (Bannister et al., 2019; Blum, 2008; Orth et al., 2006). Guilt has been associated with moral distress, which is suggested to be less severe and chronic than MI, whereas shame is more indicative of MI (Litz & Kerig, 2019) [section 1.10 of extended thesis]. An integrative review of MI research indicated the psychological distress associated with non-life threat traumas represents a potentially distinctive trauma symptom profile of guilt, shame, and depression in contrast to the intrusive, hyperarousal symptoms that characterise PTSD (Griffin et al., 2019) [section 1.11 of extended thesis]. Thus, an understanding of factors that are protective against, or increase the risk of, experiences of shame and guilt following PMIEs require further investigation to identify potential intervention targets for MI.

The growing interest in MI as a concept has coincided with the inclusion of Complex PTSD (CPTSD) in the International Classification of Diseases 11th Edition (ICD-11; World Health Organisation, 2019). This relatively new diagnostic label describes the same symptomology following traumatic event(s) as the diagnostic criteria for PTSD, however, highlights additional symptoms of Disturbances of Self-Organisation (DSO) which describe emotional dysregulation, interpersonal difficulties, and negative self-concept (Cloitre, 2020). Preliminary research in this area has highlighted that UK AF veterans are at a potentially greater risk of experiencing symptoms of CPTSD than the general population (Murphy et al., 2021;Sharp et al., 2024). Currier et al. (2021) explored MI, PTSD, and CPTSD, in a large sample of treatment-seeking UK AF veterans. They identified that veterans meeting diagnostic criteria for CPTSD reported greater MI with regards to both perpetration and betrayal-based PMIEs than veterans meeting the diagnostic criteria for PTSD or not meeting the diagnostic criteria for either PTSD/CPSTD. Furthermore, Turgoose and Murphy (2024) investigated Adverse Childhood Experiences (ACEs), MI, and CPTSD in a large sample of treatment-seeking UK AF veterans. They categorised respondents as experiencing high ACEs (56% of the sample) and low ACEs (44% of the sample) and found the high ACEs group to self-report significantly higher in measures of CPTSD and MI (Turgoose & Murphy, 2024). As such, there may be conceptual overlap of MI and CPTSD. Of note, CPTSD is not included in the Diagnostic and Statistical Manual of Mental Disorders version five (DSM-V; American Psychiatric Association, 2013) and with the majority of research regarding MI having been conducted in the USA, the label of MI may be more culturally relevant in countries whereby the DSM-V is prominent as there is not a comparative diagnostic profile (Shay, 2014). Equally, however, to date there has not been conceptual mapping comparing CPTSD and MI, and the previous points regarding the disparity between the symptoms of PTSD and MI (Griffin et al., 2019) remain relevant. Furthermore, the described studies exploring CPTSD and MI did not explicitly focus on combat-related traumatic experiences, so it remains unclear as to whether the correlation between the two concepts is demonstrative of the response to military experiences or factors outside of this

(Currier et al., 2021; Turgoose & Murphy, 2024). Use of measures specifically capturing PMIEs in combat contexts may aid understanding of MI following military service.

Moral Injury Interventions

Intervention has been a key focus in MI literature. Research has explored the applicability of existing evidence-based treatments for PTSD such as Prolonged Exposure therapy (PE; Evans et al., 2021; Held et al., 2018), Cognitive Processing Therapy (CPT; Held et al., 2018; Wachen et al., 2021), and Acceptance and Commitment Therapy (ACT; Walser & Wharton, 2021) [section 1.12 of extended thesis]. However, it has been argued these interventions were developed from victimisation trauma models and cannot be effectively applied to a perpetrator-based model of trauma to aid moral repair (Gray et al., 2017). Contrastingly, the named interventions have evidence-based associations with trauma-related shame (Goffnett et al., 2020; Luoma & Platt, 2015; Paul et al., 2014), a key symptom of MI (Litz et al., 2009), which suggests adapting these approaches for MI may be efficacious. The mechanism of the effect of adapted PTSD interventions on trauma-related shame in presentations of MI, however, remains unclear as studies have predominantly measured PMIEs and assumed MI, however, MI is not a guaranteed response to PMIEs (Griffin et al., 2019). This can largely be attributed to the evidence-base to intervention/clinical practice time lag [section 1.13 of extended thesis] as given the recency of research interest in MI, valid and reliable measures have only been available in the past few years (Houle et al., 2024) [section 1.14 of extended thesis]. The validity of MI intervention study findings therefore must be questioned as it cannot be conclusively determined interventions are targeting what is intended. Investigation with robust measures of MI is required to ensure the intended variables are being captured.

There have been novel interventions developed specifically for MI such as Adaptive Disclosure (AD; Gray et al., 2021), the Impact of Killing intervention (IOK; Maguen et al., 2017), Reclaiming Experiences and Loss (REAL; Smigelsky et al., 2022), and Building Spiritual Strength (BSS; Harris et al., 2018) [section 1.15 of extended thesis]. However, a key criticism from the integrative review conducted by Griffin et al. (2019) highlighted there remains a lack of theoretical understanding of MI, and the underlying mechanisms, and as such appropriate intervention targets. Moreover, a recent publication by the original authors of the MI conceptual model has highlighted the breadth of focus and limited consensus in MI research to date and called for research focusing on the definition and operationalisation of MI (Litz et al., 2025). A recent systematic literature review of MI interventions trialled with veterans echoed the assertions of Griffin et al. (2019) and Litz et al. (2025) through evidencing the breadth of theoretical standpoints, MI definitions, aetiological descriptions, intervention targets, and intervention approaches (Paricos et al., 2025) [section 1.16 of extended thesis]. The research area is considered too much in its infancy for there to be sufficient evidence to base novel treatment approaches on (Griffin et al., 2019; Litz et al., 2025; Paricos et al., 2025).

Self-Criticism and Self-Compassion

Self-criticism can be defined as punitive self-observation, negative appraisal of one's actions, enduring focus on mistakes, difficulty in experiencing gratification from success, and self-blame in the face of perceived failure (Löw et al., 2020). It can be separated into hated-self – desire to hurt oneself, and inadequate-self – focus on personal inadequacy (Gilbert et al., 2004; Rose & Rimes, 2018). The Gilbert et al. (2004) theoretical

explanation of self-criticism was developed from attachment theory and self-criticism is argued to be underpinned by threatening or punishing parental voices and serves a self-regulatory function in adulthood to minimise mistakes. Given the hierarchical structure of the military context and importance of following orders, there may be a heightened emphasis on not making mistakes and thus greater opportunity for experiences of self-criticism [section 1.17 of extended thesis]. Shame and self-criticism have been theoretically linked through the self-directed resentment, dislike, and loathing that characterises self-criticism, and the difficulty in engaging in self-directed kindness, soothing, and comfort associated with shame (Gilbert & Procter, 2006) and have been shown to demonstrate a mutually enhancing relationship in the context of psychopathological symptoms (Castilho et al., 2017). Despite self-criticism being described as a transdiagnostic risk factor affecting vulnerability, symptom manifestation, and relapse rates (Gilbert & Irons, 2005; Schweizer et al., 2020), as well as poorer outcomes following intervention (Marshall et al., 2008), there has been limited inclusion of self-criticism in MI investigations. A systematic literature review of 48 studies indicated self-criticism demonstrated positive relationships with depression, eating disorders, social anxiety, personality disorders, and psychotic symptoms (Werner et al., 2019). Zerach and Levi-Belz (2022) identified self-criticism as a moderator of the relationship between PMIEs and MI in a sample of healthcare workers during the COVID-19 pandemic [section 1.18 of extended thesis]. However, the role of self-criticism in MI with veteran samples remains unexplored. This study aimed to address this gap.

Self-compassion is encapsulated as expressing understanding and kindness towards oneself, acknowledging errors, mistakes, and failures are a condition of the human experience and not internal character flaws, and attending to painful thoughts mindfully as opposed to ruminating or avoiding (Barnard & Curry, 2011; Neff, 2003). Self-compassion has been identified to have a strong negative association with depressive symptoms, with this relationship mediated by shame, rumination, and self-esteem (Johnson & O'Brien, 2013) and is suggested to stimulate the soothing system and reduce threat system activation – in line with the theoretical underpinnings of Compassion Focused Therapy (CFT; Gilbert, 2010) [section 1.19 of extended thesis]. Equally, self-compassion interventions are demonstrated to have a significant moderating effect on self-criticism (Wakelin et al., 2022) [section 1.20 of extended thesis]. This is relevant in the context of MI as self-compassion may be a resilience factor against self-critical appraisals, experiences of shame, and associated psychological distress. Forkus et al. (2019) found self-compassion moderated the relationship between PMIEs and PTSD, depression, and self-harm behaviours in a sample of US veterans [section 1.21 of extended thesis]. Additionally, a recently published study with UK veterans identified compassion to self, to others, and from others to be strongly related to MI (Morgan et al., 2024) [section 1.22 of extended thesis]**.** Considering these associations, self-compassion may be a suitable target for MI intervention. However, these findings are preliminary and the limited literature in this area has predominantly been conducted in the USA (Griffin et al., 2019). Further exploring self-compassion with UK AF veterans will provide further cross-cultural evidence to help determine the utility of compassion-based approaches in MI intervention.

Compassion Focused Therapy (CFT)

CFT has been recommended as an intervention for MI (Hollis et al., 2023). CFT is an evolutionary informed biopsychosocial therapeutic approach that stipulates we as humans have 'tricky brains' through the interaction of our emotional 'old brain' and our evolved and self-aware 'new brain' (Gilbert, 2022). In this

approach, compassion is defined as *'sensitivity to suffering in self and others with a commitment to try and alleviate and prevent it'* (Gilbert et al., 2017, p.4). CFT promotes developing the wisdom of no blame with the desire to take responsibility through acknowledging our brain is not of our design and as such is not our fault, with the aim of reducing shame and self-criticism (Gilbert, 2014) [section 1.19 of extended thesis]. In populations where there is indicated to be high shame prevalence such as personality disorders, eating disorders, and forensic populations, CFT has been indicated to be effective (Petrocchi et al., 2024) [section 1.23 of extended thesis]. Given the reported association of shame with MI (Dombo et al., 2013), CFT may be a beneficial therapeutic approach. Moreover, qualitative investigations indicate CFT is used in clinical practice with morally injured veterans (Williamson et al., 2021), however, there is no current evidence base for the use of CFT in this context. Research is required to develop an understanding of the efficacy of this approach in supporting morally injured veterans. Given the critiques of Griffin et al. (2019) and Paricos et al. (2025) of a lack of theoretical understanding prior to MI intervention studies, concept-testing is required in the first instance to understand if self-criticism and self-compassion are moderating variables and thus appropriate treatment targets.

The Present Study

Current literature suggests conceptual differences between MI and PTSD and thus distinct theoretical understanding is required to aid development of MI-specific evidence-based interventions. Furthermore, self-criticism and self-compassion have received limited focus as potential moderating variables in MI development and sustainment, despite established associations with shame and guilt (Griffin et al., 2019). This study therefore aimed to address this gap through exploring the potential moderating role of self-criticism and self-compassion in MI with UK veterans. Specifically, the following hypotheses were tested:

Hypothesis one: Type of PMIE will predict MI severity.

Hypothesis two: Trauma-related shame and trauma-related guilt will mediate the relationship between PMIE type and MI severity.

Hypothesis three: Self-compassion will moderate (weaken) the effect of PMIE type on trauma-related shame and trauma-related guilt in the hypothesised mediation model.

Hypothesis four: Two forms of self-criticism (inadequate-self and hated-self) will moderate (strengthen) the effect of PMIE type on trauma-related shame and trauma-related guilt in the hypothesised mediation model.

Method

Epistemological Position

This study was conducted from a positivist stance through pursuing identification of mechanistic relationships between variables for the purpose of theoretical clarification (Aliyu et al., 2014). The aim was to derive interactions and mechanisms of specific, measurable variables underpinning MI to identify appropriate and generalisable treatment targets (Scotland, 2012). Quantitative methodology stems from positivism – the position that authentic knowledge is established via objective, empirical investigation (Ryan, 2006). Quantitative methodology has traditionally been seen as useful in supporting this aspiration through minimising

researcher bias in data collection and analysis. It is recommended for the purposes of investigating models with large samples, connecting variables, and examining hypotheses and theories (Maksimović & Evtimov, 2023) [section 2.01 of extended thesis].

Design

A cross-sectional design was used to take a single-occasion snapshot of the variables described (Setia, 2016). Given the lack of previous empirical investigation in this area, establishing cross-sectional associations in the first instance before proceeding to longitudinal designs is most appropriate (Wang & Cheng, 2020) [section 2.02 of extended thesis].

Participants

Sample Size

G*Power a priori power analysis specified 55 participants were required to have 80% power for detecting a medium effect size (f^2 = .15) when using the .05 criterion for statistical significance for multiple regression analyses exploring PMIE-type as a predictor of MI (hypothesis one). For the mediation model including trauma-related shame and trauma-related guilt (hypothesis two), using the same criteria the minimum sample size would be 77. For the hypothesised moderated mediation models, power was calculated based on the statistical model. This included the moderators as independent variables, as well as the interaction between independent variables and moderating variables for all hypothesised relationships (Memon et al., 2020). This determined a minimum sample size of 123 for the moderated mediation models (hypotheses three and four) to detect a medium effect size (f^2 = .15), using the same criteria as outlined above.

Recruitment

Participants were recruited through advertisements distributed via online platforms such as Facebook, Twitter, and Instagram (Appendix A) from March-August 2024. Online groups and charities for UK veterans were targeted for advertisement (with group owner/admin permissions) [section 2.03 of extended thesis]. Prospective participants were able to share the study advert with peers to allow for snowball sampling (Parker et al., 2020) [section 2.04 of extended thesis]. Social media comments from prospective participants identified an unfamiliarity with the term ‘moral injury’ and a mistrust in the research motivations – with some expressing concern this study was seeking to identify individuals and assign blame. The researchers considered this feedback and reviewed the study advert, deciding to make changes as a result. The updated advert was titled as a study investigating veteran trauma which then provided a more detailed and clearer explanation of MI and more transparency regarding the researcher and research purpose (Appendix B). This proved to be better received when monitoring subsequent interactions with the advert on social media [section 2.05 of extended thesis].

Prospective participants were first asked to complete a short screening questionnaire to ensure eligibility criteria was met (outlined in the below section). Informed consent was required before completing the questionnaire battery. Participants were not financially compensated for involvement. Informed consent should be an autonomous decision without enticement; compensation for participation may impede this through encouraging financially motivated decision-making (Wertheimer & Miller, 2008). Given participation in this study may have required reflection on distressing memories, participation should have only occurred when

individuals felt they were able to and wished to, thus financial compensation may be considered unethical recruitment practice in this circumstance (Resnik, 2015) [section 2.06 of extended thesis].

Inclusion Criteria

Participants included any UK veteran meeting the following inclusion criteria: (i) UK veteran - defined as an individual that had permanently left active military duty (Dandeker et al., 2006) with UK AF; (ii) ability to read and communicate in English; (iii) capacity to provide informed consent. Prospective participants that had never served in the UK AF (including individuals that have served in the AF of other countries) or were currently serving in the UK AF were excluded from participation.

Data Collection

Data was collected via a questionnaire battery comprising of demographic data, MI, trauma-related shame, trauma-related guilt, self-compassion, and self-criticism (see measures section for specific questionnaires). The questionnaires were available online via QuestionPro (www.questionpro.com), however, prospective participants could request a paper copy with a pre-paid return envelope to enable participation irrespective of computer literacy.

Participant Characteristics

Participant characteristics are reported in Table 1, these are reported at group level to protect anonymity [section 2.07 of extended thesis].

Table 1

Participant Characteristics

Characteristic	Sample	M(*SD*)
Age (range in years)	24-89	56.65(*11.00*)
Gender (%Male):	83.1	
Ethnicity (%White):	93.2	
Marital Status (%):		
Married	69.1	
Single	9.4	
Divorced	12.7	
Separated	2.6	
Widowed	3.3	
Highest Qualification (%):		
Undergraduate degree and above	38.4	
A-Level/equivalent	32.6	
GCSE/equivalent	18.9	
No formal qualifications	3.3	
Employment (%):		
Employed (including self-employed)	57	
Retired	28.7	
Away from work	5.2	
Unemployed	3.9	
Household Income (%):		
£0 - £24,999	23.1	
£25,000 - £49,999	33.6	
£50,000 - £74,999	18.2	
£75,000 - £99,999	8.1	
£100,000+	6.5	

Region (%):		
Scotland	13.4	
Wales	4.9	
Northern Ireland	2.6	
England	75.2	
Armed Forces Branch (%):		
British Army	63.5	
Royal Navy	13.7	
Royal Air Force	20.8	
Years served (range in years)	1-48	15.98(*9.82*)
Discharge reason (%):		
Normal service leaver	50.2	
Early service leaver	5.5	
Medical discharge	13.0	
Retirement	11.1	
Other	14.3	
Prefer not to say	3.9	
Number of deployments (range)	0-40	4.73(*5.07*)
Different locations deployed to (total)	53	
Most frequently reported deployment locations (%):		
Northern Ireland	48.2	
Iraq	23.1	
Afghanistan	20.5	
Bosnia	19.5	
Falklands	15.3	

Measures

Moral Injury Outcome Scale (MIOS; Litz et al., 2022) [section 2.08 of extended thesis]

The MIOS provides a summary description of the three types of PMIEs (a – *'did something (or failed to do something) that went against your moral code or values'*; b – *'you saw someone (or people) do something or fail to do something that went against your moral code or values'*; or c – *'you were directly affected by someone doing something or failing to do something that went against your moral code or values'*) and asks participants to answer yes/no if they have had an experience of this nature and to identify whether they have experienced PMIEa and/or PMIEb and/or PMIEc. This is followed by 24-items designed to assess the psychosocial impact of PMIEs. Participants are asked to rate the extent of their agreement of 14 statements, keeping their worst PMIE in mind, on a five-point Likert scale (*0 = strongly disagree; 4 = strongly agree*), for example, *'I blame myself'*. The total score range is 0-56. Higher scores indicate greater negative psychosocial impact. There are also 10-items whereby participants rate the impact on functioning on ten different areas such as relationships, work, and religion/spirituality on a Likert scale of 0-6, for example, *'relationship with your children'*. There is the option to respond 'not applicable' to each individual functioning item. Total impact on functioning is calculated by summing the scale item score, dividing this by the maximum possible score based on the number of items the participant has responded to, and then multiplying this by 100. This represents an index of overall functioning impairment, with higher scores indicating greater functional impairment. The MIOS has been shown to have good construct validity, with average inter-item correlation of .4 (within the recommended range of .15 - .5; Clark & Watson, 1995), signifying all items embody the same construct, but are not correlating to a degree to suggest redundancy. The MIOS has also been indicated to be highly reliable cross-culturally in the UK, US, Canada, and Australia and test-retest reliability has also been shown to be within

acceptable ranges for MIOS total (r = .76; Vilagut, 2014). The MIOS demonstrated good internal consistency in this sample (α = .87).

Trauma-Related Shame Inventory (TRSI; Øktedalen et al., 2014) [section 2.09 of extended thesis]

The TRSI is a 24-item measure whereby participants rate the degree to which the listed statements describe their thoughts or feelings over the past week on a scale of 0 (*not true of me*) to 3 (*completely true of me*), for example, *'As a result of my traumatic experience, I cannot accept myself'*. Scores range from 0 to 72, with higher scores indicating greater trauma-related shame. The TRSI has demonstrated convergent validity with measures of self-judgment and depression, and discriminant validity from measures of trauma-related guilt and self-compassion (Grau et al., 2022; Øktedalen et al., 2014). The TRSI demonstrated excellent internal consistency in this sample (α = .98).

Trauma-Related Guilt Inventory (TRGI; Kubany et al., 1996) [section 2.10 of extended thesis]

The TRGI is a 32-item measure comprising of three subscales: global guilt, distress, and guilt cognitions. Participants rate statements on a Likert scale of 0 (*not at all true of me*) to 4 (*extremely true of me*) and eight items are reverse scored, for example, *'I knew better than to do what I did'*. The mean total is identified by totalling the scores and dividing by 32; the higher the mean total score, the greater the trauma-related guilt. Subscale means are calculated in the same way, however, to the meet the aims of this study, only the overall TRGI score was used. It has demonstrated good test-retest reliability with veteran samples signalling good temporal stability (r = .84-.86; Kubany et al., 1996), good convergent validity with measures of trait guilt and good discriminant validity against measures of trauma-related shame (Browne et al., 2015). The TRGI demonstrated excellent internal consistency in this sample (α = .92).

Forms of Self-Criticising/Attacking and Self-Reassuring Scale (FSCRS; Gilbert et al., 2004) [section 2.11 of extended thesis]

The FSCRS is a 22-item measure of self-criticism and self-reassurance. Participants respond on a 5-point Likert scale (*0 = not at all like me, 4 = extremely like me*). There are three subscales: inadequate-self (9 items; total score of up to 36) which measures one's sense of personal inadequacy, for example, *'I am easily disappointed with myself'*; hated-self (5 items; total score of up to 20) which measures self-persecutory thoughts, for example, *'I have become so angry with myself I want to hurt or injure myself'*; reassured-self (8 items; total score of up to 32) which measure one's ability to self-reassure, for example, *'I am able to remind myself of positive things about myself'*. To meet the aims of this study, the hated-self and inadequate-self subscales were used. The higher one scores, the greater the indication of the subscale trait. Test-retest reliability over a 4-week period is indicated to be good for the inadequate-self subscale (r = .72) and hated-self subscale (r = .78; Castilho et al., 2015). Good discriminant validity has also been demonstrated between inadequate-self and hated-self (r^2 = .6), indicating the subscales to be measuring distinct factors (Baião et al., 2015). Excellent internal consistency has been indicated for the FSCRS hated-self subscale (α = .91), and inadequate-self subscale (α = .94) in this sample.

Self-Compassion Scale – Short-Form (SCS-SF; Raes et al., 2011) [section 2.12 of extended thesis]

The SCS-SF is a 12-item measure of self-compassion. Participant are asked to respond to each item on a 5-point Likert scale, for example, *'when something painful happens I try to take a balanced view of the*

situation'. For six of the 12 items, *1 = almost never; 5 = almost always*, and for the remaining six items the scale is reversed. There are six subscales of self-kindness, self-judgement, common humanity, isolation, mindfulness, and over-identification. A total self-compassion score is calculated by first reverse scoring the negative subscale items, then taking the mean of each subscale to calculate a total mean. A higher total mean indicates greater self-compassion. The SCS-SF has demonstrated good internal consistency across three large cross-cultural samples ($\alpha \geq .86$ in all samples), as well as the sample in this study ($\alpha = .86$) and near-perfect correlation with the long form SCS ($r \geq .97$; Alfonsson et al., 2023; Neff, 2019; Raes et al., 2011). Given that each subscale only contains two items, the reliability of the subscales is lower ($r = .54$-$.75$), and as such the SCS-SF is recommended for calculating an overall self-compassion score, with the longer SCS recommended when investigating individual subscales (Raes et al., 2011). Good test-retest reliability over a two-week period has been reported (intra-class correlation = .84; Alfonsson et al., 2023). Costa et al. (2016) evidenced convergent validity for both self-compassionate attitude and self-critical attitude (average variance extracted (AVE) = .65 and .6, respectively).

Procedure

This study was granted ethical approval by the Mental Health and Clinical Neurosciences Ethics Subcommittee at the University of Nottingham (Appendix C). One participant requested a paper copy of the questionnaires. Eligibility was checked via email and the participant information sheet (Appendix D), consent form (Appendix E), questionnaires, debrief sheet (Appendix F), and a freepost return envelope were sent to the prospective participant. This was not returned and therefore all the data included in analysis were collected online.

Once the study advert was disseminated, prospective participants completed a brief eligibility criteria screening questionnaire (n=575). Of these, 396 met the inclusion criteria and 179 did not [section 2.13 of extended thesis]. The information sheet was accessed and the consent form signed before continuing to the demographic questionnaire (Appendix G) and MIOS (discontinuation, n=99). Of the 297 participants that continued onto the MIOS, 188 responded they had experienced a PMIE. 109 responded they had not experienced a PMIE and were screened out of further data collection as the research aims and hypotheses centred around the experience of and response to PMIEs. The order of the remaining questionnaires (TRSI, TRGI, FSCRS, and SCS-SF) was randomised and 65 participants discontinued at this stage [section 2.14 of extended thesis] meaning there were a total of 123 complete datasets. The debrief form was presented on submission of the responses. Once the target recruitment number had been reached, data collection ceased and data was extracted from QuestionPro to SPSS, assigned a unique participant ID number, and stored securely for analysis. A lay summary of the findings was sent to participants that consented to data storage for this purpose (Appendix H).

Data Analysis

All statistical analyses were performed using SPSS Version 29. Descriptive statistics of the main variables were reviewed. Assumption testing was conducted to ensure the data met the assumptions of normality, multicollinearity, independence, homoscedasticity, and linearity required for multiple regression [section 2.15 of extended thesis]. Pearson's r correlation analyses of the variables were first conducted and a

correlation matrix produced. Multiple linear regression was conducted to test the effect of a PMIE characterised as doing something or failing to do something against one's moral values (PMIEa), witnessing others do or fail to do something against one's moral values (PMIEb), and/or being directly affected by someone doing or failing to do something against one's moral values (PMIEc) on MI severity (MIOS total score) – hypothesis one. For hypothesis two, mediation analysis was conducted to test if trauma-related shame and trauma-related guilt mediated the effect of PMIE-type on MI severity. Hayes' PROCESS (Hayes, 2012) SPSS macro (model four) was used to conduct a parallel multiple mediator model. This model assumes the mediator variables (trauma-related shame as measured by the TRSI and trauma-related guilt as measured by the TRGI) do not influence one another and is distinct from a serial multiple mediator model approach whereby the mediator variables do influence each other (Bolin, 2014) [section 2.16 of extended thesis]. For hypotheses three and four, a conditional process analysis approach was followed to explore the extent to which the significant association(s) between the predictor variable(s) and the mediator variable(s) was contingent on moderator variables of self-compassion, self-criticism in the form of hated-self, and self-criticism in the form of inadequate-self. Hayes' PROCESS SPSS macro (models seven and nine; Hayes, 2018) was used. The goal of using conditional process analysis was to understand the conditional nature of the mechanism(s) by which PMIE-type transmitted an effect on other variables in the model (Hayes & Rockwood, 2020).

Both mediation and conditional process modelling were conducted using 5000 bootstrapping iterations with the same seed number (4578) for each analysis (Hesterberg, 2011) [section 2.17 of extended thesis]. This is recommended when the predictor variable is dichotomous (Hayes, 2018) – participants either had or had not experienced a PMIE-type and thus the response would be either zero (no) or one (yes). Associations between variables were considered significant if the 95% bootstrap Confidence Interval (CI) did not cross zero. If a CI crosses zero, this value cannot be ruled out as a plausible representation of the association between two variables and therefore it cannot be definitively concluded the association is different from zero (Götz et al., 2021). Unstandardised and partially standardised coefficients are reported as standardised coefficients are not meaningful when the predictor variable is dichotomous (Hayes, 2018).

Results

Descriptive Statistics

Of the 188 participants that reported experiencing a PMIE (63% of the original participant pool), 33% (n=62) indicated they had done something against their moral values (PMIEa), 34% (n=64) reported witnessing something against their moral values (PMIEb), and 54% (n=102) reported they were directly affected by someone doing something against their moral values (PMIEc). Furthermore, 1.2% (n=2) reported no symptoms of MI, 27.4% (n=44) reported subclinical symptoms of MI, 59.6% (n=96) reported mild MI, 11.8% (n=19) reported moderate MI, and no participants reported MI symptoms in the severe range, as defined by the MIOS creators (Litz et al., 2022). See Table 2 for a summary of descriptive statistics.

Table 2

Descriptive statistics showing the mean, standard deviation (SD), range, minimum, and maximum results for moral injury severity (MIOS total score), moral injury impact on functioning (MIOS functioning subscale score), trauma-related shame (TRSI total score), trauma-related guilt (TRGI total score), self-compassion (SCS-

SF total score), self-criticism in the form of hated-self (FSCRS hated-self subscale score), and self-criticism in the form of inadequate-self (FSCRS inadequate-self subscale score).

Variable	Mean (*SD*)	Range	Minimum	Maximum
Moral injury severity (n=161)	17.91(*8.68*)	42	0	42
Moral injury impact on functioning (n=157)	46.93(*24.44*)	100	0	100
Trauma-related shame (n=133)	27.68(*20.22*)	72	0	72
Trauma-related guilt (n=132)	2.17(*.71*)	3.28	.34	3.63
Self-compassion (n=135)	2.50(*.65*)	3.25	1.25	4.50
Self-criticism in the form of hated-self (n=136)	8.82(*6.22*)	20	0	20
Self-criticism in the form of inadequate-self (n=136)	22.78(*9.87*)	34	2	36

Note. n = the number of participants that completed each measure/subscale.

Correlations

Two-tailed correlations were run to first establish if variables included in the hypothesised models correlate. See table three for the correlation matrix.

Table 3

Correlation matrix for variables of having done something against one's moral code or values (PMIEa), witnessed something against one's moral code or values (PMIEb), been directly affected by someone doing something against one's moral code or values (PMIEc), MIOS total score (MIOS_T), MIOS functional impairment index score (MIOS_F), trauma-related shame (TRS), trauma-related guilt (TRG), self-compassion (SC), self-criticism in the form of inadequate-self (IS), and self-criticism in the form of hated-self (HS).

Variable	PMIEa	PMIEb	PMIEc	MIIOS_T	MIOS_F	TRS	TRG	SC	IS	HS
PMIEa	-	.05	-.27**	.19*	.06	.28**	-.32**	-.06	.12	.25**
PMIEb	.05	-	-.15	.06	-.07	.03	-.13	.05	-.14	-.09
PMIEc	-.27**	-.15	-	-.02	.09	-.04	.02	-.03	.08	.02
MIOS_T	.19*	.06	-.02	-	.42**	.75**	-.60**	-.56**	.70**	.71**
MIOS_F	.06	-.07	.09	.42**	-	.39**	-.28**	-.38**	.50**	.44**
TRS	.28**	.03	-.04	.75**	.39**	-	-.77**	-.48**	.70**	.79**
TRG	-.32**	-.13	.02	-.60**	-.28**	-.77**	-	.33**	-.50**	-.62**
SC	-.06	.05	-.03	-.56**	-.38**	-.48**	.33**	-	-.74**	-.61**
IS	.12	-.14	.08	.70**	.50**	.70**	-.50**	-.74**	-	.80**
HS	.25**	-.09	.02	.71**	.44**	.79**	-.62**	-.61**	.80**	-

Note. *p<.05, **p<.01.

The correlations matrix illustrated doing something against one's moral values (PMIEa) was significantly positively correlated with MI (r=.19, p<.05), trauma-related shame (r=.28, p<.01), and the hated-self facet of self-criticism (r=.25, p<.01), and significantly negatively correlated with being directly affected by someone doing something against one's moral values (PMIEc; r=-.27, p<.01), and trauma-related guilt (r=-.32, p<.01). Doing something against one's moral values was not significantly correlated with witnessing something against one's moral values (PMIEb), MI functional impairment, self-compassion, or the inadequate-self facet of

self-criticism. PMIEb was not significantly correlated with any of the variables included in the matrix, and PMIEc was only significantly correlated with PMIEa.

In addition, MI was significantly positively correlated with MI functional impairment (r=.42, p<.01), trauma-related shame (r=.75, p<.01), self-criticism in the form of inadequate-self (r=.70, p<.01), and self-criticism in the form of hated-self (r=.71, p<.01). MI was significantly negatively correlated with trauma-related guilt (r=-.60, p<.01), and self-compassion (r=-.56, p<.01). MI functional impairment mirrored this pattern with significant positive correlations with trauma-related shame (r=.39, p<.01), self-criticism in the form of inadequate self (r=.50, p<.01), and self-criticism in the form of hated-self (r= .44, p<.01), and significant negative correlations with trauma-related guilt (r=-.28, p<.01), and self-compassion (r=-.38, p<.01).

Trauma-related shame and trauma-related guilt demonstrated inverse correlations with each other and all variables. Trauma-related shame was significantly negatively correlated with trauma-related guilt (r=-.77, p<.01), and self-compassion (r=-.48, p<.01), whereas trauma-related guilt was positively correlated with self-compassion (r=.33, p<.01). Conversely, trauma-related shame was significantly positively correlated with the inadequate-self facet of self-criticism (r=.70, p<.01), and the hated-self facet of self-criticism (r=.79, p<.01), whereas trauma-related guilt was significantly negatively correlated with inadequate-self (r=-.50, p<.01), and hated-self (r=-.62, p<.01).

The two facets of self-criticism were significantly positively correlated with each other (r=.80, p<.01) and both were significantly negatively correlated with self-compassion: inadequate-self (r=-.74, p<.01), and hated-self (r=-.61, p<.01).

Hypothesis one: Type of PMIE will predict MI severity.

Multiple linear regression analysis indicated when considered together, PMIEa, PMIEb, and PMIEc did not significantly predict MI severity, $F(3, 157) = 2.07$, p>.05. However, whilst PMIEb and PMIEc did not significantly contribute to the model (p>.05), PMIEa did (p<.05). There are several potential explanations for this [section 3.01 of extended thesis] including Type 1 error through PMIEa being falsely identified as a significant predictor due to random chance, especially in the context of multiple testing (Osborne & Waters, 2002). However, different significance levels between predictor variables can mean some predictors are significant whilst the overall model is not (Tonidandel & LeBreton, 2011), especially if there are more weak predictors that do not meaningfully contribute to the model, than there are significant predictors (Chao et al., 2008). To investigate this further, a linear regression was conducted to test the extent to which PMIEa predicted the variance of MI severity.

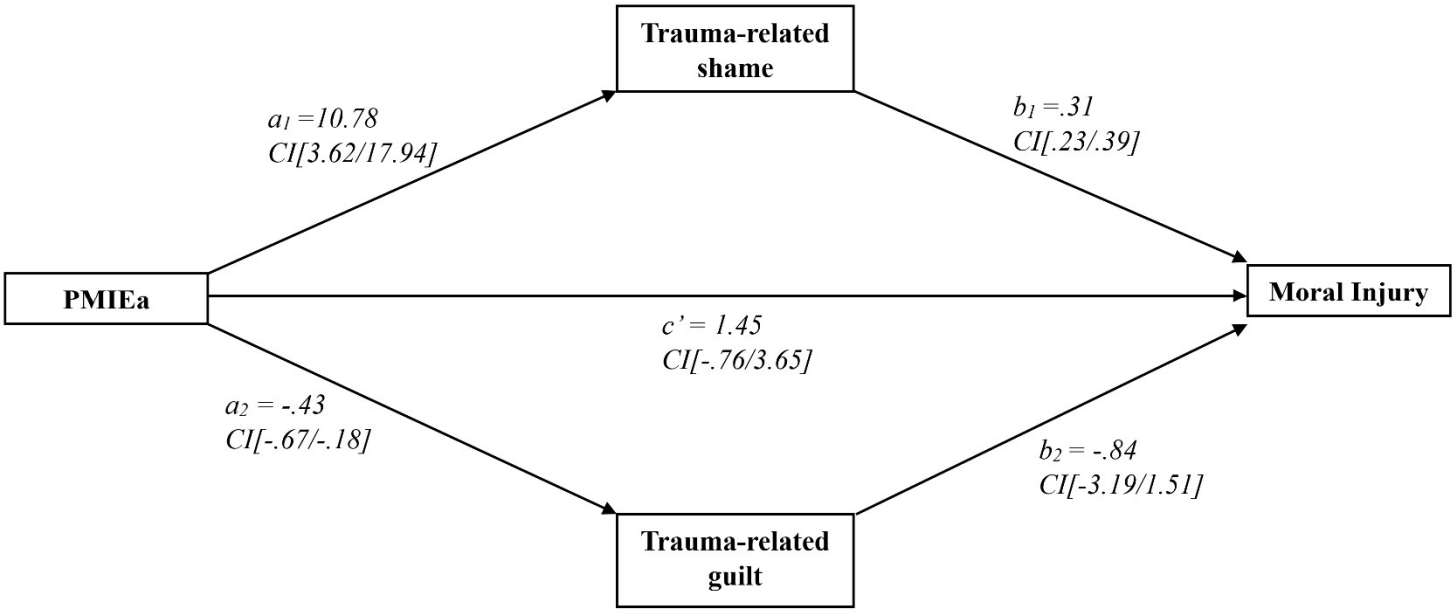
The linear regression model significantly accounted for 18.5% of the variance in MIOS total score, $F(1, 159)=5.63$, p<.05. This suggests a significant association between doing something against one's moral values and MI severity. However, in isolation this predictor variable only explained a small amount of the variance, implying other variables likely contribute to the predictive model. Mediation analysis was therefore conducted to explore the potential interactions of theoretically linked predictor and mediator variables (Litz et al., 2009).

Hypothesis two: Trauma-related shame and trauma-related guilt will mediate the relationship between PMIE type and MI severity.

From a parallel multiple mediator analysis conducted using Hayes' PROCESS model 4, directly doing something against one's moral values (PMIEa) indirectly influenced moral injury severity (MIOS total score) through trauma-related shame (TRSI total score) but not through trauma-related guilt (TRGI total score). As can be seen in Figure 1, participants reporting having done something against their moral values reported higher trauma-related shame than participants that did not report doing something against their moral values (a_1 = 10.78), and participants higher in trauma-related shame reported greater MI severity (b_1 = .31). A bootstrap CI for the indirect effect (partially standardised effect coefficient for a_1b_1 = .38) based on 5000 bootstrap samples was entirely above zero (.13 to .64). Participants reporting having done something against their moral values were lower in trauma-related guilt than participants that did not report doing something against their moral values (a_2 = -.43). There was no evidence that trauma-related guilt influenced MI severity (b_2 = -.84) as the CI crossed zero (-3.19 to 1.51). Pairwise comparison using bootstrap CIs of the indirect effect via trauma-related shame and the indirect effect via trauma-related guilt indicated these two indirect effects to be statistically different from each other (.64 to 6.07). There was no evidence doing something against one's moral values influenced MI severity independent of trauma-related shame (c' = 1.45) as the CI crossed zero (-.76 to 3.65).

Figure 1

Parallel mediation model with PMIEa as the predictor variable, trauma-related shame and trauma-related guilt as the mediator variables, and MI severity as the outcome variable



Note. a_1 denotes the association between PMIEa and trauma-related shame, b_1 denotes the association between trauma-related shame and moral injury severity, a_2 denotes the association between PMIEa and trauma-related guilt, b_2 denotes the association between trauma-related guilt and mora injury severity, and *c'* denotes the direct effect of PMIEa on moral injury. Confidence Intervals (CI) that do not cross zero indicate we can be confident the association is not zero. Unstandardised coefficients reported due to the dichotomous nature of the predictor variable.

Witnessing something against one's moral values (PMIEb) or being directly affected by someone doing something against one's moral values (PMIEc) did not directly or indirectly influence MI severity (MIOS total

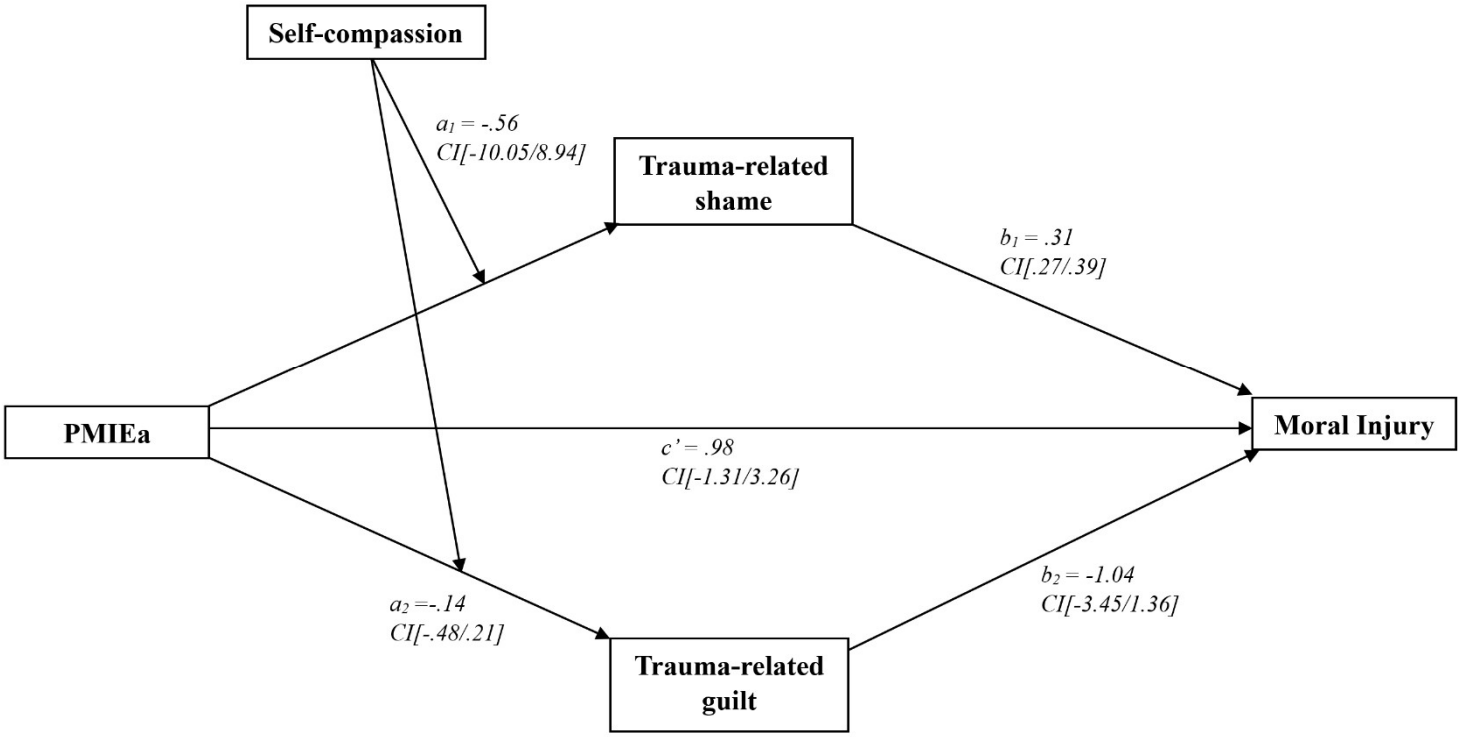
score) through trauma-related shame (TRSI total score) or trauma-related guilt (TRGI total score). A comprehensive write-up of the results pertaining to these variables is in the supplementary materials [section 3.02 of extended thesis].

Hypothesis three: The indirect effect of PMIEa on moral injury severity through trauma-related shame and trauma-related guilt is moderated (weakened) by self-compassion: a conditional process analysis

The hypothesised moderated mediation model was tested using Hayes' (2018) PROCESS model 7, which tested a model whereby self-compassion was predicted to moderate the effect of paths a_1 and a_2 (Figure 2). The moderating role of self-compassion (SCS-SF total score) was not found to be significant in the association between doing something against one's moral values (PMIEa) and trauma-related shame (TRSI total score): Unstandardised interaction coefficient = -.56, 95% CI [-10.05 to 8.94], or trauma-related guilt (TRGI total score): Unstandardised interaction coefficient = -.14, 95% CI[-.48 to .21]. As the CIs cross zero, there is not support for the hypothesised conditional indirect effects. When doing something against one's moral values (PMIEa) was controlled for, self-compassion was demonstrated to have a significant negative association with trauma-related shame (Unstandardised effect coefficient = -13.97, 95% CI[-20.37 to -7.58]) and a significant positive association with trauma-related guilt (Unstandardised effect coefficient = .39, 95% CI[.15 to .62]). The model replicated results reported for hypothesis two with trauma-related shame being positively associated with MI severity on path b_1 of Figure 2 (Unstandardised effect coefficient = .31, 95% CI[.27 to .39]) and there being no evidence trauma-related guilt influenced MI severity (Unstandardised effect coefficient = -1.04, 95% CI[-3.45 to 1.36]). Equally, there was no evidence PMIEa influenced MI severity independent of trauma-related shame (Unstandardised effect coefficient = .98, 95% CI[-1.31 to 3.26]). There was no evidence of significant conditional pathways with the predictor variables of PMIEb or PMIEc [section 3.03 of extended thesis].

Figure 2

Conditional process model with PMIEa as the predictor variable, trauma-related shame and trauma-related guilt as the mediator variables, self-compassion as the moderator variable, and MI severity as the outcome variable



Note. a_1 denotes the conditional association between PMIEa and trauma-related shame moderated by self-compassion, a_2 denotes the conditional association between PMIEa and trauma-related guilt moderated by self-compassion, b_1 denotes the association between trauma-related shame and moral injury severity, b_2 denotes the association between trauma-related guilt and moral injury severity, and *c'* denotes the direct effect of PMIEa on moral injury. Confidence Intervals (CI) that do not cross zero indicate we can be confident the association is not zero. Unstandardised coefficients reported due to the dichotomous nature of the predictor variable.

Hypothesis four: The indirect effect of PMIEa on moral injury severity through trauma-related shame and trauma-related guilt is moderated (strengthened) by self-criticism in the form of hated-self and inadequate-self: a conditional process analysis

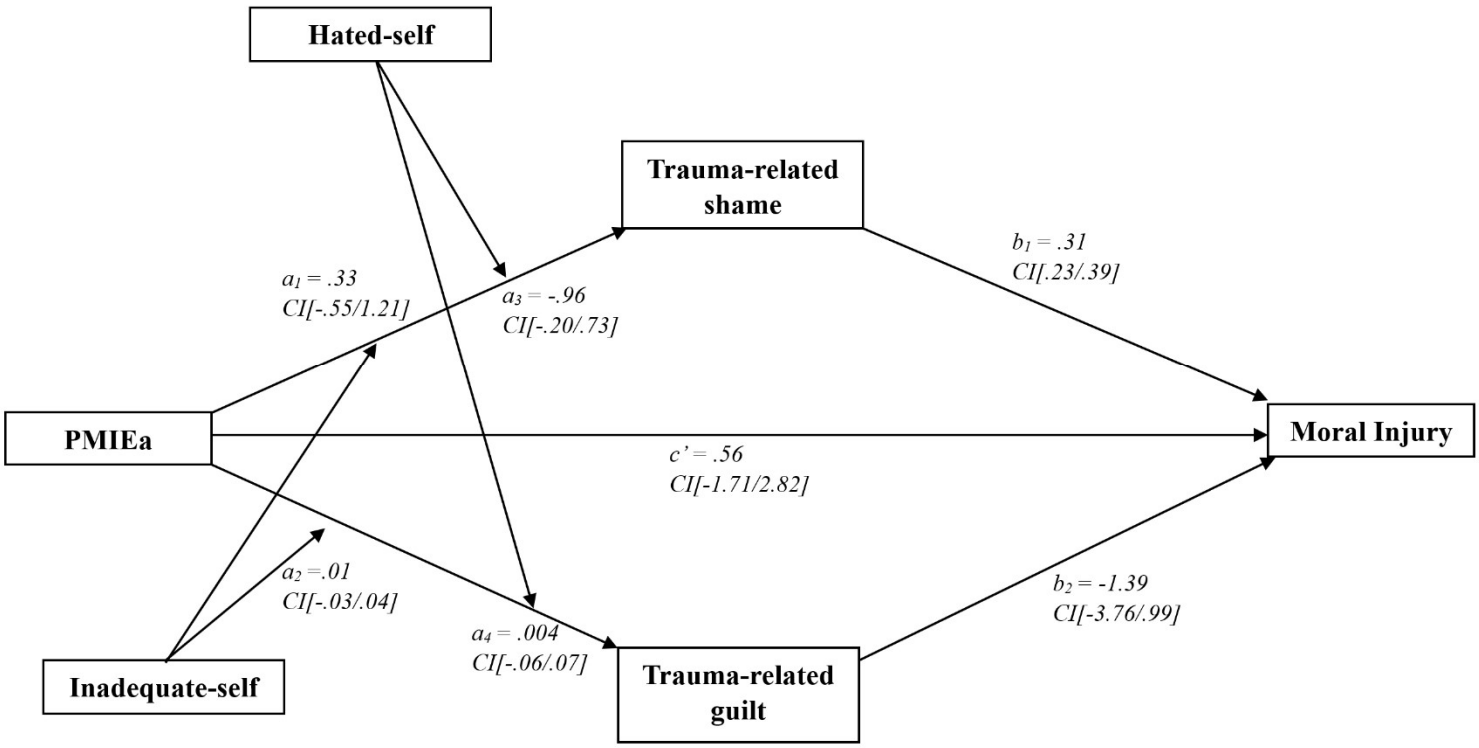
The hypothesised moderated mediation model was tested using Hayes' PROCESS model 9, which tested a model whereby hated-self and inadequate-self were predicted to moderate the effect of paths $a_1 - a_4$ (figure 3). There was no evidence of self-criticism in the form of inadequate-self (FSCRS inadequate-self subscale total) moderating the association between doing something against one's moral values and trauma-related shame (Unstandardised interaction coefficient = .33, 95% CI[-.55 to 1.21]) or trauma-related guilt (Unstandardised interaction coefficient = .01, 95% CI[-.03 to .04]). Furthermore, when PMIEa was controlled for, self-criticism in the form of inadequate-self was not significantly associated with trauma-related shame (Unstandardised effect coefficient = .27, 95% CI[-.20 to .73]) or trauma-related guilt (Unstandardised effect coefficient = -.01, 95% CI = -.03 to .01]).

There was no evidence of self-criticism in the form of hated-self (FSCRS hated-self subscale total) moderating the association between doing something against one's moral values and trauma-related shame

(Unstandardised interaction coefficient = -.96, 95% CI[-.20 to .73]) or trauma-related guilt (Unstandardised interaction coefficient = .004, 95% CI[-.06 to .07]). However, when PMIEa was controlled for, hated-self was significantly positively associated with trauma-related shame (Unstandardised effect coefficient = 2.32, 95% CI[1.54 to 3.10]) and significantly negatively associated with trauma-related guilt (Unstandardised effect coefficient = -.05, 95% CI[-.09 to -.02]). The remainder of the results for this model repeat that of previous sections with trauma-related shame being significantly associated with MI severity (Unstandardised effect coefficient = .31, 95% CI[.23 to .39]), and there being no evidence of a significant association between trauma-related guilt and MI severity (Unstandardised effect coefficient = -1.39, 95% CI[-3.76 to .99]) or a significant direct association between doing something against one's moral values and MI severity (Unstandardised effect coefficient = .56, 95% CI[-1.71 to 2.82]). Analysis pertaining to PMIEb and PMIEc are included in the supplementary materials [section 3.03 of extended thesis].

Figure 3

Conditional process model with PMIEa as the predictor variable, trauma-related shame and trauma-related guilt as the mediator variables, self-criticism in the form of hated-self and self-criticism in the form of inadequate-self as the moderator variables, and MI severity as the outcome variable



Note. a_1 denotes the association between PMIEa and trauma-related shame moderated by self-criticism in the form of inadequate-self , a_2 denotes the association between PMIEa and trauma-related guilt moderated by self-criticism in the form of inadequate-self, a_3 denotes the association between PMIEa and trauma-related shame moderated by self-criticism in the form of hated-self, a_4 denotes the association between PMIEa and trauma-related guilt moderated by self-criticism in the form of hated-self, b_1 denotes the association between trauma-related shame and moral injury severity, b_2 denotes the association between trauma-related guilt and moral injury severity, and *c'* denotes the direct effect of PMIEa on moral injury severity. Confidence Intervals (CI) that do not cross zero indicate we can be confident the association is not zero. Unstandardised coefficients reported due to the dichotomous nature of the predictor variable.

Discussion

This study sought to add to our conceptual understanding of MI and how this manifests in UK AF veterans. The goal was to inform intervention targets for future research due to the breadth of focus in literature to date (Paricos et al., 2025). The association between having had a PMIE and MI severity was found to be dependent on PMIE-type – doing something against one's moral values was significantly associated with MI severity, whereas witnessing or being directly affected by someone doing something against one's moral values was not. Furthermore, when exploring the mechanisms of the relationship between doing something against one's moral values and MI severity, trauma-related shame was indicated to mediate this relationship, however, trauma-related guilt was not, implicating the conceptual understanding of MI (Litz et al., 2009). Finally, the hypotheses regarding the moderating roles of self-compassion, self-criticism in the forms of hated-self, and inadequate-self were not supported by the results. However, independent to the moderated mediation models, self-compassion was significantly negatively associated with trauma-related shame and significantly positively associated with trauma-related guilt, and the hated-self facet of self-criticism was significantly positively associated with trauma-related shame and significantly negatively associated with trauma-related guilt. The findings have important theoretical and clinical implications for our understanding of and approach to treating MI in veterans.

PMIE-type and MI

Current prevalence estimates indicate between 36.5% (Nichter et al., 2021) and 65% (Hansen et al., 2021) of veterans have encountered PMIEs and our cross-sectional sample was within this range with 63% of respondents reporting a PMIE. However, when considering doing, witnessing, and being directly affected by someone doing something against one's moral values collectively, these experiences were not indicated to be significantly associated with MI severity. This was an unexpected finding as the conceptual model of MI considers the trigger for the presentation to be a 'transgression' via any of these experiences (Litz et al., 2009). Instead, we found doing something against one's moral values (PMIEa) to be the only PMIE-type to be significantly associated with MI severity, with those reporting this experience indicating greater MI severity. To our knowledge, this was the first study to look at the distinct associations between PMIEa, PMIEb, and PMIEc with MI severity, perhaps attributable to the recency of the availability of a robust measure of MI as an outcome (Litz et al., 2022). Furthermore, other studies have identified betrayal-based transgressions (PMIEc) to be positively associated with anger, whereas self-transgressions (PMIEa) were not (Jordan et al., 2017; Lancaster, 2018) [section 4.01 of extended thesis]. This further demonstrates the mechanisms of MI may differ depending on the type of PMIE encountered and supports the assertion that MI cannot be assumed exclusively based on exposure to PMIEs (Griffin et al., 2019). With PMIEc being the mostly commonly reported PMIE-type by participants of this study, it may have been interesting to include anger as a variable in the hypothesised models and we recommend further exploration of the mechanisms of MI triggered by different PMIE-type.

Trauma-related shame, trauma-related guilt, and MI

The results demonstrated the association between doing something against one's moral values and MI severity was significantly mediated by trauma-related shame but not trauma-related guilt. The differences in the behavioural responses associated with shame and guilt may provide some explanation as to why shame has been found to be significant in the development of MI and guilt was not. For example, shame has been associated

with withdrawal, whereas guilt has been associated with restorative action (Pivetti et al., 2016; Shen, 2018). It may be that if the emotional response to a PMIE is that of shame, one may withdraw and become isolated, exacerbating distress, whereas, if the emotional response is that of guilt, one may seek out opportunities to repair and restore dissonance experienced between actions and moral values. Furthermore, guilt has been associated with improved self-esteem, empathy, and perspective-taking, however, the authors did not find this to be replicated for shame (Leith & Baumeister, 1998). Shame has been negatively associated with self-esteem (Budiarto & Helmi, 2021) and furthers the argument that greater distress will likely result following a shame response to a PMIE. The contrast in the findings between shame and guilt has theoretical implications for our understanding of the mechanisms of MI as it highlights shame and guilt represent different emotional responses with different outcomes, and therefore should not be grouped together as they have been in the MI conceptual model (Litz et al., 2009). Whilst it is theoretically asserted shame will likely lead to greater psychological distress than guilt in the context of MI (Litz & Kerig, 2019), the findings of this study suggest trauma-related guilt to perhaps be less mechanistically relevant than previously thought [section 4.02 of extended thesis].

A significant negative association between doing something against one's moral values and trauma-related guilt was observed. This implies following doing something against one's moral values, one is less likely to appraise this PMIE in a way that is specific, external, and transient (Tracy & Robins, 2004). The inverse was observed regarding the association between doing something against one's moral values and trauma-related shame – suggesting a greater likelihood of appraising this PMIE in a way that is global, internal, and stable (Tracy & Robins, 2004). It may be that PMIEs are more likely to lead to experiences of shame than guilt. However, it is also important to consider the potential impact of language and definitions. Through asking participants to identify experiences that are potentially morally injurious – i.e. experiences that transgress their moral beliefs – it may be that memories of experiences associated with shame are elicited when recalling an experience that undermines one's ideals or values. This is in line with self-discrepancy theory (Higgins, 1987) which asserts discrepancy between the reality of the self and who one *ought* to be can lead to experiences of guilt, and discrepancy between the reality of the self and the *ideal* self can lead to experiences of shame [section 1.10 of extended thesis]. If someone has self-defined their actions as not aligning with their moral values or ideals, this in itself could be a manifestation of shame. Further research regarding what constitutes a PMIE and how veterans define these may aid a better understanding of the differential relationships observed between doing something against one's moral values and trauma-related shame and trauma-related guilt.

The mediating role of trauma-related shame suggests a global negative appraisal of the self following doing something against one's moral values which in turn exacerbates symptoms of MI (Litz et al., 2022; Tracy & Robins, 2004). This has important clinical implications through pointing to shame as a potentially critical intervention target for veterans experiencing MI – especially with the results of this study highlighting the direct association between doing something against one's moral values and MI severity to be no longer significant when trauma-related shame was controlled for [section 4.03 of extended thesis]. Trauma-related shame is also important for consideration of barriers to accessing interventions and mental health support for this group. Shame is considered an externally oriented emotion associated with a fear of exposing negative attributes to others (Wallbott & Scherer, 1995) and is behaviourally associated with withdrawal (Shen, 2018). Intervention

design should therefore consider how to minimise barriers to access, which may be aggravated by shame, as well as targeting shame through the intervention process itself [section 4.04 of extended thesis].

The role of self-compassion

The hypothesis that self-compassion would moderate the association between doing something against one's moral values and trauma-related shame or trauma-related guilt in the mediation model with MI severity as the outcome was not supported by the results. This suggests self-compassion may not be a protective factor with regards to the experience of trauma-related shame and subsequent MI following doing something against one's moral values [section 4.05 of extended thesis]. However, there was a significant negative association between self-compassion and trauma-related shame and a significant positive association between self-compassion and trauma-related guilt when other variables in the model were controlled for. This suggests those higher in self-compassion reported lower trauma-related shame (and higher trauma-related guilt) than those lower in self-compassion, irrespective of whether participants had done something against their moral values or not. Therefore, our results signify self-compassion to have a role with regards to the severity of trauma-related shame in a veteran population with PMIEs, albeit perhaps not the moderating role originally hypothesized. This echoes the findings of Morgan et al. (2024) who found self-compassion to be strongly associated with shame and MI in a sample of AF veterans [section 4.06 of extended thesis]. The directionality of our findings also mirrors the theoretical assertions underpinning CFT in that developing self-compassion is considered beneficial in combatting shame and self-criticism (Gilbert et al., 2004). CFT may therefore be a beneficial approach in supporting veterans experiencing MI, however, further development of our understanding of the mechanistic role of self-compassion in MI is first required.

The role of self-criticism

Neither facet of self-criticism (hated-self or inadequate-self) were found to significantly moderate the association between doing something against one's moral values and trauma-related shame or trauma-related guilt in the hypothesised moderated mediation model with the outcome of MI severity. However, whilst inadequate-self did not demonstrate significant associations with any of the variables included in the analysis, hated-self was significantly positively associated with trauma-related shame and significantly negatively associated with trauma-related guilt when other variables were controlled for. This suggests the inverse of the results discussed for self-compassion – those higher in the hated-self facet of self-criticism reported higher trauma-related shame (and lower trauma-related guilt) than those lower in hated-self, irrespective of whether participants had done something against their moral values or not. This supports previous reports of an exacerbating interaction between shame and the hated-self facet of self-criticism with regards to the severity of mental health difficulties (Castilho et al., 2017) [section 4.07 of extended thesis]. A systematic literature review signalled compassion-based interventions to be efficacious in reducing the hated-self facet of self-criticism with effects moderated by intervention length (Wakelin et al., 2022), despite hated-self being associated with resistance to change (Werner et al., 2019). Our findings support this recommendation for the presentation of MI through demonstrating hated-self self-criticism to be associated with trauma-related shame in a sample of veterans with PMIEs. However, as stated previously, further understanding of the mechanistic role of the hated-self facet of self-criticism in the presentation of MI is recommended in the first instance.

MI, PTSD, and CPTSD

This study explored MI in isolation to aid conceptual understanding. However, the findings illustrating shame to significantly mediate the relationship between PMIE and MI as an outcome furthers the argument of MI being distinct from PTSD through that of differential mechanisms (Griffin et al., 2019). This may also provide some way of an explanation as to why veterans demonstrate poorer outcomes following engagement in PTSD-focused interventions comparative to the general population as these typically do not explicitly target shame (Haagen et al., 2015). The findings support the notion that MI-specific interventions may improve outcomes for UK AF veterans, however, as discussed in this paper and others, further operationalisation of MI is first required (Griffin et al., 2019; Litz, 2025).

Although exploring CPTSD as a variable was out of the scope of this particular study, there does appear to be conceptual overlap between CPTSD and MI (Currier et al., 2021). The findings of Turgoose and Murphy (2024) showed higher reports of ACEs for UK AF veterans than the general population, and that greater ACEs in a sample of UK AF veterans was associated with higher self-reported MI and CPTSD. It may be that ACEs are a risk factor for later MI through shaping one's moral values, beliefs, and expectations of others, however, Turgoose and Murphy (2024) to date has been the only paper exploring these concepts together and thus further investigations are required before strong conclusions can be drawn. A strength of this paper is that the selected measures specifically requested responses with regards to PMIEs encountered during active duty. As such, there can be reasonable confidence that the findings represent that of combat-related MI, as opposed to being confounded by ACEs. Future research exploring and comparing the presentations of MI and CPTSD in veteran samples would further our understanding of trauma manifestations and how to best support this population.

Limitations and future directions

Due to the single time point of data collection in this cross-sectional study, whilst associations between variables can be identified, causation cannot be inferred from the results (Fabricant, 2024). However, the results can be used as an evidence-base for future cohort studies or Randomised Controlled Trials (RCTs; Turner, 2020). There has been limited cross-sectional research exploring the mechanisms of MI to enable the identification of appropriate variables and intervention targets for cohort and RCT research (Griffin et al., 2019). As such, we recommend further empirical investigation into the roles of self-compassion and self-criticism in the presentation of MI to inform evidence-based intervention targets [section 4.08 of extended thesis].

Equally, as with any cross-sectional research design, there is a risk of sample bias through a non-response bias whereby the characteristics between participants that responded and those that did not may differ and thus the sample may not be representative of the UK AF veteran population (Wang & Cheng, 2020). For example, no participants reported MI in the severe range (as defined by the MIOS creators; Litz et al., 2022). It may be that those with the most severe MI presentations are therefore not represented in this study and as such may limit the generalisability of the findings (Rudolph et al., 2023). However, categorical cut-offs of 'mild', 'moderate', and 'severe' in measures are arguably arbitrary and normal distribution of the data (as was demonstrated in this study) is generally a more reliable indicator of data quality and representativeness (Blanton & Jaccard, 2006). When comparing the participant characteristics of this sample with that of the UK AF veteran population, it appears that the sample is reasonably representative. 83.1% of the sample were male, comparative

to 86.4% of the UK AF veteran population (Office for National Statistics (ONS), 2023) and 93.2% of participants reported their ethnicity as 'white', compared with 96.4% of the UK AF veteran population (ONS, 2023). Whilst our sample is relatively representative of the veteran population in the UK, it may be of interest for future research to focus on the experiences of female veterans and veterans of ethnic minority backgrounds with regards to MI. Furthermore, reports indicate 53% of UK AF veterans are ≥65 years of age (ONS, 2023), however, in our sample 21.9% of the sample were ≥65 years of age. Further investigation with older adult UK AF veterans is therefore also recommended [section 4.09 of extended thesis].

This study has demonstrated with a sample of UK AF veterans that the mechanisms of MI may differ depending on PMIE-type and the potential mechanistic roles of trauma-related shame, self-compassion, and the hated-self facet of self-criticism in this presentation following doing something against one's moral values. We recommend further investigation into the mechanistic roles of these variables in the development and sustainment of MI to aid the provision of an empirical basis for intervention target selection. In this paper, we have presented an argument for CFT (Gilbert et al., 2004) as a potentially useful intervention for UK AF veterans experiencing MI. Once the roles of self-compassion and self-criticism in MI are better understood, we recommend CFT is trialled with morally injured veterans to assess the utility of this intervention for this group and presentation.

Word Count: 9,532

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Extended Thesis

Section 1 – Extended Background

Section 1.01 – mental health of UK AF veterans

The latest phase (phase four) of the Health and Wellbeing Study of Serving and Ex-Serving UK Armed Forces Personnel has recently been published (Sharp et al., 2024). This has followed over 7000 UK Armed Forces personnel and ex-service members from 2004-2006 (phase one), 2007-2009 (phase two), 2014-2016 (phase three), and 2022-2023 (phase four) and is co-run by the Office for Veterans' Affairs and King's College London. The primary outcome variables were common mental health difficulties, PTSD, and alcohol misuse, however, the phase four data collection also included measures of Complex PTSD (CPTSD), illicit drug use, gambling, and loneliness.

Phase four had over 4000 respondents and indicated 27.8% were experiencing common mental health difficulties, comparative to 16-17% (1 in 6) of the general population (Bebbington & McManus, 2019). Sharp et al. (2024) found that 9.4% of participants reported probable PTSD, compared to a reported prevalence of 4% in the general population (McManus et al., 2016) – this figure was due to be updated in the second phase of the Adult Psychiatry Morbidity Survey in 2024, however, no data or reports have yet been published. Furthermore, Sharp et al. (2024) identified 8.4% of participating UK AF serving and ex-serving personnel reported alcohol misuse. When comparing this to data available regarding the general population, in England, there is reportedly 602,391 of individuals classified as 'dependent drinkers' (roughly .01% of the adult population of England) and it has been highlighted that 82% of those experiencing difficulty with alcohol misuse in England are not accessing support or treatment (Office for Health Improvement & Disparity, 2024; ONS, 2019). These figures highlight higher prevalence rates of common mental health difficulties, PTSD, and alcohol misuse in UK AF personnel and veterans comparative to the general population. Moreover, Sharp et al. (2024) compared prevalence of common mental health difficulties, PTSD, and alcohol misuse in the veteran sample between the different phases and found a significant rise in common mental health difficulties and PTSD in this cohort from phase one to phase four, suggesting deteriorating mental health for this population. Alcohol misuse was reported to remain high but relatively stable across the study phases (Sharp et al., 2024).

The newly included measure of CPTSD indicated that 72% of those reporting probable PTSD met the threshold for CPTSD (Sharp et al., 2024), indicating a cohort with multiple traumatic experiences and enduring symptoms (Murphy et al., 2021). To date, there have been no reported prevalence estimates for CPTSD in the UK general population. The prevalence estimate for PTSD in UK male prisoners is 7.7% whereas for CPTSD it is 16.7% (Facer-Irwin et al., 2022) and for UK police officers the PTSD prevalence estimate is 3% whereas the CPTSD prevalence estimate is 2% (Steel et al., 2021). This suggests that comparative to other populations with heightened risk of exposure to potentially traumatic events, UK AF personnel and veterans are more likely to demonstrate symptoms of CPTSD. There have been some general population prevalence estimates for CPTSD in other countries ranging from 2.6%-7.7% (Ben-Ezra et al., 2020; Cloitre et al., 2019; Hyland et al., 2020), further suggesting higher rates of CPTSD in UK AF personnel and veterans comparative to the general population. Sharp et al. (2024) also identified that ex-service members deployed to Iraq or Afghanistan were more likely to report probable PTSD or CPTSD, with the highest likelihood being those that served in a combat role in Operation Telic (Iraq) and/or Operation Herrick (Afghanistan). Other factors that were associated with higher likelihood of reporting common mental health difficulties, PTSD, or CPTSD were medical discharge as opposed to planned leave of service, unpaid caring responsibilities, low social support, loneliness, and being retired or economically inactive (Sharp et al., 2024).

With regards to suicidality, a recent report by the Office of National Statistics (ONS) indicated there were no significant differences regarding the suicide rates between male UK Armed Forces veterans and the male general population when accounting for age, however, there was a significantly higher rate of death by suicide for female UK Armed Forces veterans compared to the female general population (ONS, 2024). Comparable suicide rates to the general population were also reported in a recent systematic literature review (Randles et al., 2023). This review also highlighted reports of demographic risk factors of death by suicide for UK Armed Forces veterans have not been consistent across studies, with some reporting younger veterans to be at greater risk and others reporting older veterans to be at greater risk (Randles et al., 2023). Additionally, this review reported service history, transition out of the military, and mental health as risk factors for suicidal ideation and death by suicide in UK Armed Forces veterans (Randles et al., 2023). However, a systematic review of suicide rates of UK Armed Forces veterans across several decades indicated there has been significant reductions in the suicide rates of UK Armed Forces veterans since the

1990s and concluded preventative measures of reducing access to methods of suicide and increasing access to wellbeing initiatives had significantly contributed to this (Roberts et al., 2023).

Section 1.02 – UK AF personnel and veteran barriers to accessing mental health support

A structured interview study of 1432 UK Armed Forces serving and ex-serving personnel identified three key themes regarding stigma and barriers to mental healthcare between participants meeting criteria for common mental health difficulties, probable PTSD, and alcohol misuse and those that did not meet these criteria (Williamson, Greenberg, & Stevelink, 2019). Those meeting criteria of common mental health difficulties and probable PTSD were indicated to more likely identify barriers relating to accessing mental health services such as difficulties with scheduling appointments and getting time off work comparative to those without common mental health difficulties or probable PTSD. Additionally, those with common mental health difficulties, probable PTSD, and alcohol misuse were more likely to report internalised stigma of mental health difficulties, with common concerns regarding being perceived as weak, others losing confidence in them, and others blaming them. Moreover, those with common mental health difficulties, PTSD, and alcohol misuse were also more likely to report perceived stigma of mental health services and a strong sense of self-reliance as opposed to accessing professional support. Common concerns were reported as doubts regarding how helpful mental health services would be, not wanting to have a diagnosed mental health problem on their medical record, and confidentiality (Williamson, Greenberg, & Stevelink, 2019).

Section 1.03 – UK government support for veterans

The UK government published the ‘Strategy for our Veterans’ in 2018 and outlined an action plan for 2022-2024 to aid achievement of the goal: becoming the ‘best place in the world to be a veteran by 2028’ (Armed Forces Covenant, 2018). This strategy outlined five specific goals:

1. Delivering a step-change in support for veterans and their families.

This involved launching Op Courage – an NHS mental health service specifically for veterans, serving personnel, reservists, and family members (Office for Veterans’ Affairs, 2022). Op Courage is designed to support with transitioning out of the military, recognising early signs of mental health difficulties, supporting with substance misuse and addictions, signposting to longer-term talking therapy support, and liaising with relevant charities

(Finnegan et al., 2023). In 2023, it was reported that over 30,000 individuals had been referred to Op Courage since its set-up in 2017 (Office for Veterans' Affairs, 2023). The Veteran Trauma Network (now known as Op Restore) has been set-up to aid easier access to physical healthcare for veterans (NHS, 2024). There have also been efforts to digitalise and simplify how veterans access pension and compensation services and law changes to improve access to social housing (Office for Veterans' Affairs, 2022).

2. Maximising veteran employability.

Initiatives to encourage businesses to employ veterans have been piloted such as the national insurance contribution holiday and the 'Great Place to Work for Veterans' scheme – a civil service progression scheme which was planned to be expanded into teaching, prison services, and emergency services (Office for Veterans' Affairs, 2022). There were also Armed Forces Champions roles introduced across the Jobcentre Plus network and the development of a Career Transition Partnership which involves improving the 'Enhanced Learning Credit Scheme' to ensure veterans had access to training opportunities that would enhance their career opportunities post-active service.

3. Addressing historic hurt or disadvantage experienced by sections of the veteran community.

In 2022 the government commissioned an independent review of the impact of pre-2000 practices on LGBT veterans (Etherton, 2023). This review led to 49 recommendations to be completed across 2023, 2024, and 2025. These recommendations appear to be being followed, with 16 recommendations completed by the point of publication of the most recent report. This included individual letters of apology sent by the relevant service chief, the returning of berets, and a written apology from the Prime Minister (Ministry of Defence, 2023). This action point also included plans to commission research focusing on the lived experience of ethnic minority, female, and non-UK veterans. There were also reports of plans to update how veteran death by suicide is reported going forward, and a retrospective account over the past 10-years of veteran deaths by suicide, alcohol and substance misuse (Office for Veterans' Affairs, 2022).

4. Dealing with historic operations.

The Overseas Operations (Serving Personnel and Veterans) Act has been passed which provides legal protection for veterans facing legal proceedings for events of historic overseas

operations (Office for Veterans' Affairs, 2022). There was also an Independent Commission for Reconciliation and Information Recovery designed to allow the sharing of information regarding deaths and serious injuries during the Troubles in Northern Ireland (ICRIR, 2024).

5. Making sure veterans receive the same high standard of support across the UK.

Veteran Commissioners were appointed in England, Scotland, Wales, and Northern Ireland to ensure every area of UK had representation (Office for Veterans' Affairs, 2022). There has been sharing of information regarding service leavers between England and Scotland to aid veteran support in Scotland and plans to include a standardised veteran questionnaire in the Census in England, Wales, and Scotland in the future to allow greater insight into the locality and occupations of UK veterans to inform future support decisions (Office for Veterans' Affairs, 2022).

The above 'Strategy for our Veterans' and 2022-2024 Action Plan were set out by the previous Conservative Party government (Armed Forces Covenant, 2018). The current Labour Party government manifesto included pledges to put the Armed Forces Covenant into law and to establish an independent armed forces commissioner. The manifesto also pledged a commitment to improve access to mental health support, employment, and housing support for veterans (Tobin, 2024)**.** To date, there have been no published action plans detailing how these commitments will be met, and it is not yet clear if the ten-year strategy set out by the Conservative Party government in 2018 will continue to be followed.

Section 1.04 – NHS support for veterans

Within the Healthcare for Armed Forces report (NHS, 2022), there was specific focus on mental health support and the recognition of the potential complex and multi-layered needs of veterans. Three tiers of support available via Op Courage were outlined: (i) Veterans' Mental Health Transition, Intervention, and Liaison Service (TILS), (ii) Veterans' Mental Health Complex Treatment Service (CTS), and (iii) Veteran's Mental Health High Intensity Service (HIS). These specialist pathways were designed to be joined-up to ensure veterans received appropriate and effective mental healthcare. A common assessment framework (National Armed Forces Community Digital Connected Care Record programme) is currently being developed to allow for a single point of access for veterans and improve information sharing between the NHS and charities (NHS, 2022).

Section 1.05 – effectiveness of PTSD interventions for veterans

In a meta-analysis exploring the efficacy of treatments for PTSD, non-veterans with PTSD were indicated to demonstrate more positive outcomes after engaging in psychotherapy for PTSD than veterans with PTSD (Watts et al., 2013). When comparing effect sizes, this meta-analysis found studies with veteran participants reported lower effect sizes (*d*=.68-.81) compared to those without veteran participants (*d*=1.04-1.83).

The systematic literature review and meta-analysis conducted by Haagen et al. (2015) explored the outcome predictors of PTSD interventions trialled with veterans. Their results indicated either individual or a combination of group and individual sessions predicted better treatment effectiveness, with group-only interventions demonstrating significantly worse outcomes. This contradicts much of what is considered 'best practice' for veteran treatment, with group therapy often being recommended and utilised in clinical practice (Ragsdale et al., 2020). Total number of sessions were not a predictor of treatment outcome; however, the number of trauma-focused sessions was a predictor of outcome (Haagen et al., 2015). This suggests focusing on trauma content to be important for intervention effectiveness in treating PTSD in veterans (Watkins et al., 2018). When comparing intervention modalities, Prolonged Exposure therapy (PE) and Cognitive Processing Therapy (CPT) were indicated to be the most effective in the treatment of PTSD for this population (Haagen et al., 2015). Interestingly, mixed results were found for the comparison of effectiveness between Eye Movement Desensitisation and Reprocessing (EMDR) and PE and CPT. There is a growing evidence base for EMDR as an effective therapeutic intervention targeting trauma-related memories and it is therefore unclear as to why there were mixed results comparative to that of PE and CPT (Wright et al., 2024).

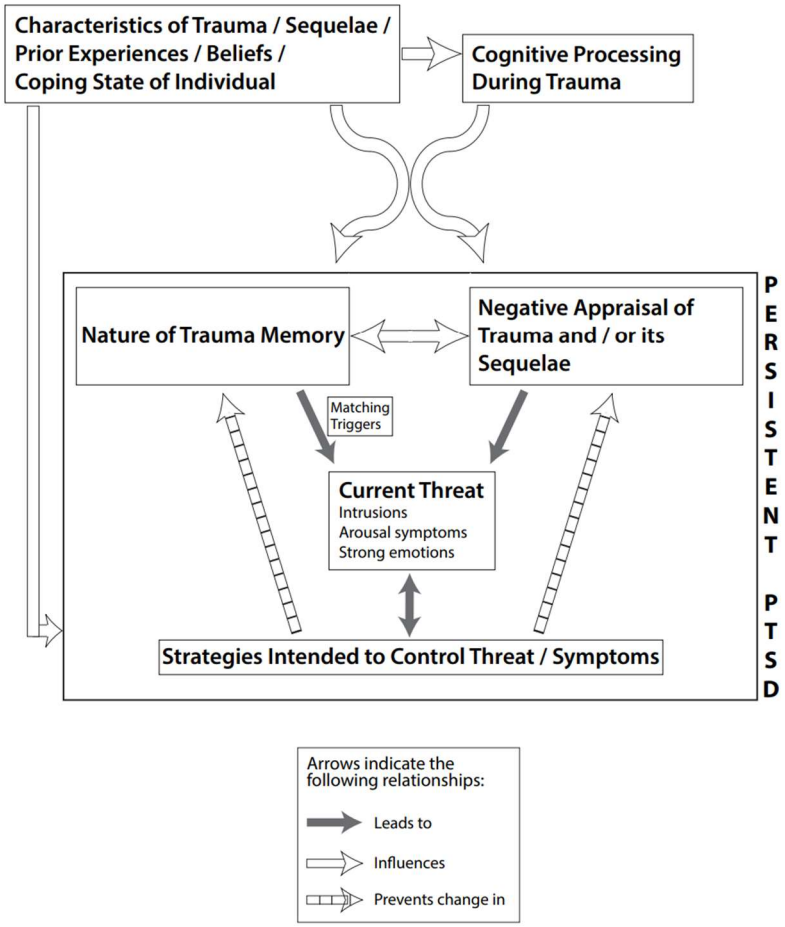
Section 1.06 – cognitive model of PTSD

The cognitive model of PTSD (see figure 4) asserts individuals with PTSD develop negative appraisals about external threats leading to views of the world as a dangerous place and views of themselves as weak (Ehlers & Clark, 2000). Situations encountered after a traumatic event can then be misinterpreted, with the traumatic memory generating a sense of present threat in conjunction with negative appraisals of what occurred. These appraisals can lead to biased recall and Ehlers and Clark (2000) argued that PTSD treatment needs to address this recall bias in order to be effective. It was also stated that individuals with PTSD may experience strong associations between specific stimuli and responses, however, may not be aware of these associations. The CBT approach for the treatment of PTSD developed from

this theoretical model focuses on identifying these trigger stimuli and planning and executing experiments to overcome the associated fear (Kar, 2011). An intervention study exploring the efficacy of the theoretical predictors of Ehlers and Clark's (2000) cognitive model of PTSD identified cognitive variables explained 52% of the variance in PTSD symptom severity and effects of trauma type and gender were fully mediated by cognitive factors, providing support for the theoretical model and the suggested treatment targets it promotes (Beierl et al., 2020).

Figure 4

Cognitive model of PTSD (Ehlers & Clark, 2000)



Section 1.07 – moral injury defined

Jonathan Shay worked as the sole psychiatrist in a US Department of Veterans Affairs Outpatient Clinic, primarily supporting veterans of the Vietnam war when he coined the term 'Moral Injury' (Shay, 1994). A later textbook chapter described the presentation in more detail, stating that MI was underpinned by a combination of three factors: (i) there being a betrayal of what the individual considered to be 'right', (ii) by someone in a position of authority (i.e. a military leader), and (iii) in a situation considered to be of a high stakes

nature (Shay & Munroe, 1999). He asserted that MI could be defined through *'failures in leadership lead to catastrophic, long-lasting outcomes in which trust in others is destroyed and encoded in the body'* (Shay, 2014, p.9). The outcomes described were that of heightened hopelessness, suicidality, and interpersonal hostility. Shay (1994, 2014) postulated that when trust in others has diminished, the expectation of others is that of harm, abuse, and degradation. As such, there are limited options as to how an individual with MI could safely respond to others. They could be the first to attack to avoid being attacked, they could socially isolate themselves to avoid the risks associated with interpersonal interactions, or they could create falsehoods with regards to their identity to interrupt the goal of their expectations. Over time, there is continued shrinkage of values, aspirations, and attachment which exacerbate the outcomes described above (Shay, 2014).

Shay also discussed how the PTSD diagnostic label/category did not fully capture the distress experienced by morally injured veterans as the trauma is one of trust-violation as opposed to a fear-based or life-threatening traumatic experience (Shay & Munroe, 1999). He commented on the lack of inclusion of related concepts such as CPTSD, Enduring Personality Change After Catastrophic Experience (EPCACE), or Post-Traumatic Embitterment Disorder (PTED) in the DSM updates, arguing there is a rigidity in the support from professional bodies of the notion that traumatic experiences in childhood impact character development, however, later traumatic experiences in adulthood do not, and that the growing evidence-base of adulthood trauma impacting character is largely being ignored (Shay, 2014). The ICD-11 has included a diagnostic category for CPTSD (World Health Organisation, 2024) and the earlier ICD-10 had a category for EPCACE (Tanaka et al., 2018), which suggests potential differential directions between professional bodies around the world regarding the theoretical and aetiological understanding of trauma.

Section 1.08 – theoretical underpinnings of the conceptualisation of MI

Litz and colleagues (2009) reported the conceptualisation of MI was underpinned by a number of theoretical models of PTSD that each partially provided some explanation for the presentation. These theories are described below (other than the cognitive model of PTSD which has been described in section 1.06) and table four details the applications of each theory to MI and the limitations of these applications.

Social-cognitive theory of PTSD

The social-cognitive theory of PTSD understands the presentation through the lens of socially learned schemas about the self, others, and the world. If these established schemas are contradicted by traumatic events and experiences, distress is said to arise (Benight &

Bandura, 2004). A foundation of the theory is that of self-efficacy (one's belief in one's capabilities to execute specific duties or tasks or accomplish the result desired; Bandura, 2010) as a key mechanism of agency over one's life (Benight & Bandura, 2004). The beliefs one has regarding their self-efficacy is reported to impact functioning through: cognitive processes that may be either self-enhancing or self-debilitating in nature; motivational processes through the extent to which one can motivate oneself and sustain effort in challenging circumstances; affective processes through one's vulnerabilities to stress and depression; and the impact of this on quality of life and decisional processes through the choices made at critical cross roads. If one is able to demonstrate self-efficacy in stressful circumstances, one may gain a sense of control and build resilience, conversely, with low self-efficacy, one may experience a sense of powerlessness and hopelessness (Benight & Bandura, 2004).

Benight and Bandura (2004) specifically commented on military trauma and asserted traumatic military experiences can thwart an individual's perceived self-efficacy to cope with combat events which gives rise to distressing intrusions and disrupts the ability to adapt to civilian life following exiting military service. A longitudinal study with Israeli soldiers who demonstrated significant deteriorations in their mental health whilst serving supported this assertion through demonstrating trauma severity as a predictor of self-efficacy, however, the strength of this association deteriorated over time, with later key predictors being identified as premilitary coping strategies and adaptability to stressors (Solomon et al., 1991). Furthermore, a systematic review of research into social cognition and PTSD identified a consistent and large deficit in social cognition in PTSD, comparative to trauma-exposed and healthy controls (Stevens & Jovanovic, 2019), providing further support for the role of social-cognitive processes in PTSD development and sustainment.

Two-factor theory of PTSD

The two-factor theory of psychopathology, which was first published in the 1940s, delineated that psychopathology is underpinned by (i) classical conditioning leading to a learned fear response and (ii) avoidance of the conditions which evoke anxiety (Mowrer, 1947, 1960). The two-factor theory of PTSD is the application of this behavioural learning theory to the trauma presentations of US veterans of the Vietnam war (Keane et al., 1985). It describes the association of sensory, environmental, and relational stimuli with traumatic events and the subsequent triggering of a fear response. Over time, higher order conditioning and stimulus generalisation are said to exacerbate PTSD symptoms through the fear response

being triggered by a wider and wider range of stimuli, thus limiting the ability to avoid anxiety-provoking triggers. Equally, this theory describes internal avoidance of traumatic memories and the potential utility of psychotherapy to facilitate habituation in the interest of reducing distress re-experiencing when recalling memories of traumatic events (Keane et al., 1985).

Emotional Processing Theory (EPT)

EPT is a theoretical model based on the concept of a fear structure (Foa et al., 1989). A fear structure is described as a mental framework for responding to danger including knowledge about a stimulus associated with threat (e.g. a gun), about behavioural and physiological reactions to said stimulus (such as a faster pulse, or perspiration), and the meaning associated with these two elements (such as the gun will be used to shoot me and I am therefore fearful of it). Whilst fear structures are most commonly used to identify genuine dangers and threats, EPT supposes that PTSD arises when there are distorted fear structures (Foa et al., 1989). It describes memories themselves as well as memory-triggers being the stimuli that evokes a fear response. This is explained through a lack of initial reflection on the traumatic event preventing an individual from experiencing and coping with the emotions this may have evoked. In turn, seemingly harmless stimuli that trigger trauma-memories are experienced as a threat and activate strong physiological responses. This is said to explain behavioural responses of avoidance of situations and memories and withdrawal (both physically and emotionally). The theory supposes that exposure to the trauma memory in a safe environment will aid a reduction in the fear response and allow the fear structure to adapt to this new information and promotes the use of Prolonged Exposure (PE) for the treatment of PTSD (Foa & Meadows, 1997).

Adversity stress models

A number of adversity stress models have been proposed that indicate individual vulnerabilities may explain why some develop PTSD symptoms following traumatic events and why others do not (Boone, 2011). For example, Elwood et al. (2009) proposed cognitive vulnerabilities of a negative attributional style, rumination, anxiety sensitivity, and looming maladaptive style explain how trauma responses are sustained and generalised, leading to a PTSD presentation. These vulnerabilities give rise to preoccupation of negative experiences and emotions alongside biased interpretations of threat and predictions of future threat, as such reinforcing maladaptive beliefs and contributing to behavioural responses such as withdrawal (Elwood et al., 2009). Social bonds have also been proposed as a vulnerability for

PTSD (Charuvastra & Cloitre, 2008). Social support has been demonstrated as a strong predictor of chronic PTSD (Laffaye et al., 2008; Robinaugh et al., 2011; Southwick et al., 2016), and Charuvastra and Cloitre (2008) argued that interpersonal trauma may lead to a more chronic presentation as alongside the fear response to the danger of the traumatic experience, there is an undermining of the expectations of others and social norms leading to generalisations of human beings being a threat.

Table 4

Existing theories of PTSD, how they may be applied to MI, and the limitations of these applications

Theory	Applications to MI	Limitations of the application to MI
Cognitive model of PTSD	The emphasis on negative appraisals and attributions may provide explanation for the long-term experiences of shame and self-condemnation following a PMIE.	This model focuses on traumatic experiences of external threat whereby presentations of MI may stem from experiences whereby the individual views themselves as the threat.
Social-cognitive theory of PTSD	The dissonance experienced following a PMIE that contradicts existing social schemas may lead to distress. Litz et al. (2009) argued that MI arises when there is a lack of integration of existing self and relational schemas with the PMIE, perpetuating feelings of shame, guilt and anxiety.	The focus of the social-cognitive theory has predominantly been regarding threat-based traumatic experiences. Litz et al. (2009) suggest MI may lead to more global negative beliefs about the world and self.
Two-factor theory of PTSD	The avoidance associated with MI may be explained via this theory, without experiences which test the global applications of the beliefs held, one cannot habituate to trauma-associated stimuli, and there is no opportunity for extinction – providing some explanation for the chronicity of MI.	As this model posits a conditional model whereby trauma is the unconditioned fear stimulus and PTSD symptoms are the conditioned response, it can only provide partial explanation for MI as the presentation is not exclusively fear-based (Litz et al., 2009).
EPT	As MI is described as presentation underlined by emotional responses of shame and guilt (Litz et al., 2009), avoidance of MI-related memories and the associated meaning, as explained by EPT, may serve to maintain distress.	EPT focuses on trauma responses through a fear and anxiety lens, and as such the mechanism of the maintenance of MI symptoms is unlikely to mirror that proposed in EPT of a lack of opportunity for extinction and habituation.

Cognitive adversity stress model	Negative attributions may serve to maintain MI through altered negative beliefs of the self following a PMIE. Rumination may exacerbate said beliefs and contribute to withdrawal (Litz et al., 2009).	The anxiety sensitivity aspect of this model may be less relevant to MI as the emotional response is considered to be more shame and guilt based than that of anxiety or fear (Litz et al., 2009).
Social bonds adversity stress model	Lack of social support after a PMIE may well exacerbate the distress. Equally, the distress experienced after witnessing an act that transgresses one's moral beliefs may be adequately explained by Charuvastra and Cloitre's (2008) distinction of interpersonal trauma and the chronic impact of this.	This model discusses social bonds through the lens of individuals withdrawing and not utilising or developing social support networks due to having interpersonal trauma from which they were harmed. This does not account for perpetration-based PMIEs whereby individuals may face rejection and ostracization for the morally infringing act.

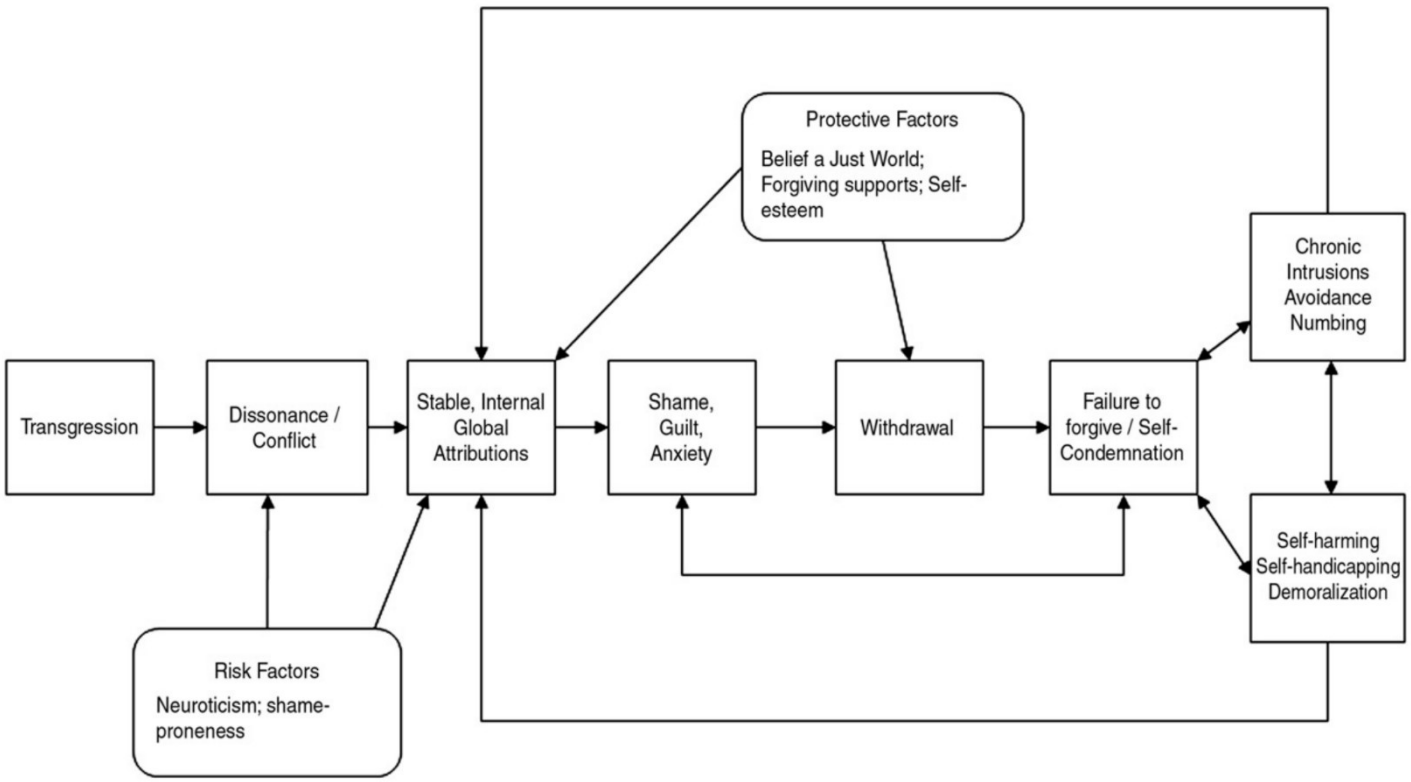
Section 1.09 – conceptual model of MI

Litz et al. (2009) proposed the first and most widely followed conceptual model of MI (see figure 5). This differs from Shay's (1994) original description of MI in two key ways. The first being that Shay (1994, 2014) placed emphasis on the physiological response to PMIEs as an explanatory factor for the chronicity of the presentation, whereas Litz et al. (2009) describe MI as an affective/cognitive presentation. The second being that whilst Shay hypothesised that MI arose from betrayal of an authority figure, Litz et al. (2009) suppose that MI can also arise from oneself engaging in morally infringing acts. This was based on literature highlighting associations between perpetration and PTSD, depression, and suicidality (Breet et al., 2019; Serafini et al., 2023; Tripp et al., 2016). Equally, research focusing on the act of killing in war demonstrated this to predict PTSD, functional impairment, violence, and dissociation even when combat exposure was controlled for (Maguen et al., 2009). Moreover, an earlier study showed combat guilt accounted for 30% of the variance of re-experiencing and avoidance, and 8% of the variance in overall PTSD severity and that when combat-related guilt was controlled for, combat exposure and trait-related guilt were not related to the outcome of PTSD severity (Henning & Frueh, 1997). Guilt has also been shown to partially mediate the relationship between combat roles classified as 'active participation' and loss of religious beliefs/faith (Fontana & Rosenheck, 2004).

Litz et al. (2009) argue that moral emotions are self- and other-focused and function to maintain a moral code. It is asserted that moral emotions of embarrassment, self-oriented pride, and other-oriented gratitude motivate prosocial behaviour and cohesion, whereas self-oriented moral emotions of shame and guilt negatively impact moral behaviours and actions. The authors hypothesised that shame may be more influential in the severity of MI than guilt through the associations with withdrawal and mental health difficulties (Irwin et al., 2019; Johnson et al., 2014; Wong & Cook, 1992). The role of self-forgiveness (or lack of) is also highlighted through not acknowledging a PMIE, taking proportional accountability, experiencing the associated negative emotions, and proactively healing from this, being argued to maintain distress (Litz et al., 2009). There have been mechanistic links demonstrated between a lack of self-forgiveness and shame, self-punishment, and poor psychological wellbeing (Fisher & Exline, 2006), and associations with depression, anxiety, and PTSD (Maltby et al., 2001; Witvliet et al., 2004). The full conceptual model outlined by Litz et al. (2009) is in figure 5 below.

Figure 5

Conceptual model of moral injury (Litz et al., 2009)



Section 1.10 – shame and guilt

There has been much debate over several decades of research regarding how to differentiate between shame and guilt (Teroni & Deonna, 2008). Both shame and guilt are considered to be emotions related to being negatively appraised (by oneself or by others) due to not meeting normative standards of what is moral, correct, and desirable (Leach, 2017). Hence, they are often referred to as moral emotions (Tangney et al., 2007) and self-conscious emotions (Tracy & Robins, 2004) as in order to be able to experience shame or guilt, one has to be able to conceptualise oneself or view oneself as an appraisable object. Some have argued that guilt and shame are in fact not distinct, but that guilt is a type of shame, in the same way that humiliation and embarrassment are different experiences but are both underpinned by shame (Brookes, 2019). Most of the literature in this area identifies shame and guilt as distinct concepts, however, differentiates the two in different ways.

It has been argued that shame and guilt are both the result of a transgressive act which is negatively appraised by others, however, whether one experiences shame or guilt is dependent on the origin of said transgression (Lewis, 1987, 2014). For example, if someone forgets their wedding anniversary and attributes the forgetting to having recently been very busy they are more likely to experience guilt, as the emotional response is transient and event-specific, however, if they attribute the forgetting to their incompetence/inadequacy as a partner, they will experience shame as the emotional response is global, internal, and stable (Tracy & Robins, 2004). Conversely, it has been suggested that shame is the result of negative appraisal from others, whereas guilt is the result of a negative appraisal of the self (Fontaine et al., 2006; Smith et al., 2002). The distinction is one of orientation whereby shame is external – the fear is associated with exposing negative attributes to others – whereas guilt is internal – the fear is one of not meeting the standards set for and by the self (Wallbott & Scherer, 1995). Furthermore, shame and guilt have been argued to differ on the basis of the behavioural outcome. Guilt has been suggested to lead to reparation and restorative action, whereas shame is indicated to lead to withdrawal (Pivetti et al., 2016; Shen, 2018). Guilt has been demonstrated to lead to improved self-esteem, empathy, and perspective-taking, whereas shame does not (Leith & Baumeister, 1998). Those with shame-proneness have also been indicated to be more likely to experience self-focused anger and to blame others than guilt-prone individuals (Lutwak et al., 2001). High levels of shame have also been associated with poorer mental health (DeCou et al., 2023), echoing the assertions of Litz et al. (2009) of shame perhaps leading to higher levels of distress than guilt.

Furthermore, psychoanalytic perspectives distinguish between shame and guilt through shame being said to arise from failure to meet standards set by the ego-ideal, whereas guilt is the response to breaching rules set by the superego (Lynd, 1956). Guilt is considered to arise from the internalisation of an external authority figure (often a parent) imposing standards for the individual to follow, whereas shame is considered to arise from an idealised figure the individual desires to emulate (Lansky, 1994). A later developed, but related theoretical model, is that of self-discrepancy theory (Higgins, 1987). This theory supposes shame and guilt are the result of incongruence between the actual self and 'self guides'. The actuality of who a person *is* may differ from the perceptions of who they *ought* to be or who they *aspire* to be. The discrepancy between the actual and the ideal is hypothesised to lead to shame vulnerability whereas the discrepancy between the actual and the should is hypothesised to lead to guilt vulnerability. This model asserts that failure to meet one's ideals may lead to experiencing emotions of self-disappointment or self-focused anger and that in order for the emotional response to be one of shame, the failure would need to be understood as an undermining of one's ideals (Higgins, 1987).

Cultural considerations are also important for our understanding of the distinction between shame and guilt. The majority of research in this area has been conducted in the USA which has (broadly speaking) an individualistic culture common in Western countries (Boiger et al., 2013). However, more collectivist cultures may lead to a more interdependent self-concept and the distinction between external and internal influences may be more marginal or non-existent; as such differential shame and guilt models that are specific to the cultural context may be required (Young et al., 2021). As the UK is considered a more individualistic culture (Taylor-Gooby & Leruth, 2018), existing shame and guilt models with this cultural context in mind are likely to be most applicable to the current study.

Section 1.11 – moral injury literature review

The integrative review conducted by Griffin et al. (2019) collated and summarised 116 research papers focusing on the epidemiology of and clinical intervention for Moral Injury (MI). Epidemiological studies were categorised as biological, psychological/ behavioural, social, and religious/spiritual, demonstrating the breadth of disciplines seeking to understand this presentation and concept.

The epidemiological research focusing on MI from a psychological/behavioural perspective identified that those with exposure to Potentially Morally Injurious Experiences

(PMIEs) were more likely to experience symptoms of mental health difficulties than those that had not experienced PMIEs (Griffin et al., 2019). Associations between exposure to PMIEs and depressive symptoms were reported across multiple studies included in the review (Currier, Holland, Drescher, et al., 2015; Currier, Holland, & Malott, 2015; Nash et al., 2013) and were supported by qualitative research suggesting a co-occurrence of MI and depression (McCormack & Ell, 2017; Purcell et al., 2016). The association between PTSD and exposure to PMIEs ranged from small to medium in the studies included in the review, however, it was noted that the association between PTSD and measures of MI as an outcome were strong (Griffin et al., 2019). Mixed results were highlighted regarding the extent to which PMIEs, and MI were associated with specific PTSD diagnostic clusters, and difficulties in disentangling the clinical presentation following events that were both morally injurious and life-threatening in nature were raised. Two papers that had attempted to distinguish between MI and PTSD presentations were discussed. The first was conducted by Bryan et al. (2018) who identified in a sample of military personnel, a symptom profile of guilt, shame, anger, anhedonia, and social alienation underpinning MI, and a symptom profile of an exaggerated startle reflex, memory loss, flashbacks, nightmares, and insomnia characterising PTSD; this suggests distinct presentations requiring distinct understanding and intervention. The second was conducted by Litz et al. (2018) with service members with PTSD. They demonstrated that whilst perpetration-based MI was the least common trauma-type reported by participants, it was associated with greater levels of re-experiencing, guilt, and self-blame in comparison to traumas related to life-threatening events. Griffin et al. (2019) concluded the trauma experienced following PMIEs was therefore unlikely to be adequately captured by the diagnostic label of PTSD nor could the presentation be explained exclusively through a fear-based trauma lens.

Section 1.12 – adapted interventions for MI

Prolonged Exposure (PE)

PE has a strong existing evidence-base for the treatment of PTSD (Lewis et al., 2020), however, veterans demonstrate poorer outcomes comparative to civilians (Steenkamp et al., 2015). One suggested explanation for this is the assumption underlying PE that a client's traumatic experience(s) were threat-based, which would not necessarily be the case in a MI presentation (Litz et al., 2018). Equally, manualised PE courses do not wholly take into account psychosocial-spiritual factors which may be considered more pertinent when working with an individual with MI (Farnsworth et al., 2017). Suggested adaptations include

using in vivo exposures to enable engagement in social activities and expressing emotions in addition to habituating to feared stimuli, and imaginal exposures promoting acceptance of meaningful responses to morally injurious experiences as well as minimising excessive distress (Evans et al., 2021).

Cognitive Processing Therapy (CPT)

CPT is a trauma-focused, cognitive treatment which employs Socratic questioning and manualised exercises to aid clients in examining the facts of their traumatic event and experience accompanying emotions (Resick et al., 2016). CPT is derived from the information processing theory of PTSD and has two primary goals. The first is to enable clients to experience trauma-related emotions and the second is to engage in cognitive challenges for inaccurate cognitions related to the event to reduce self-blame and guilt (Wachen et al., 2017). It is typically delivered one-to-one and has a recommended length of 12-24 sessions (Peterson et al., 2022; Sloan et al., 2022; Taylor et al., 2020). This approach has been argued to be inappropriate for MI through the assumption that trauma is underpinned by a victim-model and any cognitions of personal responsibility should be challenged; in MI presentations this may not be wholly accurate and may alleviate distress in the short-term but be harmful in the long-term (Gray et al., 2017). However, others have highlighted the utility of Socratic questioning to elicit details of an individual's experiences and thus minimise the risk of inappropriate cognitive challenges (Wachen et al., 2016). Equally, hindsight bias has been argued to be a likely feature of MI presentations and thus cognitive interventions would be considered an appropriate treatment option (Wachen et al., 2017).

Acceptance and Commitment Therapy for Moral Injury (ACT-MI)

ACT-MI differentiates between MI and moral pain and defines moral pain as inherent and necessary for societal success (Farnsworth et al., 2017). MI is considered the suffering experienced when attempting to avoid this pain (Walser & Wharton, 2021), indicating MI to be a presentation with biopsychosocial aetiology. ACT-MI does not attempt to correct thoughts, emotional experiences, or behaviours, but instead highlights the existence of the moral pain as a clear indicator of an individual's moral compass (Evans et al., 2020); the goal being to allow the individual to relate to themselves and the world around them differently (Evans et al., 2023). The main target is to aid re-alliance between behaviour and values and the mode of this re-alliance is via forgiveness (Walser & Wharton, 2021). The social aspect of the biopsychosocial understanding of MI is emphasised through using a group format of

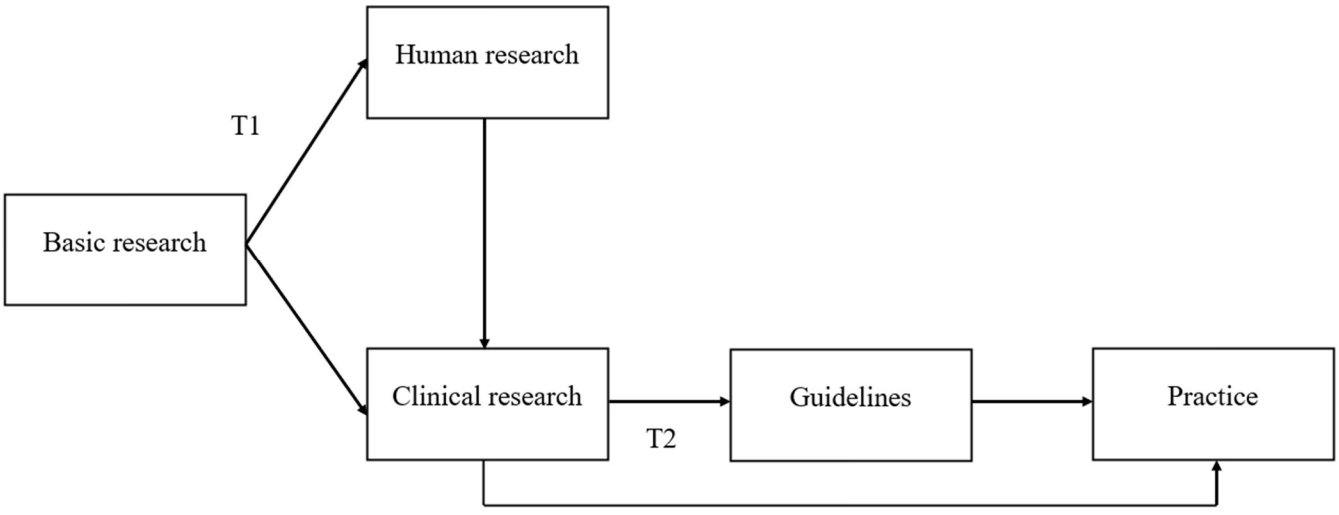
delivery which is typically recommended to be between 6-8 sessions (Farnsworth et al., 2017). However, there has also been research regarding individual ACT-MI (Borges, 2019), and spiritual adaptations with co-facilitated ACT-MI groups with mental health professionals and chaplains (Check et al., 2021).

Section 1.13 – research to clinical practice time lag

The research to clinical practice time lag in healthcare research has long been estimated at approximately 17 years (Balas & Boren, 2000; Grant et al., 2003), however, some have suggested this has increased over time and that a more accurate figure would be approximately 23 years (Morris et al., 2011). The authors proposed a linear model of the research to clinical practice journey (see figure 6) to aid further investigation of this area as it has received somewhat limited focus. It has been highlighted that the shorter the time lag, the sooner novel treatments are available to patients and the lower the economic and resource demands (Ward et al., 2009). However, following a thorough research-to-guidelines-to-practice process is important for ensuring patient safety (Morris et al., 2011). Whilst this model is not wholly applicable to psychology research as it includes a 'basic research' stage prior to research involving human participants to account for laboratory-based studies in biomedical research, it does highlight transitional gaps between different research stages applicable to research in this field such as delays regarding grants and funding, ethical approvals, publication, and citations of said publications (Morris et al., 2011).

Figure 6

Linear model of the journey of health research (Morris et al., 2011)



The research area of MI appears to have demonstrated a shorter time lag than the reported average, with the conceptual model being published in 2009 and intervention studies starting as early as 2014 (Paul et al., 2014). This may highlight a benefit of research in a field less stringently regulated than, for example, pharmaceutical research (Cybulski et al., 2016; Grant et al., 2013), meaning those experiencing MI may benefit from evidence-based interventions sooner. However, this may also be illustrative of interventions being developed and trialled prior to a full and universal understanding of the presentation which raises validity questions regarding how intervention targets have been established and outcomes have been measured (Kok et al., 2016). This highlights an ongoing ethical question in the field whereby the clinical need has clearly been demonstrated (Griffin et al., 2019), and the desire to develop interventions to support individuals experiencing MI is therefore understandable, however, there are questions around the level of our understanding and consensus regarding the definition, aetiology, and measurement of MI (Paricos et al., 2025) meaning quality may be being compromised in the interest of efficiency.

Section 1.14 – MI measures

The first MI measure developed was the Moral Injury Expression Scale (MIES; Nash et al., 2013). This was designed specifically for use with military populations and has been widely used in research in this field. However, some items of the MIES explore exposure (PMIEs), whereas other items explore outcome without clear distinction (Nash et al., 2013). This is demonstrated by the way the measure has been used, with some studies using it as a measure of exposure to PMIEs and others using it as a measure of MI as an outcome (Nillni et al., 2020; Zerach et al., 2023). Dually measuring both makes it challenging to identify the predictive strength of different PMIEs for MI outcomes; this has implications for identifying evidence-based intervention targets (Griffin et al., 2019).

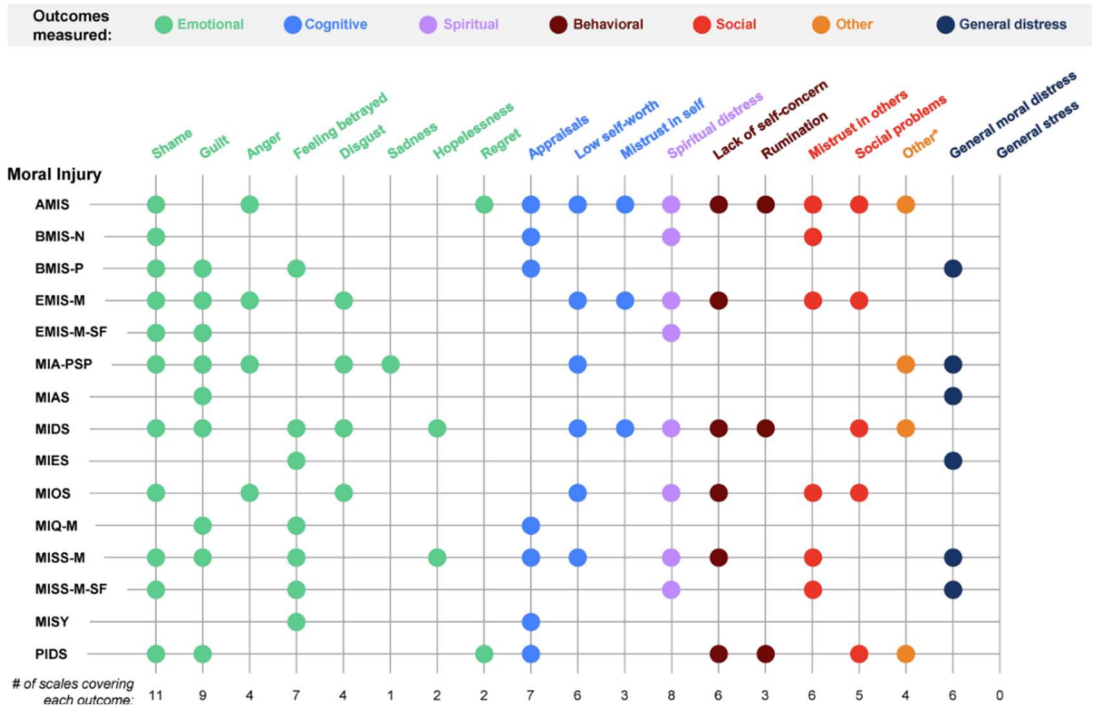
A recent systematic review and meta-analysis identified 17 distinct measures of MI (Houle et al., 2024). Of these 17 measures, 11 measured both PMIE exposure and MI as an outcome, three measured MI as an outcome alone, two measured PMIE exposure alone, and one was used to measure PMIE exposure in one study and MI as an outcome in another study (Houle et al., 2024). Assessment of the psychometric properties of the measures indicated that design and cross-cultural validity (where this was tested) were generally very good across all the measures. Internal consistency was considered very good for all measures apart from the MIES, Moral Injury Symptom Scale – Short Form (MISS-SF; Mantri et al., 2020), and Moral Injury Questionnaire – Military Version (MIQ-M; Currier, Holland, Drescher, et al., 2015)

whereby internal consistency was found to be doubtful. Convergent and divergent validity was found to be very good for the Moral Injury Outcome Scale (MIOS; Litz et al., 2022), MISS-SF, and Moral Outcomes of Relationship Aggression Scale (MORALS; Taverna & Marshall, 2023), inadequate for the MIES, and doubtful for the remaining MI measures. The authors concluded the MIOS to be the most robust measure of MI (Houle et al., 2024). However, this measure was only developed and validated in recent years (Litz et al., 2022) and as such caution is needed when interpreting research conducted prior to this as there may be validity issues with the measures used with regards to how MI is operationalised. Additionally, a phase two protocol for a MI intervention RCT has recently been published and reported the use of a new UK-developed MI measure – the Moral Injury Scale (MORIS) – which there is yet to be published reports of psychometric properties, validity, or reliability (Williamson et al., 2024) and would not have been available for comparison in the meta-analysis conducted by Houle et al. (2024). It is therefore apparent that there is a wide – and growing – number of MI measures with varying focus and psychometric quality.

The range of measures being developed and used to explore the same concept (MI) dilutes the ability to understand mechanistic relationships between PMIEs and MI outcomes, especially in scales where both are measured without distinction. The range of emotional, cognitive, spiritual, behavioural, social, and other outcomes included across these measures classified as MI measures was demonstrated by Houle et al. (2024) – see figure 7 – and highlights the breadth of what is being captured by current measures. A consensus understanding of MI and the boundaries of this presentation label is needed in order for research to be focused and to maximise the clinical utility of findings.

Figure 7

Outcomes measured by MI scales (Houle et al., 2024)



Section 1.15 – novel MI interventions

Adaptive Disclosure (AD)

AD is a brief manualised therapy developed from PE, CPT, and CBT for prolonged grief specifically for active serving military personnel experiencing MI or combat-related PTSD (Gray et al., 2021). It consists of six to eight weekly sessions of approximately 90 minutes and has three main components: (i) imaginal exposure, (ii) techniques to target loss and grief, and (iii) techniques to target MI. Barriers to accessing support for military personnel were kept in consideration during the development of the intervention and giving it a neutral name, and keeping it brief and targeted was designed to manage barriers of time constraints and stigma/ambivalence regarding accessing mental health support (Litz et al., 2016).

Impact of Killing in war (IOK)

The IOK intervention was developed bottom-up through a mixed-method approach directly with Armed Forces (AF) active serving personnel and veterans (Maguen et al., 2010). Qualitative findings indicated that direct language and naming the 'impact of killing' was important as many individuals with this military experience had accessed psychotherapeutic support without this being mentioned, signalling it was not acceptable to speak about (Purcell et al., 2016). IOK is theoretically underpinned by cognitive-behavioural principles and is a

manualised approach delivered one-to-one for 10 sessions of 60-90 minutes in length (Burkman et al., 2022). It is considered distinct from approaches such as CPT as there is emphasis on processing the grief around acts of commission or omission as opposed to thought challenging (Litz et al., 2021). Moreover, forgiveness is understood as a socio-spiritually active process rooted in early life experiences and understanding individual system and cultural contexts is highlighted as important for understanding barriers to other- and self-forgiveness (Aist, 2012). It is also acknowledged that spiritual distress may vary depending on an individual's belief system and as such the flexibility of IOK is emphasised in that it is designed to be guided by the client and what sits at the core of their MI and distress (Burkman et al., 2022).

Reclaiming Experiences and Loss (REAL)

REAL is an integrative therapeutic approach which draws on humanism, constructivism, narrative, cognitive-behavioural, and acceptance paradigms, as well as acknowledging individual spiritual beliefs (Smigelsky et al., 2022). Within this approach, MI is defined as the breakdown of an individual's meaning-making system, rendering them unable to label or grieve perceived losses of their self-identity, their relationships, and their values (Antal et al., 2023). REAL is a group intervention which is co-facilitated by a psychologist and a chaplain over 12-13 sessions (Evans et al., 2023). Three phases are followed: (1) individual group members make an independent choice to engage in MI therapeutic work and commit to engaging with the sessions; (2) group sharing is used to facilitate understanding of the experience of MI via a grief and loss lens; (3) moving forward using the 'kintsugi' metaphor – kintsugi is a Japanese art style of fixing broken pottery with precious metals, this symbolises the beauty in perceived brokenness (Daugherty & Burkhardt, 2022). It is intended to be a fluid and flexible approach designed to support with meaning making in the face of perceived stuckness (Smigelsky et al., 2022).

Building Spiritual Strength (BSS)

BSS defines MI as a presentation of psychospiritual origin with distress centred around the relationship one has with a Higher Power following trauma (Harris et al., 2011). It was developed specifically for AF personnel and veterans and aims to support individuals in developing forgiveness for themselves, others, and their Higher Power (Evans et al., 2023). BSS is a manualised group therapy approach over eight two-hour weekly sessions and is facilitated by a chaplain with additional mental health training (Harris et al., 2018). There is

emphasis on ‘multiple moral contexts’ in combat and that actions should be viewed on a continuum as opposed to categorically ‘right’ or ‘wrong’ (Harris et al., 2015).

Section 1.16 – effectiveness of MI interventions

This unpublished systematic literature review highlighted 18 distinct MI interventions having been trialled with veterans across 20 intervention studies (Paricos et al., 2025). Some interventions were underpinned by a theological understanding of MI, others were theoretically underpinned by both theological and psychological accounts of MI, and some were purely psychologically informed. Of the psychologically informed interventions, theoretical influences included PE, CPT, ACT, CFT, psychodynamic principles, and positive psychology (Paricos et al., 2025). Moreover, five of these were adapted interventions from existing evidence-based PTSD interventions such as PE or CPT, and the remaining 13 interventions were novel. The review identified 19 distinct target variables, measured using 53 distinct measures (Paricos et al., 2025), highlighting the heterogeneity in focus and intervention for MI. This limits clinical utility through a lack of consensus of how MI is defined and understood meaning intervention targets and MI outcomes have not been clearly established, risking the label of MI not having a clear meaning.

Section 1.17 – self-criticism

It was Gilbert et al. (2004) who separated the forms of self-criticism into inadequate-self and hated-self in the development of the Forms of Self-Criticising/Attacking and Self-Reassuring Scale (FSCRS). It was suggested that that self-attacking may have an evolutionary basis from how relationships and conflict are regulated (Gilbert, 2000). Throughout history there has been interpersonal conflict and attacks underpinned by dislike and hatred, both between outright enemies (whereby the outgroup may be considered to be a risk to the ingroup), and towards those stigmatised (whereby one group is persecuting another; Sinderbrand, 2024; Wall, 2014). Attacks from a place of hatred are suggested to have the goal of cleansing what is considered bad or contaminating (Gilbert et al., 2004). In parent-child dynamics, if a child perceives or experiences attacking from the parent, the child may be represented as that that is bad. This may then be internalised with the view of the self being that of disgust and contempt (Gilbert et al., 2004).

Inadequacy is considered to stem from dominant-subordinate relationships. In animals, those that are dominant may threaten or attack subordinate animals to compel compliance (Rose & Rimes, 2018). Gilbert et al. (2004) argued from an attachment theory lens that parents may demonstrate a similar dominance through threatening or punishing

behaviours and mistakes in their child to again encourage compliance. This can then be internalised as a form of self-regulation underpinned by the notion that obedience can prevent negative experiences (Gilbert et al., 2004). In the AF, there is a clear hierarchical system and AF personnel are trained to follow orders; this is considered crucial in the event of high-stakes situations whereby hesitation may well be deadly (Caspar et al., 2020; Soeters et al., 2006). With this clear commanding structure in place, AF personnel may therefore be more susceptible to experiencing self-criticism in the form of inadequate-self as mistakes or lack of obedience to orders could have potentially drastic consequences**.** As such, individuals may hold themselves to standards whereby there is no room for error, and when errors are made (as these are often inevitable), there may be self-attacking and self-punishment with the goal being to correct one's behaviour and actions. The internalisation of this self-attacking may well be maintained once an individual has left the AF and is a veteran – perpetually attacking oneself for mistakes may maintain and exacerbate distress and equally act as a barrier for seeking or accessing support (Gaudet et al., 2016).

Section 1.18 – MI mechanism testing: Zerach and Levi-Belz (2022)

Zerach and Levi-Belz (2022) conducted a cross-sectional study of 413 Israeli frontline healthcare workers. They identified that the predictive relationship from PMIEs to MI only existed when there was high self-criticism. Interestingly, this aspect of the analysis was conducted as part of a moderated mediation model whereby the authors asserted MI mediated the relationship between PMIEs and PTSD/CPTSD. Whilst self-criticism strongly moderated the relationship between PMIEs and MI, there was only weak moderation of the relationship between MI outcomes and PTSD/CPTSD. MI outcomes were measures using the MIES (Nash et al., 2013) and the Moral Injury Symptom Scale – Healthcare Professional version (MISS-HP; Mantri et al., 2020). As discussed in section 1.14, a systematic review of measures of MI found validity/reliability issues with these measures of MI and pointed to doubts regarding the internal consistency of the MIES (Houle et al., 2024). Moreover, self-criticism was measured using the Depressive Experiences Questionnaire (DEQ; Blatt et al., 1976). This measure has demonstrated acceptable psychometrics and robustly correlates with depression (Falgares et al., 2018). However, a systematic review highlighted that whilst this measure has a factor labelled 'self-criticism', it actually aims to measure 'introjective depression' (Rose & Rimes, 2018). As such, using this as a measure of self-criticism, as Zerach and Levi-Belz (2022) have, demonstrates construct validity issues. Therefore, whilst this study provides some preliminary evidence of the moderating role of self-criticism in the

severity of MI following PMIEs, there are validity concerns with regards to how these conclusions were reached. Now that more robust measures of MI are available (Litz et al., 2022) and measures of self-criticism with strong construct validity can be selected (Gilbert et al., 2004), further clarity regarding the moderating role of self-criticism can be obtained.

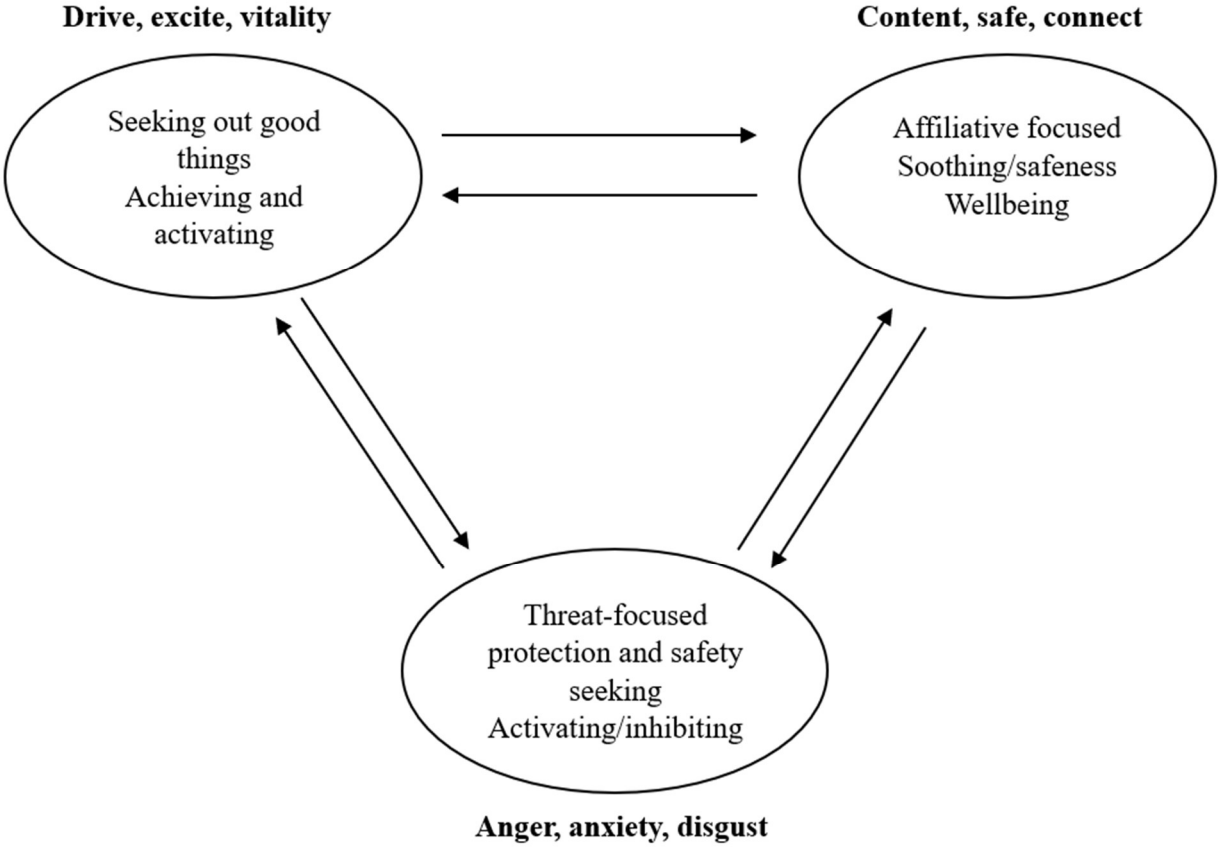
Section 1.19 - CFT

The 'tricky brain' concept of CFT delineates that as humans we have 'old brain' functions and 'new brain' functions (Gilbert, 2009). The old brain functions are described as evolutionary hardwiring motivating us to avoid harm, seek food, sex, caring and status, experience emotions of anger, anxiety, sadness, and joy, and demonstrate instinctive behaviours of fight, flight, shutting down, courting, and caring (Kirby & Gilbert, 2017). As humans have evolved, we have developed 'new brain' functions meaning modern humans are capable of cognitive processes other animals are not, such as self-monitoring, self-criticism, fearful imagination, fear of feelings, emotional avoidance, shame, sense of inferiority, and rumination (Kirby & Gilbert, 2017). It is asserted that difficulty arises through problematic loops of old and new brain functions (Gilbert, 2009). For example, when faced with a near-miss of narrowly avoiding being hit by a car when crossing a road, old-brain harm-avoidance motivations may be activated, anxiety may be experienced, and the behavioural response may be one of freezing or flight. If we only had old brain functions, after there was no longer a physical threat (i.e. we had not been hit by the car and were safely on the pavement), there would no longer be threat response processes in action. However, our new brain functions allow us to ruminate on the experience, predict different outcomes, and perceive potential future threat, which in turn informs old brain functions that there is still potential threat, maintaining and exacerbating distress (Gilbert, 2014).

Emotions are explained as functional via an evolutionary psychology lens and are reported to have three main functions: (i) bring awareness to threats and trigger defences, (ii) determine the obtainability of resources and reward and trigger seeking/engaging, and (iii) determine the degree of safeness, allow for rest, contentment, and openness (Gilbert, 2014). The way these functions interact and regulate each other forms the foundation of CFT and are reflected in the three affect regulation systems or three circle model of emotion in figure 8.

Figure 8

Three affect regulation systems/three circle model of emotion diagram (Gilbert, 2009)



The threat protection system (as seen in the bottom circle of figure 8) has the purpose of identifying threats quickly and then trigger emotional responses such as anxiety, anger, or disgust. These emotions evoke behavioural responses to the perceived threat with the goal of self-protection such as fight, flight, or freeze (Gilbert, 2014). However, the type of triggers that activate the threat-protection system have evolved as we have, and are linked to the nature of the threat, personal meaning, and conditioned emotional responses. This has been linked with problems associated with the type, intensity, duration, and frequency of activation of threat protection responses (Gilbert, 2009). Furthermore, the different forms of coping available to us thanks to our new brains, for example experiential avoidance, can serve to accentuate the sense of threat and perpetually activate the threat protection system (Kirby & Gilbert, 2017).

The drive and excitement system (as seen in the top left circle of figure 8) has the purpose of pursuing positive emotions that energise and motivate us to seek things necessary for survival and is strongly linked to dopamine activity (Tirch & Vogel, 2024). In Buddhist

psychology, the positive emotions linked to this system of achievements and satisfying desires are said to give us pleasure, but not happiness (Ricard, 2014). They are reported to be short-lived because (from an evolutionary psychology perspective) resources such as food will need to be achieved repeatedly (Gilbert, 2009). The drive and excitement system is linked to the threat protection system in complex ways, especially when we are driven to avoid negative events through thoughts of "ought", "should", and "must" (Tirch & Vogel, 2024). There is increasing evidence of at least two types of achievement motivation: (i) focus on achievement for the pleasure and benefits of achieving them, and (ii) focus on the value of achievement in proving self-worth and gaining validation from others (Wood & Butler-Coyne, 2023). The latter is indicated to be threat protection focused as when individuals fail, they are not only disappointed but also experience threat of the loss of social resources and fear of being marginalized and rejected (Gilbert, 2014). Status-seeking, competitiveness, and working to avoid rejection are also indicated to be related to the drive and the threat systems (Tirch & Vogel, 2024).

The soothing system (top right circle of figure 8) is reported to be activated when animals are not having to give attention to or deal with threats and dangers and have sufficient resources to allow them to experience contentment (Kirby & Gilbert, 2017). This system is a combination of ideas from evolutionary psychology, neuroscience, and attachment theory (Gilbert, 2014). It is indicated that the caring behaviour of a parent, specifically physical proximity, has a soothing effect on infant physiology as the sympathetic and parasympathetic nervous systems have undergone modifications in mammals to allow them to engage in close interpersonal relationships with one another (Cwinn et al., 2023). Caring-affiliation has been demonstrated to operate through an opiate and oxytocin system and oxytocin has been linked to feelings of affiliation, trust, and soothing in interpersonal relationships (Feldman, 2012). Oxytocin has also been linked to reductions in sensitivity in fear circuits of the amygdala, especially to socially threatening stimuli (Viviani et al., 2011). As such, access to the soothing system is related to the lack of presence or perception of active threats, affiliation, and social connection (Gilbert, 2014).

CFT was developed to support individuals that struggled to access their soothing system by aiding the generation of affiliative feelings within themselves (Leaviss & Uttley, 2014). The following stages were outlined in Gilbert (2014):

1. Psychoeducation with specific emphasis on the human 'tricky brain' and affect regulation systems. The purpose of this is to reduce shame and self-blame through developing an understanding of one's sense of self through a lens of social construction, evolution, and neuroscience (Leaviss & Uttley, 2014).
2. Formulation whereby individuals are encouraged to reflect on early life experiences and how threat-, drive-, and soothing-based strategies developed. The ways in which these strategies are employed is discussed including where these are externally directed (how one interacts with others) and internally directly (how one understands and regulates oneself). Core memories for the development of the client's sense of self are focused on to reinforce the psychoeducation of 'it's not your fault'.
3. Compassionate skill building through eliciting affiliative emotions and practicing techniques to activate the parasympathetic nervous system such as breathing and imagery exercises.
4. Building self-compassion through behavioural practices and practicing taking a compassionate stance and exploring what may be helpful. Through this practice, it is suggested that clients learn compassion is an act of courage as opposed to a weakness.
5. Application of the compassionate skills and compassionate self-relating to specific difficulties such as anxiety, trauma memories, self-criticism, and shame. The utility of behavioural experiments is highlighted as this is argued to create the opportunity for different emotional experiences and demonstrates the value of compassion towards the self and towards others.

CFT has been recommended as a potentially useful therapeutic approach for MI due to the intervention target of shame and this being theoretically considered a key maintaining and exacerbating factor for MI (Hollis et al., 2023). There have been questions raised regarding the appropriateness of interventions such as CPT which involve cognitive restructuring as the view held of the PMIE as wrong or against one's moral values may not necessarily be maladaptive and therefore arguably should not be the target of a therapeutic intervention (Gray et al., 2017). Instead, how a veteran reconciles their sense of self after experiencing dissonance between their moral values and their actions or what they have witnessed/been affected by, may be more relevant (Evans et al., 2020), and aligns with the theoretical underpinning and approach of CFT (Hollis et al., 2023).

Section 1.20 – self-compassion interventions for self-criticism

Wakelin et al. (2022) conducted a systematic literature review and meta-analysis exploring the effectiveness of self-compassion interventions in reducing self-criticism. Their review included 20 RCTs, of which 19 were included in the meta-analysis. Their meta-analysis indicated that participants allocated to self-compassion interventions demonstrated greater reductions in self-criticism compared to participants allocated to control conditions with medium effect, Hedge's g = .51, 95% CI[.33-.69], p<.001. Wakelin et al. (2022) also conducted meta-regression analysis to explore the impact of six moderators: length of intervention, type of comparison control (passive or active), type of self-criticism (hated-self or inadequate-self), intervention delivery (individual or group), intervention setting (face-to-face or remote), and risk of bias (high/unknown or low). Two of the moderators were indicated to be significant. The first was intervention length with medium effect whereby longer interventions were associated with larger effect sizes. The second was the type of comparison control. Self-compassion interventions demonstrated a medium effect on self-criticism in comparison to passive controls and demonstrated a small effect on self-criticism in comparison to active controls (Wakelin et al., 2022). Nevertheless, demonstrating a small effect in comparison to alternative interventions does suggest self-compassion interventions to potentially be an efficacious and advantageous choice for reducing self-criticism. The remaining moderators were not found to be significant (Wakelin et al., 2022). This included the type of self-criticism despite hated-self having been shown to be associated with greater severity of mental health difficulties and more resistance to change than the inadequate-self form of self-criticism (Castilho et al., 2017; Werner et al., 2019). This highlights the potential utility of self-compassion interventions in reducing self-criticism irrespective of the form of self-criticism. Additionally, Wakelin et al. (2022) noted inconsistencies in the measures being used in the RCTs included in the review. They suggested future research forms a consensus on the measures being used for more comparable outcome data and recommended the Forms of Self-Criticising/Attacking and Self-Reassurance Scale (FSCRS; Gilbert et al., 2004) as a measure of self-criticism and the Self-Compassion Scale (SCS; Neff, 2003) as a measure of self-compassion.

Section 1.21 – MI mechanism testing: Forkus et al. (2019)

Forkus et al. (2019) conducted a cross-sectional questionnaire study with 203 USA AF veterans that had been deployed to Afghanistan or Iraq. They collected data regarding PMIEs (predictor variable), self-compassion (moderator variable), PTSD, Deliberate Self

Harm (DSH) history and versatility, and drug and alcohol use (outcome variables). They found that PMIEs were strongly associated with PTSD when self-compassion was low, but that this association weakened when self-compassion was high. Similarly, PMIEs were strongly associated with depression when self-compassion was low and again this association was weaker when self-compassion was high. PMIEs were associated with DSH versatility when self-compassion was low but not when self-compassion was high, implying that perhaps self-compassion may serve as a protective factor for more severe forms of self-harm (Forkus et al., 2019). PMIEs and self-compassion both demonstrated separate significant main effects on DSH history and drug and alcohol use, however, self-compassion did not moderate the association between PMIEs and these outcomes. Forkus et al. (2019) reflected that self-compassion may serve as protective factor against negative mental health outcomes (such as PTSD and depression) but serve less of a protective function against behavioural outcomes (such as DSH and drug and alcohol use).

It is important to note that at the time this study was conducted, valid and reliable measures of MI as an outcome were not available, which may have motivated the use of outcome measures relating to PTSD and depression. The PTSD Checklist (PCL-5; Blevins et al., 2015) and Patient Health Questionnaire (PHQ-9; Kroenke et al., 2001) were used to measure PTSD and depression, respectively, and both have undergone thorough psychometric property testing and are considered to be valid and reliable measures (Kim & Lee, 2019; Roberts et al., 2021). However, participants were asked to consider their most distressing experience whilst deployed when completing the PCL-5 (Forkus et al., 2019). As such, it cannot be determined whether the event associated with the PTSD symptoms was a PMIE. Therefore, whilst this study has provided preliminary evidence of self-compassion as a potential moderating and protective factor against mental health outcomes following PMIEs in a veteran population, further exploration is required to ascertain the role of self-compassion now that we have more robust measures of MI as an outcome available (Litz et al., 2022).

Section 1.22 – MI mechanism testing: Morgan et al. (2024)

Morgan et al. (2024) conducted a cross-sectional questionnaire study with 127 UK AF veterans exploring the relationship between self-compassion, compassion to others, compassion from others, self-reassurance, inhibitors of compassion (shame, fear of compassion to self, to others, and from others, and self-criticism), alcohol use, psychological distress, military rank, and age with MI. They found shame and self-criticism to be strongly

positively associated with MI, with shame being identified as the primary predictor, in line with the theoretical model of MI (Litz et al., 2009; Morgan et al., 2024). Results indicated veterans with lower self-compassion and compassion to others demonstrated greater MI symptoms, whereas the association between compassion from others and MI symptoms was not significant. Additionally, fear of self-compassion, compassion to others, and compassion from others were all strongly positively associated with MI (Morgan et al., 2024). This suggests compassion may have protective qualities against the severity of MI symptoms and as such could be an appropriate intervention target. A hierarchical multiple linear regression model of all the above variables was found to be significant: $F(14, 118)=19.12$, $p<.001$, accounting for 72% of the variance of MI symptoms (Morgan et al., 2024). Thus, there is preliminary mechanistic evidence of the role of self-compassion, self-criticism, and shame in MI. However, further research is required to explore the way and the extent to which these variables interact and influence the severity of MI to aid the identification of intervention targets. Furthermore, Morgan et al. (2024) measured MI using the Expression of Moral Injury Scale – Military version (EMIS-M; Currier et al., 2018). The systematic review of MI measures conducted by Houle et al. (2024) highlighted this measure to demonstrate doubtful convergent/divergent validity and the authors only provisionally recommended its use with military populations and recommended against using it with the general population. Exploration with more robust measures is therefore also required.

Section 1.23 – CFT effectiveness

A recent meta-analysis reported CFT to demonstrate moderate-large effect sizes across multiple RCTs with multiple populations in reducing psychopathology, self-criticism, and improving compassion towards the self and others (Petrocchi et al., 2024). This replicates the reported outcomes of previous meta-analyses investigating the efficacy of CFT (Craig et al., 2020; Leaviss & Uttley, 2014), suggesting robust evidence of CFT as a transdiagnostically beneficial approach for reducing symptoms associated with mental health problems such as shame and self-criticism. Furthermore, a meta-analysis specifically exploring the effect of CFT on self-criticism and self-soothing found group CFT to be more effective than individual CFT (Vidal & Soldevilla, 2023). This aligns with what is known about the therapeutic benefits of group intervention for shame through there being exposure to what may ordinarily be avoided to minimise the risk of future shameful experiences – for example through downward comparisons and fear of others sharing the negative opinions one holds about oneself – and opportunity for acceptance from others and shared experiences

reducing aloneness and allowing an alternative view of the self to be formed (Shapiro & Powers, 2011). Interestingly, however, this contrasts with the findings of the meta-analysis conducted by Haagen et al. (2015) which identified individual therapy or a mixture of individual and group therapy to be more efficacious than group-only therapy for veterans with PTSD. This perhaps further highlights the needs for a distinct approach to MI, as the prominence of shame as an aspect of the presentation may be higher than that of PTSD and thus may require a different approach to intervention.

Section 2 – Extended Methods

Section 2.01 – epistemological position

Epistemology refers to how individuals or systems have knowledge and how they believe that they have arrived at this knowledge. It is the theory of knowledge itself, what may be valid knowledge, what knowledge can be acquired, and who may possess knowledge (Greco, 2017). Epistemological position is an important consideration for determining a research paradigm as it will influence how the research is framed in the pursuit of knowledge (Goertz & Mahoney, 2012).

Klagge (2018) developed a continuum of epistemology (see table 5) which differentiates between open (investigation comes before and knowledge is derived from this), combinations (combining and amalgamating builds knowledge), and closed (static factors inform what we know) epistemologies. These are further differentiated based on cognition vs. intuition (knowledge is consciously acquired versus subconsciously known), objective vs. subjective (knowledge is fact-based versus feeling-based), and rational vs. pre-rational (knowledge comes after investigation versus knowledge is anterior; Klagge, 2018). In table 4, idealism and positivism would be considered opposites, with positivism based on open rationalism, and idealism being based on closed intuition.

Table 5

Continuum of epistemologies (Klagge, 2018)

	Open	**Combination**	**Closed**	
Cognition	Empiricism	Eclecticism	Idealism	**Intuition**
Objective	Objectivism	Pragmatism	Emotivism	**Subjective**
Rational	Positivism	Relativism	Naturalism	**Pre-Rational**

Through the author's position of knowledge being arrived at following investigation, this piece of research was conducted from a stance of positivism (Aliyu et al., 2014). Positivism is broadly considered to have been founded and popularised by Comte in the 19th century (Lenzer, 2017). It arose in response to metaphysics and theology and is underpinned by the notion of authentication (Oya, 2020). In the early 20th century positivism was an embedded epistemological stance in psychology and social sciences research, with the argument that these disciplines are akin with natural sciences and can arrive at knowledge in the same way (Kaboub, 2008). Post-positivism then rose in popularity in psychology in the 1970s which differentiates between truth and reality in arguing that objective truths of the world cannot be ascertained as our subjective experiences and perspectives shape each individual's reality (Ryan, 2006). In the 1990s, critical realism became a more popular epistemological position in psychology, asserting that the experiences of 'truths' are based on perceptions and values and as such the construction of reality will be imperfect (Blanche et al., 2006).

There have been criticisms of positivism in modern psychology with arguments that attempting to reach objective and generalisable conclusions regarding the human experience is reductionist (Jaja et al., 2022). However, ethically speaking, objectivity and generalisability is required when identifying psychology intervention targets as without this we cannot empirically justify theoretical targets before trialling interventions with participants (Chambless & Ollendick, 2001). As the review conducted by Paricos et al. (2025) has highlighted, in the past 10 years, there have been 20 studies exploring the efficacy of interventions for MI with AF veterans. Of these, there were 18 distinct interventions, 19 distinct intervention targets, and over 50 distinct measures used (Paricos et al., 2025). In the view of the author, lack of objectivity in how we understand this presentation and justify intervention targets, has led to a breadth (or lack of) focus in the research area. MI is an interesting area as the theoretical conceptualisation was only published 16 years ago (Litz et al., 2009). As such, there has not been the natural progression that other areas of psychology have perhaps seen over the years, for example, there is a plethora of research exploring depression from different paradigms such as positivism, post-positivism, and critical realism (Huang & Fang, 2016). It is argued that a positivist stance is necessary in the research area of MI at this time to acquire a foundational and generalisable knowledge-base of the presentation that can then lead into research conducted from alternative epistemological positions focusing more on the nuances of experiences (Park et al., 2020).

Section 2.02 – cross-sectional design

The purpose of cross-sectional research is to acquire data from cross-section of a population – in this case UK AF veterans – at a single point in time (Fabricant, 2024). The single time point of data collection is what makes it distinct from a cohort study design or longitudinal study design (Wang & Cheng, 2020). Cross-sectional study design can be useful for prevalence estimates and for exploring the associations between multiple variables and outcomes, however, due to the single time point of data collection, causation cannot be inferred using this study design (Fabricant, 2024).

Sample bias is also a necessary consideration as there may be differences in the characteristics of responders and non-responders (non-response bias) meaning the cross-section may not be entirely representative of the relevant population (Wang & Cheng, 2020). This is something that is important to keep in mind when interpreting the results and the potential limitations of the generalisability of these (Fabricant, 2024). The results of cross-sectional research, however, can then be used to design future cohort or RCT studies (Turner, 2020). For the present study, this was a key factor motivating the employment of a cross-sectional design. There is limited published research regarding the associations underpinning MI and as such a lack of springboard to focus cohort and RCT targets (Griffin et al., 2019). Equally, from an ethical standpoint, when there is little empirical evidence of the mechanisms of a presentation, cross-sectional designs minimise risks of emotional harm to participants through taking an observational snapshot as opposed to attempting to intervene when there remains uncertainty regarding appropriate intervention targets (Paricos et al., 2025; Wang & Cheng, 2020). Moreover, data collection for cross-sectional studies is typically relatively quick and inexpensive (Fabricant, 2024). This makes it an appropriate research design for a DClinPsy project whereby there are time and budget constraints.

Section 2.03 – recruitment methods

Veteran organisations and charities

Various organisations, charities, and social media pages were contacted regarding recruitment. These contacts and the outcomes are detailed in Appendix I.

Paid Facebook advertisements

A Facebook page was created named ‘UK Armed Forces Veteran Research Study’ and a descriptor of *‘Hi, I’m Arianna, I’m a Trainee Clinical Psychologist conducting research focusing on veteran trauma. The aim is to explore the role of self-criticism and self-compassion to better inform research developing mental health treatments available to*

veterans' was written in the page biography (the first thing anyone who viewed the page would see).

Facebook allows the creation of advertisements in a variety of ways from Facebook pages. I set up three types of adverts: (i) a traffic campaign whereby an advert was created in the Facebook advert manager using the study advert (Appendix B) as an image, (ii) promotion of a post whereby a Facebook post I had written on the research study Facebook page was promoted to the Facebook feeds of relevant individuals that did not follow the Facebook page, and (iii) promotion of the questionnaire link, this worked similarly to (ii) but instead promoted the questionnaire link with the study advert as opposed to an entire post. For each, I set a daily budget of £2 and set the run-time at 1-week increments whereby I would evaluate how close I was to reaching the recruitment target and if renewing the advert for another week was warranted. Facebook allows for targeted advertising and the following parameters were used:

1. Location – UK
2. Age – 24+
3. Employment history (as inputted onto personal Facebook pages) – veteran; British Army; Royal Navy; Royal Airforce; British Military
4. Interests (as inputted onto personal Facebook pages) – British Military; Armed Forces Week

The purpose of the adverts was set to 'link clicks' and Facebook would provide data on how many people viewed each advert and how many clicked the link to the questionnaire study. In total, the advertisements were viewed by 64,167 Facebook users which translated into 2,393 link clicks, this represents a Click-Through Rate (CTR) of approximately 3.7%. The average CTR for Facebook adverts is approximately .9%, with 2-5% considered a good CTR (Vrountas, 2019), suggesting the CTR for this study to be in the good range. The advert type that had the most reach and click throughs was the link promotion, followed by the traffic campaign, followed by the post promotion. Facebook advert manager also provided some demographic information (sex/gender and age groups) regarding Facebook users clicking the questionnaire link. This revealed that 82.76% were male and 17.24% were female. Furthermore, 38.81% were ≥65 years of age, 36.83% were aged 55-64, 17.72% were aged 45-54, 5.29% were aged 35-44, and 1.35% were aged ≤34 years of age.

In total, Facebook adverts were run for five weeks until the recruitment target was reached. The overall cost of these adverts £192.90 and resulted in approximately 90 complete datasets from 12/07/24 – 17/08/24 meaning an approximate cost of £2.14 per complete dataset. Prior to this, recruitment had been via the other channels listed in Appendix I and resulted in approximately 33 complete datasets from 23/03/24 – 12/07/24. These values are approximate as it cannot be assuredly ascertained where questionnaire completers accessed the questionnaire from. This demonstrates the utility of Facebook adverts as an efficient and cost-effective recruitment tool for online questionnaire studies with hard-to-reach populations. Through the bypassing of gatekeepers and providing prospective participants the opportunity to determine for themselves if the research study was something they wished to participate in or not, participation numbers increased significantly (Pedersen et al., 2015; Wozney et al., 2019).

Section 2.04 – snowball sampling

There has been limited published work focusing on the validity and quality of snowball sampling, and the limited publications in this area have predominantly focused on its application to qualitative research (Parker et al., 2019). Snowball sampling refers to a chain-referral recruitment strategy whereby initial and existing respondents may share the participation invite with others who may meet the inclusion criteria and find the research of interest (Tansey, 2009). There are limitations with regards to potential selection bias through recruitment potentially being funnelled through specific networks and/or predominantly attracting more agreeable individuals and as such limiting the overall representativeness of the sample (Dosek, 2021). However, with ‘hard to reach’ populations, defined as sub-groups within the population that may experience a heightened number of barriers for participation in research due to reasons such a geographical location, socioeconomic status, and physical or mental health, snowball sampling is a highly recommended and utilised approach (Shaghaghi et al., 2011). This is because the researcher and their aims and motivations are unlikely to be fully known to prospective participants and participation invites from known and trusted peers may lead to greater confidence as opposed to scepticism regarding the purpose of the research (Bhopal et al., 2011). Equally, there will be limitations to a researchers’ network; extending awareness of the study via channels that the researcher may not have direct access to may aid recruitment of individuals that otherwise would have been unaware of the study (Tansey, 2009). Veterans have generally been considered a ‘hard to reach’ population in research (Barker et al., 2022). Snowball sampling was therefore

considered a useful approach to maximise awareness of the study and provide each individual prospective participant the opportunity to decide for themselves if they wished to take part. Moreover, social media, and specifically Facebook, has been recommended as a platform for snowball sampling (Dosek, 2021). As there are many private Facebook groups for veterans that the author of this study would not have had access to, snowball sampling provided the opportunity to recruit via these channels.

Section 2.05 – study advert

Table 6 shows the comments on the social media postings of the first study advert (Appendix A) and the second study advert (Appendix B).

Table 6

Social media comments on the first and second study adverts.

	Adverts	
	Advert A	Advert B
Comments	*"This sounds like another con"*	*"I've tried to sign up but Facebook IT thwarted me, I want to do the hard copy method"*
	"Sounds like a claim coming on"	*"Where can I find more details on the research authority ethics approval etc.?"*
	"Looks like fishing for cases to allot blame on past events like NI again. Be wary of this 'moral events' = illegality? Something not right"	*"Who benefits from the study and what further research will evolve from this?"*
	"I see a lot of companies making money off us veterans"	*"[tagged person] you might be interested"*

As demonstrated in the table, the comments on the first study advert suggest strong suspicions regarding the motivation behind the research and the implications for the veteran community. This suggests the purpose and aims were perhaps not clearly communicated and highlights that the term 'moral injury' may not have been widely known or understood by the target population. The study advert was therefore reconfigured to provide a clearer description of moral injury, the study aims, and who the researcher was. I added a photo of

myself and a small blurb about my role as a Trainee Clinical Psychologist. Whilst the comments on the second study advert highlighted prospective participants curiosity regarding the purpose and origin of the research, these were posed in a questioning as opposed to an accusatory manner. Through the Facebook page set-up for the purposes of study recruitment, I was able to respond to comments providing answers to the questions raised and directed individuals to email me directly if they wanted to discuss any concerns further. This communication appeared to aid the building of trust in the study purpose as opposed to suspicion. This highlighted the importance of the language used in study adverts, especially when recruiting populations that are considered hard to reach (Bonevski et al., 2014).

Section 2.06 – financial incentives in recruitment

There is a predominant consensus that financial incentives are generally acceptable when participation is considered to be of low risk to the participant (McNeill, 1997). However, research on sensitive topics – such as this study – should be mindful of the potential coercive practice of providing a financial incentive, especially to those of low socioeconomic status (Zutlevics, 2016). Furthermore, Sharp et al. (2006), demonstrated that whilst reward was associated with increased response rates (comparative to a condition where there was no offer of a reward), this was linked a sample bias whereby differential motivational characteristics were observed between respondents and non-respondents. Equally, Zutlevics (2016) highlighted the potential confounding factor of crowding-out whereby financial incentives may impede intrinsic motivators such as altruism.

Section 2.07 – participant characteristics

Table 7

Participant characteristics

Characteristic	**Sample**	**M(*SD*)**
Age (range in years)	24-89	56.65(*11.00*)
Gender (%):		
Male	83.1	
Female	14.3	
Other	.66	
Prefer not to say	1.0	
Ethnicity (%):		
White	93.2	
Mixed or multiple ethnic groups	1.6	
Black, African, Caribbean or Black British	1.6	
Other	.70	
Prefer not to say	2.0	
Marital Status (%):		

Single	9.4
Married/domestic partnership	69.1
Divorced	12.7
Widowed	3.3
Separated	2.6
Prefer not to say	2.3
Highest Qualification (%):	
GCSE/equivalent	18.9
A-Level/equivalent	32.6
Undergraduate degree	25.4
Master's degree	11.4
PhD/Doctorate	1.6
No formal qualifications	3.3
Other	2.3
Prefer not to say	3.6
Employment (%):	
Employed full-time	40.1
Employed part-time	9.4
Self-employed	7.5
Unemployed	3.9
Away from work	5.2
Retired	28.7
Other	1.0
Prefer not to say	2.6
Household Income (%):	
£0 - £10,000	3.6
£10,001 - £24,999	19.5
£25,000 - £49,999	33.6
£50,000 - £74,999	18.2
£75,000 - £99,999	8.1
£100,000+	6.5
Prefer not to say	9.4
Region (%):	
Scotland	13.4
Wales	4.9
Northern Ireland	2.6
North West England	7.8
North East England	4.6
Yorkshire and the Humber	9.1
West Midlands	7.5
East Midlands	15.6
London	1.3
East of England	6.5
South West England	11.7
South East England	10.1
Prefer not to say	3.9
Armed Forces Branch (%):	
British Army	63.5
Royal Navy	13.7
Royal Air Force	20.8

Prefer not to say	1.0	
Years served (range in years)	1-48	15.98(*9.82*)
Discharge reason (%):		
Normal service leaver	50.2	
Early service leaver	5.5	
Medical discharge	13.0	
Retirement	11.1	
Other	14.3	
Prefer not to say	3.9	
Number of deployments (range)	0-40	4.73(*5.07*)
Different locations deployed to (total)	53	
Deployment locations (%):		
Northern Ireland	48.2	
Iraq	23.1	
Afghanistan	20.5	
Bosnia	19.5	
Falklands	15.3	
Cyprus	14.0	
Gulf	11.4	
Germany	9.4	
Kosovo	8.5	
Kuwait	4.6	
Belize	4.2	
Canada	3.9	
USA	3.6	
Sierra Leone	2.9	
Gibraltar	2.3	
Balkans	2.0	
Macedonia	2.0	
Oman	2.0	
Norway	2.0	
Saudi Arabia	1.6	
France	1.6	
Kenya	1.6	
Italy	1.6	
Yemen	1.3	
Croatia	1.3	
Yugoslavia	1.3	
Hong Kong	1.3	
Somalia	1.0	
Qatar	1.0	
Estonia	1.0	
Egypt	1.0	
Malta	1.0	
Portugal	1.0	
Denmark	1.0	
Zimbabwe	<1.0	
Mali	<1.0	
Russia	<1.0	
Jamaica	<1.0	

Albania	<1.0
Ukraine	<1.0
Bahrain	<1.0
Turkey	<1.0
Holland	<1.0
Namibia	<1.0
Lebanon	<1.0
Libya	<1.0
Poland	<1.0
Spain	<1.0
Rwanda	<1.0
Mozambique	<1.0
South Africa	<1.0
Syria	<1.0
Iran	<1.0

Comparison of the participant characteristics with data reported by the Office for National Statistics (ONS) regarding UK AF veterans indicates the sample to be relatively representative. 83.1% of the sample were male, compared to 86.4% of the UK AF veteran population (ONS, 2023) and 93.2% of participants reported their ethnicity as 'white', compared with 96.4% of the UK AF veteran population (ONS, 2023). With 21.9% of participants being ≥65 years of age, the sample of this study was perhaps under-representative of older adult UK AF veterans as according to ONS (2023), 53% of UK AF veterans are ≥65 years of age. As such, inferences of the findings of this study perhaps mainly pertain to working age adult UK AF veterans. In the UK, the British Army accounts for approximately 56% of UK AF personnel, and the Royal Air Force and Royal Navy account for approximately 22% of UK AF personnel each (Kirk-Wade, 2024). It was therefore anticipated (and reflected by the participant demographics) that there would be a higher proportion of British Army veteran respondents than veterans of the Royal Navy and Royal Air Force.

Data collection of deployment locations revealed 'deployment' as having different definitions depending on which branch of the AF a participant had been a part of (Bonds et al., 2013). For example, for the British Army deployment would typically refer to postings to conflict zones or bases around the world, whereas for the Royal Navy deployments tend to be more frequent and the duration refers to the amount of time at sea (Brooke-Holland, 2022). Furthermore, in the Royal Airforce, a deployment would refer to flying to a new location such as between bases (Royal Air Force, 2023). It may have been useful in the demographic questionnaire to have included a more specific question regarding deployments to conflict

zones as it proved difficult to separate conflict deployments from other deployments in this dataset in a meaningful way.

Section 2.08 – MI measure selection

As discussed in section 1.14, a recent meta-analysis of MI measures identified the MIOS (Litz et al., 2022) to be the most robust measure available (Houle et al., 2024). This measure was used to initially capture if and the type of PMIE(s) participants had experienced, and the 14-item subscale of MI was used to measure MI as an outcome.

The MIOS starts with an initial description of MI: *This questionnaire asks about experiences you may have had <u>whilst serving in the military</u> after a very stressful experience in which you: (A) did something (or failed to do something) that went against your moral code or values; or (B) you saw someone (or people) do something or fail to do something that went against your moral code or values; or (C) you were directly affected by someone doing something or failing to do something that went against your moral code or values (e.g., being betrayed by someone you trusted).* The underlined part of this description was an addition to the standardised description included in this study as the aims were specifically regarding MI following active duty.

Respondents are then asked if they have had at least one experience like this that troubles them currently (responses options of 'yes' or 'no'). If the response is 'yes', respondents are then asked to mark the type of experience (A, B, and C) that is most currently distressing, and that if it is more than one, to mark all that apply. The fourteen items that follow are listed below. Respondents are asked to rate each item on a Likert scale from zero (strongly disagree) to four (strongly agree).

1. I blame myself.
2. I have lost my faith in humanity.
3. People would hate me if they really knew me.
4. I have trouble seeing goodness in others.
5. People do not deserve second chances.
6. I am disgusted by what happened.
7. I feel like I do not deserve a good life.
8. I keep myself from having success.
9. I no longer believe there is a higher power.
10. I lost trust in others.

11. I am angry all the time.
12. I am not the good person I thought I was.
13. I have lost pride in myself.
14. I cannot be honest with other people.

Section 2.09 – shame measure selection

When determining an appropriate measure to capture participants' experience of shame and the severity of this, three key criteria were kept in mind:

1. We were interested in identifying an appropriate measure of state shame (shame in response to a specific experience as opposed to trait shame (also referred to as shame-proneness), which describes frequent and intense experiences of shame non-reliant on events or stimuli; Sedighimornani, 2018). This is because the hypothesised model we were looking to test was exploring shame in response to PMIEs and as such a measure of state shame would be most appropriate for this.
2. Relatedly to the first point, identification of a measurement tool that measured shame in response to a specific experience as opposed to generalised shame was necessary to minimise the impact on results of confounding factors/experiences that may have led to shame other than PMIEs (Lear et al., 2022).
3. Given the challenges in distinguishing between shame and guilt (Miceli & Castelfranchi, 2018), it was important to identify a shame measure that demonstrated discriminant validity from measures of guilt in order for there to be confidence that distinguishable variables were being compared when model testing (Harder & Lewis, 2013).

The Trauma-Related Shame Inventory (TRSI; Øktedalen et al., 2014) was indicated to meet all the above criteria and was thus considered the most appropriate measure for this variable.

Section 2.10 – guilt measure selection

Similarly to the previous section, the following criteria was outlined for identifying an appropriate guilt measure:

1. A measure of state guilt as opposed to trait guilt as we were interested in investigating the guilt response to PMIEs as opposed to the predictive vulnerability of guilt-proneness (Tignor & Colvin, 2019).

2. A measure that allowed for investigation of guilt in response to a specific event (PMIE) to minimise other potential guilt-inducing experiences confounding results (Tilghman-Osborne et al., 2010).
3. A measure with discriminant validity from measure of shame in order for parallel investigation of distinct constructs as intended (Harder & Lewis, 2013).

With the above criteria in mind, the Trauma-Related Guilt Inventory (TRGI; Kubany et al., 1996) was identified as the most appropriate.

Section 2.11 – self-criticism measure selection

A systematic review of measures of self-criticism identified five measures and five measure subscales pertaining to self-criticism (Rose & Rimes, 2018). This review identified four different ways of measuring self-criticism: (i) trait self-criticism; (ii) self-criticism in response to difficult circumstances; (iii) self-criticism as mood regulatory strategy; (iv) repetitive self-criticism. To meet the aims and investigate the hypotheses of this study, the second type of measure (self-criticism in response to difficult circumstances) was deemed the most appropriate as we were interested in exploring the moderating effect of self-criticism following a PMIE. Of the measures in that category, the systematic review identified the Forms of Self-Criticising/Attacking and Self-Reassurance Scale (FSCRS; Gilbert et al., 2004) to have the highest ratings for internal consistency and structural validity of the measures included in the review (Rose & Rimes, 2018). The authors also commented on the utility of the multidimensional conceptualisation of self-criticism into hated-self and inadequate-self for intervention protocol and outcome research (Rose & Rimes, 2018). Furthermore, as discussed in section 1.20, a systematic review of self-compassion interventions targeting self-criticism called for consistency in the use of measures for more comparable outcome data and recommended the FSCRS (Gilbert et al., 2004) as a measure of self-criticism and the Self-Compassion Scale (SCS; Neff, 2003) as a measure of self-compassion (Wakelin et al., 2022). As an aim of this study is to further our mechanistic understanding of MI to better inform intervention targets, the FSCRS was considered the most appropriate measure of self-criticism for this purpose.

Section 2.12 – self-compassion measure selection

As stated in the previous section, the SCS has been recommended for the purposes of collecting data regarding self-compassion in clinically focused research to aid consistency and comparability between studies (Wakelin et al., 2022). As the short-form version of the SCS has demonstrated comparable psychometric merit to the long-form version when

seeking an overall self-compassion metric as opposed to subscale data (Neff & Tóth-Király, 2022), the SCS-SF (Raes et al., 2011) was considered the most appropriate for the purposes of this study. This was not only due to the psychometric strengths, but participant burden was an important consideration, especially in a multi-measure questionnaire battery (Eisele et al., 2022). The short-form version is a reliable and valid measure of self-compassion that minimises participant burden through the reduced number of items (Raes et al., 2011).

Section 2.13 – participation eligibility

Of the 179 individuals that did not meet the inclusion criteria, 32 were ineligible due to reporting never having served in the UK AF, and 147 were ineligible due to reporting being in active service with the UK AF. Of those that met the eligibility criteria but discontinued prior to the questionnaire battery, 25 reported that they had not read or understood the participant information sheet, 22 indicated they had read and understood the participant information sheet but did not continue beyond this point, and 52 completed the consent form but did not complete any measures.

Section 2.14 – participant responses and drop-out breakdown

Following the MIOS, the order the remaining measures were randomised meaning discontinuation at this point resulted in different measures not being completed. Overall, there were 123 participants that completed every measure in the questionnaire battery. Table 8 outlines the number of completions per each individual measure.

Table 8

Number of completions per measure

Measure	Completions
MIOS	161
TRSI	133
TRGI	132
FSCRS	136
SCS-SF	135

Section 2.15 – regression assumption testing

Normality

Normality is the assumption that the errors in the estimation of the outcome variable are normally distributed (Hayes, 2018). Violations of this assumption are unlikely to substantially affect the validity of inferences unless these are severe, or the sample is small (Hayes, 1996). The calculation of z-scores was completed for statistical examination of the

distribution of data for each of the variables (DeVore, 2017). This was calculated by dividing the statistic value by the standard error value for both skewness and kurtosis. Skewness measures asymmetry, with a value of zero indicating a perfectly symmetrical distribution of data; values above zero would indicate a positive skew whereby more of the data values are on the left side of the mean than the right, and values below zero would indicate a negative skew whereby more of the data values are on the right side of the mean than the left (Kim, 2013). Kurtosis is a measure of how peaked or flat the data distribution is and a value of zero would indicate a perfectly normally distributed dataset; values above zero would indicate leptokurtic distribution suggesting a high peak and values below zero would indicate platykurtic distribution suggesting a flat-top peak (Kim, 2013).

Z-scores for all variables (MIOS, TRSI, TRGI, SCS-SF, FSCRS-HS, FSCRS-IS) were within the range of -3.29 to 3.29 (see table 9) which indicates normally distributed data for a sample between 50-300 (DeVore, 2017). Moreover, P-P plot inspection following the multiple regression analysis indicated the residuals were normally distributed (Mishra et al., 2019). As such, the assumption of normality was considered to be met for all of these variables. As the predictor variable (PMIE type) was dichotomous – participants reported either having done, witnessed, or been affected by someone doing something against their moral values or not (coded one for yes and zero for no) – this data could not be normally distributed. Thus, bootstrapping was utilised, with the recommended number of 5000 bootstrap samples (Hayes, 2018).

Table 9

Skewness and kurtosis z-scores for Moral Injury Outcome Scale (MIOS) total score, Trauma-Related Shame Inventory (TRSI) total score, Trauma-Related Guilt Inventory (TRGI) total score, Self-Compassion Scale – Short-Form (SCS-SF) total score, Forms of Self-Criticising/Attacking and Self-Reassurance Scale (FSCRS) Hated Self (HS) subscale score, and Inadequate Self (IS) subscale score

Variable	Skewness z-score	Kurtosis z-score
MIOS	1.18	-.14
TRSI	1.96	-1.87
TRGI	-1.08	-.49
SCS-SF	2.11	-.74
FSCRS-HS	.53	-2.96
FSCRS-IS	-2.47	-2.11

Multicollinearity

Collinearity signifies when two predictor variables in a regression analysis are themselves correlated; multicollinearity signifies when more than two predictor variables are correlated (Mason & Perreault, 1991). Multicollinearity prevents predictive models from constructing accurate predictions by increasing model complexity and overfitting. If the degree of correlation between variables is high enough, it can impact inference as it creates difficulty in determining any one variable's individual impact on the model output (Alin, 2010).

Analysis of collinearity statistics showed this assumption was met for all variables as VIF scores were below five but above two, indicating moderate correlation of variables but not to a degree which required corrective action (Daoud, 2017). This suggests each predictor variable was not highly correlated with any other and as such there can be clear attribution of variance on the dependent variable (MIOS total score).

Independence

Independence is the assumption that errors in estimation are statistically independent meaning that error in estimation of the outcome variable from one predictor variable should not provide any information regarding the estimation in error from another predictor variable (Hayes, 2018). Nonindependence impacts the accuracy of the estimation of standard error of regression coefficients and underestimation of the standard error can invalidate hypothesis tests and lead to narrow confidence intervals (O'Connor, 2004). The Durbin-Watson statistic showed this assumption had been met, as the obtained value was close to 2 (Durbin-Watson value = 1.93).

Homoscedasticity

Homoscedasticity is the assumption that errors in estimation of the outcome variable are equivalently variable (Hayes, 2018). If this is not met, the errors in estimation are heteroscedastic meaning the validity of inferences, statistical power, and accuracy of confidence intervals can be affected depending on the type of heteroscedasticity (Rosopa et al., 2013). Mild violations of this assumption are not considered too concerning (Hayes, 1996), however, the SPSS PROCESS macro does have the option for employing heteroscedasticity-consistent covariance estimates which uses inferential approaches in regression analysis that do not assume homoscedasticity, if this assumption is violated (Hayes, 2012).

The scatterplot of standardised residuals demonstrated a uniform distribution across the range of predicted values indicating the variance of errors to be the same across all values of the predictor variables (Flatt & Jacobs, 2019).

Linearity

Linearity is the assumption that the associations between variables are linear or approximately linear (Hayes, 2018). Scatter plots for each continuous predictor variable (TRSI; TRGI; FSCRS-IS; FSCRS-HS; SCS-SF) against the dependent variable (MIOS) indicated linear relationships. Given the dichotomous data regarding PMIEs (either 'yes' or 'no') it was not possible to visually inspect linearity between PMIEs and MIOS.

Section 2.16 – mediation analysis

Mediation models with multiple mediators, as is the case in this study, allow multiple mechanisms to be modelled concurrently in one combined model (Hayes, 2018). As is outlined in the conceptual model of MI developed by Litz et al. (2009), it is hypothesised the association between PMIEs and MI operates through multiple mechanisms – shame and guilt. Thus, a multiple mediation model is recommended as this allows testing of a model that allows for multiple simultaneous pathways. Additionally, inclusion of multiple mediators between a predictor and outcome variable allows one to test the comparative strength of the indirect effects via the different mediators (Hayes, 2018). The predominant types of multiple mediation models are serial and parallel. Serial multiple mediator models assert the mediators are connected in a causal chain whereas parallel multiple mediator models assert mediators may correlate but are not directly associated with one another (Hayes, 2018).

In the conceptual model of MI outlined by Litz et al. (2009), shame and guilt and grouped together and previous research exploring the mechanisms of MI have investigated these together as a singular variable (Jordan et al., 2017; Lancaster, 2018)**.** As discussed in section 1.10, shame and guilt are broadly considered distinct emotions with distinct mechanisms (Tracy & Robins, 2004). As this study aimed to improve the conceptual understanding of MI, addressing this discrepancy between the theoretical understanding of shame and guilt and the existing conceptualisation of MI was an important element of study design and analysis method selection. It was not hypothesised that shame and guilt mediated the relationship between PMIE-type and MI in a serial nature, it was instead hypothesised that these were distinct pathways of mediation. As such, serial multiple mediator modelling

would not have been appropriate and parallel multiple mediator modelling was the most appropriate analysis approach for testing the hypotheses and meeting the aims of the study.

Section 2.17 – bootstrapping

There are a number of approaches that allow statistical inference for indirect effects in tested models such as the normal theory approach and bootstrap confidence intervals (Hayes, 2018). The normal theory approach has been reported to demonstrate lower power and less accurate confidence intervals comparative to other inferential approaches (Preacher & Hayes, 2004) and as such this approach was not followed for this study. With bootstrap confidence intervals, the study sample is observed as a small representation of the population being sampled (in this instance UK AF veterans); the study sample data is then resampled with replacement, and interactions of variables/indirect effects in models are calculated in the new larger sample developed via the resampling process (Hayes, 2018). This is used to construct a confidence interval with relative higher power and accuracy in representation of the original sample distribution comparative to the normal theory approach (Koopman et al., 2014). There are two key considerations when using bootstrap-based inferences:

1. As bootstrap resampling replicates the study sample distribution, it is important that the study sample is representative of the population in order for findings to have generalisability and meaning beyond the specific sample (Kulesa et al., 2015). In this study, the sample was indicated to be representative of the gender and ethnicity demographics of the UK AF veteran population compared with the latest available census data for this group (ONS, 2023), and proportionally representative of the different AF branches (Kirk-Wade, 2024), suggesting validity of the bootstrap resampling and confidence intervals derived from the study sample.
2. As bootstrap confidence intervals are derived from random resampling, the end points are not static and as such every time a bootstrap confidence interval is constructed from the same dataset, a slightly different confidence interval will be derived (Kulesa et al., 2015). It is recommended that bootstrap resampling samples of 5000 are used in order to reduce this variation to an arbitrary level (Hayes, 2018). To further address this, seeding the bootstrap resampling random number generator can be useful (Ehara et al., 2013). Bootstrap random number generators are pseudorandom in that large number sequences are systematically generated and will eventually repeat (Beran, 2008). Seeding is informing the pseudorandom number generator where to start in this long sequence, thus using the same seed number each time when generating 5000

bootstrap resamples means the generator will use the same 5000 number sequences (Beran, 2008). For this study, we randomly selected 4578 as the seed number for each 5000 bootstrap resamples generated.

Section 3 – Extended Results

Section 3.01 – multiple regression interpretation

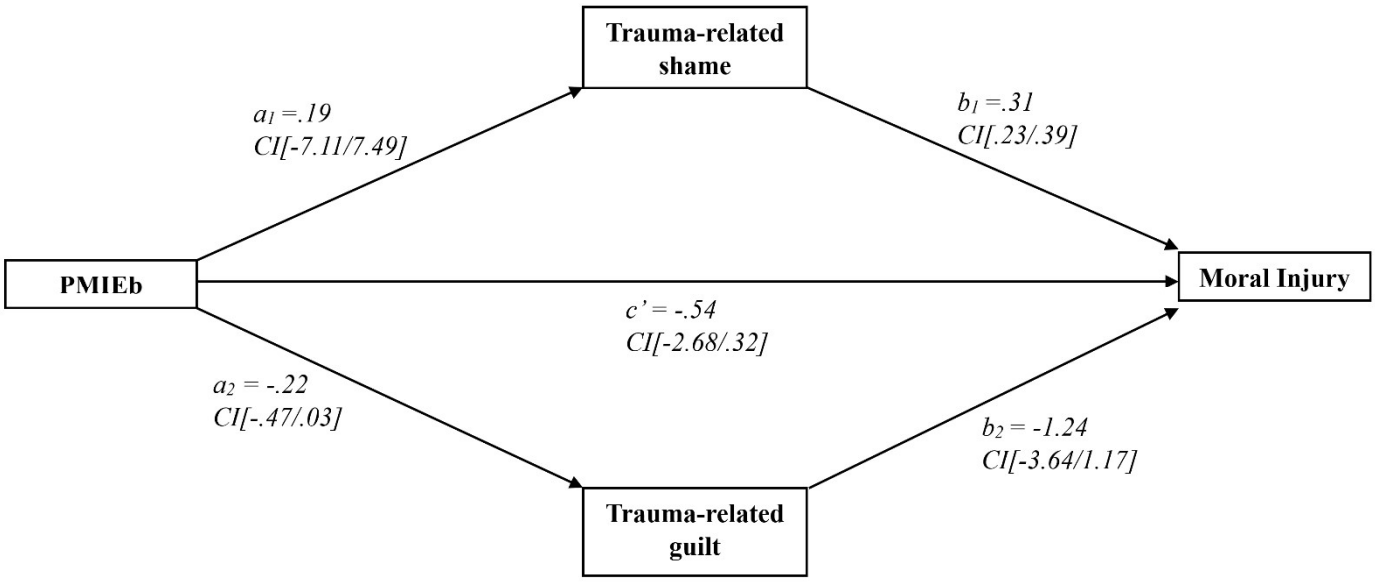
One possible explanation for PMIEa significantly contributing to the multiple regression model whilst PMIEb and PMIEc did not may be multicollinearity (Daoud, 2017). However, this assumption was tested prior to conducting the analyses (see section 2.15) and multicollinearity was not considered to be an issue for this dataset. An alternative explanation may be that of sample size, as if the sample was too small the model would lack power to detect a significant relationship when considering all the predictor variables together (Chao et al., 2008). However, a priori power calculations indicated a sample of 55 participants were required to have 80% power for detecting a medium effect size and as such our sample of 123 was considered more than adequate.

Section 3.02 – additional mediation results

From a parallel multiple mediator analysis conducted using PROCESS model 4, witnessing something against one's moral values (PMIEb) did not directly or indirectly influence moral injury severity (MIOS total score) through trauma-related shame (TRSI total score) or trauma-related guilt (TRGI total score). As can be seen in figure 9, CIs crossing zero indicated there was no evidence of an association between witnessing something against one's moral values and trauma-related shame (a_1 = .19) nor was there an association between witnessing something against one's moral values and trauma-related guilt (a_2 = -.22). Trauma-related shame was associated with MI severity (b_1 = .31), however, a bootstrap confidence interval for the indirect effect of PMIEb on MI severity through trauma-related shame based on 5000 bootstrap samples crossed zero (partially standardised effect coefficient for a_1b_1 = .01, 95% CI[-.24 to .26]). There was no evidence of an association between trauma-related guilt and MI severity (b_2 = -1.24) and no evidence of a direct effect of witnessing something against one's moral values on MI severity (c' = -.54, 95% CI[-2.68 to .32]).

Figure 9

Parallel mediation model with PMIEb as the predictor variable, trauma-related shame and trauma-related guilt as the mediator variables, and MI severity as the outcome variable

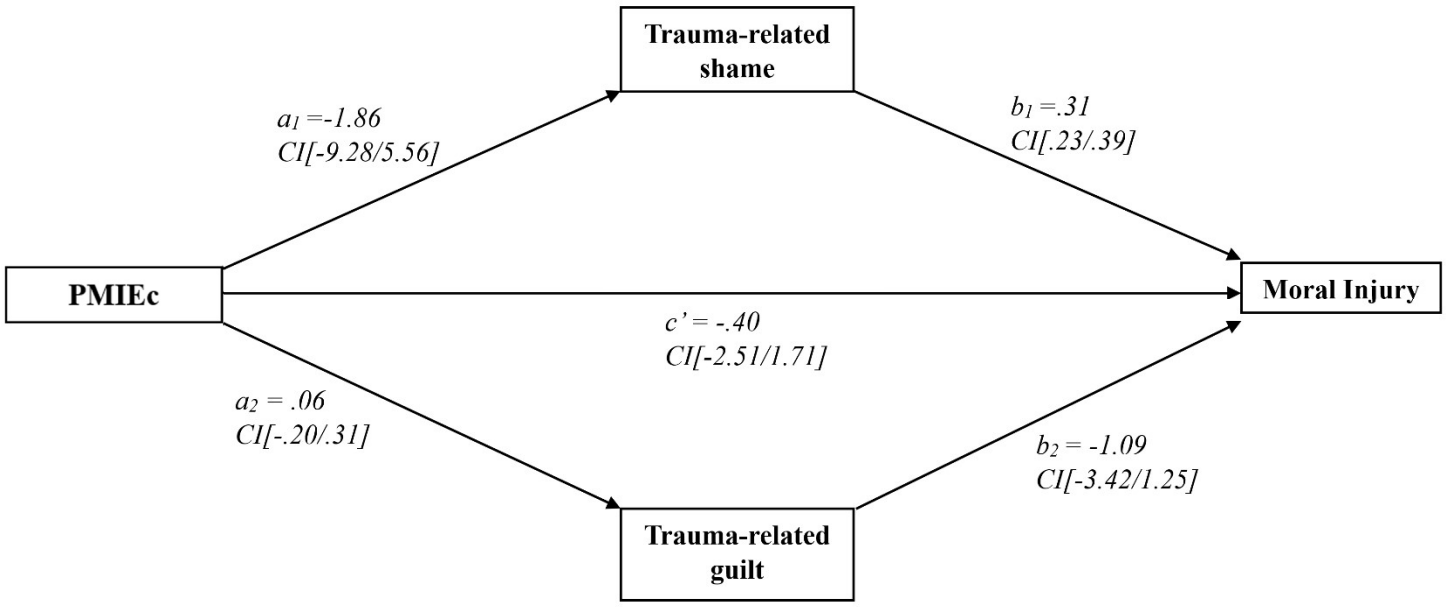


Note. a_1 denotes the association between PMIEb and trauma-related shame, b_1 denotes the association between trauma-related shame and moral injury severity, a_2 denotes the association between PMIEb and trauma-related guilt, b_2 denotes the association between trauma-related guilt and mora injury severity, and *c'* denotes the direct effect of PMIEb on moral injury. Confidence Intervals (CI) that do not cross zero indicate we can be confident the association is not zero. Unstandardised coefficients reported due to the dichotomous nature of the predictor variable.

From a parallel multiple mediator analysis conducted using PROCESS model 4, being directly affected by someone doing something against one's moral values (PMIEc) did not directly or indirectly influence moral injury severity (MIOS total score) through trauma-related shame (TRSI total score) or trauma-related guilt (TRGI total score). As can be seen in figure 10, the CIs crossed zero indicating there was no evidence of an association between being directly affected by someone doing something against one's moral values and trauma-related shame (a_1 = -1.86) or trauma-related guilt (a_2 = .06). As evidenced in the mediation models reported for PMIEa and PMIEb, trauma-related shame was associated with MI severity (b_1 = .31), however, a bootstrap confidence interval for the indirect effect of PMIEc on MI severity through trauma-related shame based on 5000 bootstrap samples crossed zero (partially standardised effect coefficient for a_1b_1 = -.07, 95% CI[-.33 to .19]). There was no evidence of an association between trauma-related guilt and MI severity (b_2 = -1.09) and no evidence of a direct effect of being directly affected by someone doing something against one's moral values on MI severity (c' = -.40, 95% CI[-2.51 to 1.71]).

Figure 10

Parallel mediation model with PMIEc as the predictor variable, trauma-related shame and trauma-related guilt as the mediator variables, and MI severity as the outcome variable



Note. a_1 denotes the association between PMIEc and trauma-related shame, b_1 denotes the association between trauma-related shame and moral injury severity, a_2 denotes the association between PMIEc and trauma-related guilt, b_2 denotes the association between trauma-related guilt and mora injury severity, and *c'* denotes the direct effect of PMIEc on moral injury. Confidence Intervals (CI) that do not cross zero indicate we can be confident the association is not zero. Unstandardised coefficients reported due to the dichotomous nature of the predictor variable.

Section 3.03 – additional conditional process analyses

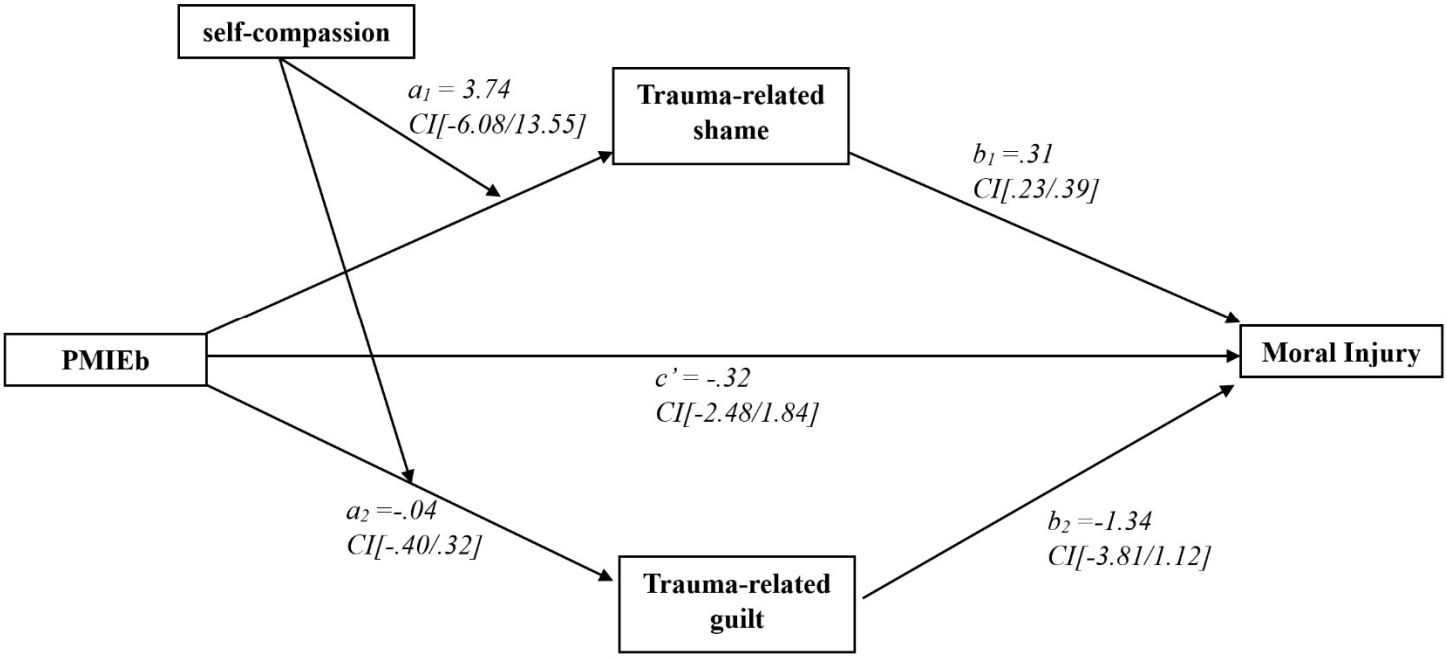
Predictor variable: PMIEb, mediator variables: trauma-related shame and trauma-related guilt, moderator variable: self-compassion, and outcome variable: MI severity

The hypothesised moderated mediation model was tested using Hayes' PROCESS model 7, which tested a model whereby self-compassion was predicted to moderate the effect of paths a_1 and a_2 (Figure 11). The moderating role of self-compassion (SCS-SF total score) was not found to be significant in the association between witnessing something against one's moral values (PMIEb) and trauma-related shame (TRSI total score): Unstandardised interaction coefficient = 3.74, 95% CI [-6.08 to 13.55], or trauma-related guilt (TRGI total score): Unstandardised interaction coefficient = -.04, 95% CI[-.40 to .32]. As the CIs cross zero, there is not support for the hypothesised conditional indirect effects. The model replicated the results reported in section 3.02 with trauma-related shame being positively associated with MI severity (b_1 = .31) and there being no evidence that trauma-related guilt influenced moral injury severity (b_2 = -1.34) due to the CI crossing zero (-3.81 to 1.12).

Equally, there was no evidence of a direct effect of witnessing something against one's moral values on moral injury severity (c' = -.32, 95% CI[-2.48 to 1.84]).

Figure 11

Conditional process model with PMIEb as the predictor variable, trauma-related shame and trauma-related guilt as the mediator variables, self-compassion as the moderator variable, and MI severity as the outcome variable



Note. a_1 denotes the association between PMIEb and trauma-related shame, a_2 denotes the association between PMIEb and trauma-related guilt, b_1 denotes the association between trauma-related shame and moral injury severity, b_2 denotes the association between trauma-related guilt and mora injury severity, and *c'* denotes the direct effect of PMIEb on moral injury. Confidence Intervals (CI) that do not cross zero indicate we can be confident the association is not zero. Unstandardised coefficients reported due to the dichotomous nature of the predictor variable.

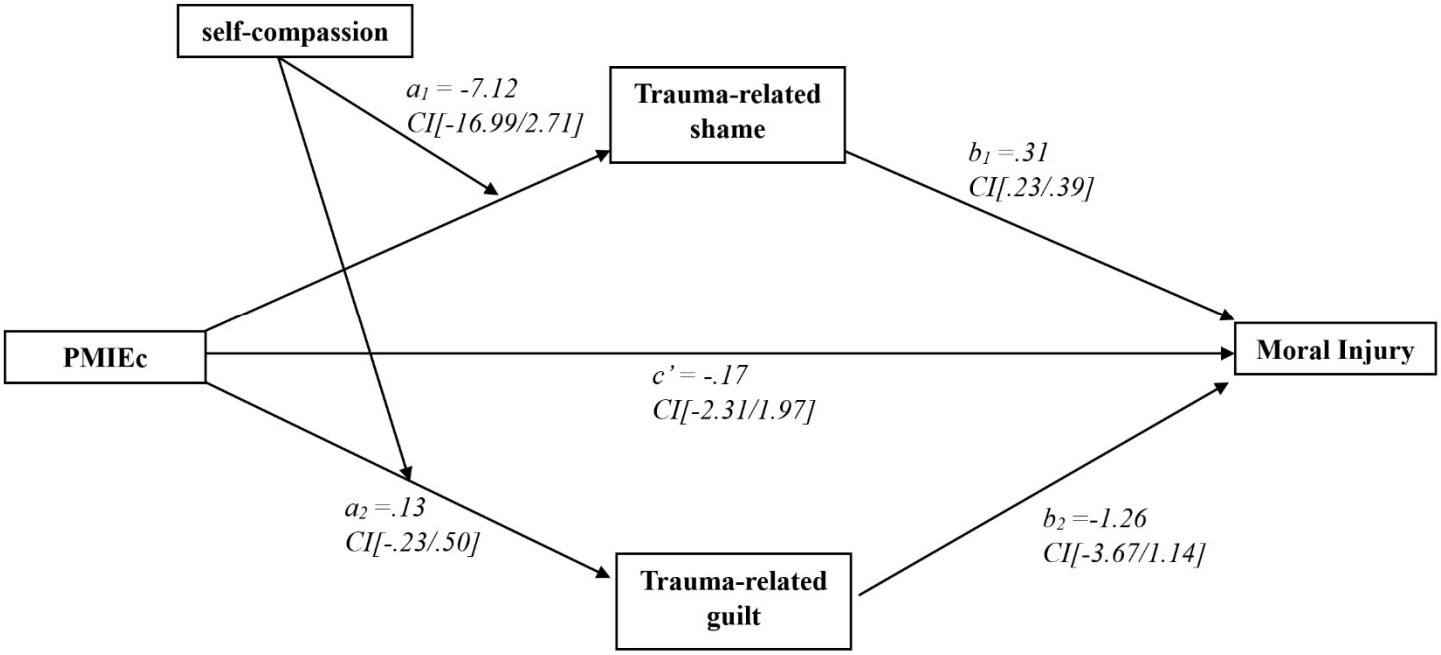
Predictor variable: PMIEc, mediator variables: trauma-related shame and trauma-related guilt, moderator variable: self-compassion, and outcome variable: MI severity

The hypothesised moderated mediation model was tested using Hayes' PROCESS model 7, which tested a model whereby self-compassion was predicted to moderate the effect of paths a_1 and a_2 (Figure 12). The moderating role of self-compassion (SCS-SF total score) was not found to be significant in the association between being directly affected by someone doing something against one's moral values (PMIEc) and trauma-related shame (TRSI total score): Unstandardised interaction coefficient = -7.12, 95% CI [-16.99 to 2.71], or trauma-related guilt (TRGI total score): Unstandardised interaction coefficient = .13, 95% CI[-.23 to .50]. As the CIs cross zero, there is not support for the hypothesised conditional indirect

effects. The model replicated the results reported in section 3.02 with trauma-related shame being positively associated with MI severity (b_1 = .31) and there being no evidence that trauma-related guilt influenced moral injury severity (b_2 = -1.26) as the CI crossed zero (-3.67 to 1.14). Equally, no evidence of a significant direct effect of being directly affected by someone doing something against one's moral values on moral injury severity was found (c' = -.17, 95% CI[-2.31 to 1.97]).

Figure 12

Conditional process model with PMIEc as the predictor variable, trauma-related shame and trauma-related guilt as the mediator variables, self-compassion as the moderator variable, and MI severity as the outcome variable



Note. a_1 denotes the association between PMIEc and trauma-related shame, a_2 denotes the association between PMIEc and trauma-related guilt, b_1 denotes the association between trauma-related shame and moral injury severity, b_2 denotes the association between trauma-related guilt and mora injury severity, and *c'* denotes the direct effect of PMIEc on moral injury. Confidence Intervals (CI) that do not cross zero indicate we can be confident the association is not zero. Unstandardised coefficients reported due to the dichotomous nature of the predictor variable.

Predictor variable: PMIEb, mediator variables: trauma-related shame and trauma-related guilt, moderator variables: self-criticism in the form of hated-self and self-criticism in the form of inadequate-self, and outcome variable: MI severity

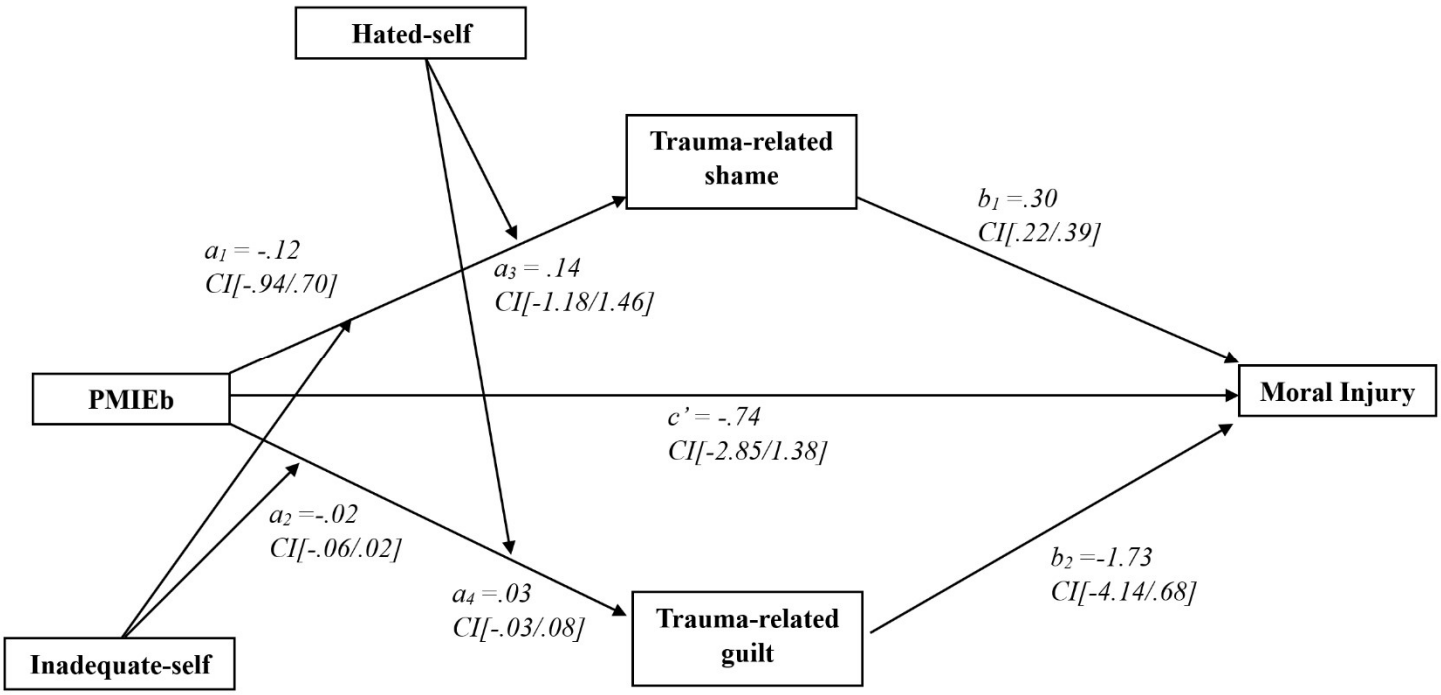
The hypothesised moderated mediation model was tested using Hayes' PROCESS model 9, which tested a model whereby hated-self and inadequate-self were predicted to moderate the effect of paths a_1 – a_4 (figure 13). There was no evidence of self-criticism in the form of inadequate-self (FSCRS inadequate-self subscale total) moderating the association

between witnessing something against one's moral values and trauma-related shame (a_1 = -.12, 95% CI[-.94 to .70]) or trauma-related guilt (a_2 = -.02, 95% CI[-.06 to .02]).

There was no evidence of self-criticism in the form of hated-self (FSCRS hated-self subscale total) moderating the association between witnessing something against one's moral values and trauma-related shame (a_3 = .14, 95% CI[-1.18 to 1.46]) or trauma-related guilt (a_4 = .03, 95% CI[-.03 to .08]). As reported in previous models, trauma-related shame was significantly associated with MI severity (b_1 = .30), and there was no evidence of a significant association between trauma-related guilt and MI severity (b_2 = -1.73) as the CI crossed zero (-4.14 to .68) or a significant direct association between witnessing something against one's moral values and MI severity (c' = -.74, 95% CI[-2.85 to 1.38]).

Figure 13

Conditional process model with PMIEb as the predictor variable, trauma-related shame and trauma-related guilt as the mediator variables, self-criticism in the form of hated-self and self-criticism in the form of inadequate-self as the moderator variables, and MI severity as the outcome variable



Note. a_1 denotes the association between PMIEb and trauma-related shame moderated by self-criticism in the form of inadequate-self , a_2 denotes the association between PMIEb and trauma-related guilt moderated by self-criticism in the form of inadequate-self, a_3 denotes the association between PMIEb and trauma-related shame moderated by self-criticism in the form of hated-self, a_4 denotes the association between PMIEb and trauma-related guilt moderated by self-criticism in the form of hated-self, b_1 denotes the association between

trauma-related shame and moral injury severity, b_2 denotes the association between trauma-related guilt and moral injury severity, and *c'* denotes the direct effect of PMIEb on moral injury severity. Confidence Intervals (CI) that do not cross zero indicate we can be confident the association is not zero. Unstandardised coefficients reported due to the dichotomous nature of the predictor variable.

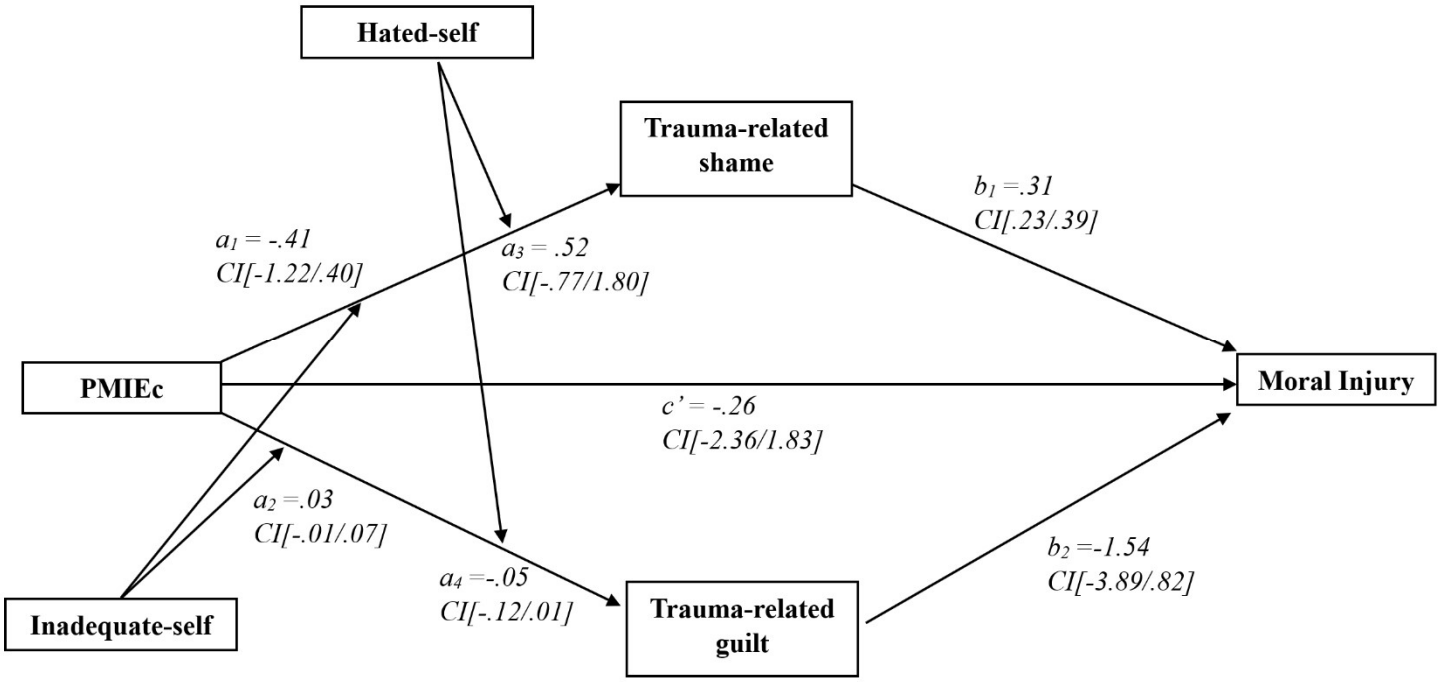
Predictor variable: PMIEc, mediator variables: trauma-related shame and trauma-related guilt, moderator variables: self-criticism in the form of hated-self and self-criticism in the form of inadequate-self, and outcome variable: MI severity

The hypothesised moderated mediation model was tested using Hayes' PROCESS model 9, which tested a model whereby hated-self and inadequate-self were predicted to moderate the effect of paths a_1 – a_4 (figure 14). There was no evidence of self-criticism in the form of inadequate-self (FSCRS inadequate-self subscale total) moderating the association between being directly affected by someone doing something against one's moral values and trauma-related shame (a_1 = -.41, 95% CI[-1.22 to .40]) or trauma-related guilt (a_2 = .03, 95% CI[-.01 to .07]).

There was no evidence of self-criticism in the form of hated-self (FSCRS hated-self subscale total) moderating the association between being directly affected by someone doing something against one's moral values and trauma-related shame (a_3 = .52, 95% CI[-.77 to 1.80]) or trauma-related guilt (a_4 = -.05, 95% CI[-.12 to .01]). Consistent with the results of previous models, trauma-related shame was significantly associated with MI severity (b_1 = .31), and there was no evidence of a significant association between trauma-related guilt and MI severity (b_2 = -1.54, 95% CI[-3.89 to .82]) or a significant direct association between being directly affected by someone doing something against one's moral values and MI severity (c' = -.26, 95% CI[-2.36 to 1.83]).

Figure 14

Conditional process model with PMIEc as the predictor variable, trauma-related shame and trauma-related guilt as the mediator variables, self-criticism in the form of hated-self and self-criticism in the form of inadequate-self as the moderator variables, and MI severity as the outcome variable



Note. a_1 denotes the association between PMIEc and trauma-related shame moderated by self-criticism in the form of inadequate-self , a_2 denotes the association between PMIEc and trauma-related guilt moderated by self-criticism in the form of inadequate-self, a_3 denotes the association between PMIEc and trauma-related shame moderated by self-criticism in the form of hated-self, a_4 denotes the association between PMIEc and trauma-related guilt moderated by self-criticism in the form of hated-self, b_1 denotes the association between trauma-related shame and moral injury severity, b_2 denotes the association between trauma-related guilt and moral injury severity, and *c'* denotes the direct effect of PMIEc on moral injury severity. Confidence Intervals (CI) that do not cross zero indicate we can be confident the association is not zero. Unstandardised coefficients reported due to the dichotomous nature of the predictor variable.

Section 3.04 – exploratory analysis: self-compassion and MI severity association

Exploratory analysis regarding the direct association between self-compassion and MI severity was conducted using linear regression analysis. The linear regression significantly accounted for 31.2% of the variance in MIOS total score, β = -.56, F(1, 132) = 59.78, $p <$ .001. This suggests a significant negative association between self-compassion and MI severity (discussed in section 4.06).

Section 4 – Extended Discussion

Section 4.01 – differential mechanisms of the different PMIE-types

Jordan et al. (2017) explored the mechanistic relationship between combat exposure, self-transgressions (PMIEa), and betrayal-based transgressions (PMIEc) and the outcome of PTSD via mediators of guilt, shame, anger, and dissociation in a sample of 867 active-duty US Marines. They identified a significant mediation of the relationship between self-transgressions and PTSD via shame and guilt, and a significant mediation of the relationship between betrayal-based transgressions and PTSD via anger. The relationship between combat exposure and PTSD was mediated by dissociation and no significant direct effects were observed (Jordan et al., 2017). As is consistent with the results of this study, this suggests differential mechanistic pathways dependent on the type of PMIE. The lack of significant relationship between combat exposure and the mediation variables of shame, guilt, and anger also suggests that it is the appraisal of PMIEs that contributes significantly to negative outcomes.

Seeking to replicate and expand on the findings of Jordan et al. (2017), Lancaster (2018) explored the mechanistic relationship between transgressive acts, self-transgressions (PMIEa), betrayal-based transgressions (PMIEc) and outcomes of PTSD and depression, via mediators of guilt, shame, and anger in a sample of 161 US AF veterans. They developed a specific measure of exposure to transgressive acts (the transgressive acts scale) which included seven items such as *"involved in violence that was out of proportion to the event"* and an open-ended item whereby participants could include experiences not captured on the measure (Lancaster, 2018). Self-transgressions and betrayal-based transgressions were then measured using the MIES (Nash et al., 2013). Transgressive acts were indicated to be significantly associated with both self-transgressions and betrayal-based transgressions, however, whilst betrayal-based transgressions were significantly associated with guilt, shame, and anger, self-transgressions were significantly associated with guilt and shame but not anger. Guilt, shame, and anger were all associated with the outcomes of PTSD and depression and overall the model was reported to account for 57% of the variance in PTSD and 68% of the variance in depression (Lancaster, 2018). The results of both the discussed studies highlight that acts of others as well as acts one has engaged in oneself contribute to negative outcomes (Jordan et al., 2017; Lancaster, 2018).

This study partially replicated the above findings through demonstrating a significant mediating relationship between PMIEa and MI via trauma-related shame, however, unlike the

above studies, we did not find a significant mediating effect of trauma-related guilt (Jordan et al., 2017; Lancaster, 2018). However, Jordan et al. (2017) explored guilt/shame as one variable/construct. They used the Positive and Negative Affect Schedule (PANAS; Watson et al., 1988) which is a measure of experiences of positive and negative emotions and asked a panel of three PTSD experts to select items relating to guilt/shame and anger. This raises concerns regarding the construct validity of the mediator variables included in the study as theoretical assertions as well as the results of this study, suggest shame and guilt to be distinct constructs with distinct mechanistic roles/pathways (Tracy & Robins, 2004). Lancaster (2018) used the State Shame and Guilt Scale (SSGS; Marschall et al., 1994) which has subscales pertaining to shame, guilt, and pride. Both the shame and guilt subscales of this measure are considered to demonstrate good internal consistency and convergent validity (Ghatavi et al., 2002; Tangney & Dearing, 2003), however, in the predictive model tested by Lancaster (2018) there appears to be a single variable of guilt/shame and there is no commentary on the results pertaining to shame separately from the results pertaining to guilt. As such, the current study has expanded on previous mechanistic research into MI through exploring the roles of shame and guilt distinctly and demonstrating differential relationships with the other variables of the model.

Moreover, neither of the studies discussed explored MI as an outcome and assessed self-transgressions and betrayal-based transgressions using the MIES (Nash et al., 2013). As discussed in section 1.14, the MIES has demonstrated moderate internal consistency and inadequate convergent and divergent validity (Houle et al., 2024). As such, the current study has expanded on findings through the use of a more recently available robust measure of MI (Litz et al., 2022) and mechanistically exploring the presentation of MI as an outcome in its own right. Nevertheless, both Jordan et al. (2017) and Lancaster (2018) demonstrated a significant relationship between betrayal-based transgressions and negative outcomes of PTSD and depression mediated by anger. Inclusion of anger as a variable in the current study may therefore have enabled the development of a better understanding of the ways in which the relationships between the different PMIE types and MI are distinct.

Section 4.02 – conceptual implications of mediation findings

As shown in figure 5 (section 1.09), the conceptual model of MI outlined by Litz et al. (2009) asserts that following a transgression, there is dissonance/conflict, leading to stable, internal, global attributions, leading to shame, guilt and anxiety, leading to withdrawal, self-condemnation and MI. Mirroring the conceptual diagram of MI created by Litz et al. (2009),

previous research exploring the mechanisms of MI have grouped shame and guilt as a single construct (Jordan et al., 2017; Lancaster, 2018). However, theoretical distinction of shame and guilt suggest that stable, internal, global attributions are markers for shame, and that transient, external, specific attributions are markers for guilt (Bannister et al., 2019; Blum, 2008; Orth et al., 2006). Incidentally, the findings of the current study support this with only trauma-related shame significantly mediating the relationship between PMIEa and MI. Further research replicating the exploration of shame and guilt distinctly in relation to MI is therefore needed in order provide an empirical basis for adapting the conceptual model in light of what the evidence is suggesting about the discrete roles of these two moral emotions. Moreover, the systematic review of MI interventions trialled with veterans conducted by Paricos et al. (2025) identified three interventions specifically targeting guilt (Norman, 2022; Paul et al., 2014; Williamson et al., 2023). This demonstrates the importance of empirical testing of mechanisms prior to intervention development and trials as the mechanistic relevance of guilt with regards to the development and sustainment of symptoms of MI has since come into question.

Section 4.03 – implications for intervention targets

The systematic review of MI interventions trialled with veterans identified 18 distinct MI interventions and of these, three named shame as an intervention target (Paricos et al., 2025). The first was the Prolonged Exposure (PE) case study conducted by Paul et al. (2014). The authors concluded that PE can be a useful approach in reducing guilt- and shame-related cognitions following PMIEs (Paul et al., 2014). However, the case study only used measures of PTSD, depression, and anxiety (reliable changes reported for all measures from pre- to post-intervention) and the reported conclusions regarding shame and guilt were based on qualitative reports from the client as opposed to operationalised outcome measures (Paul et al., 2014). The second was the Search for Meaning (SFM) group which is a novel MI intervention characterised as an 8-week group intervention co-facilitated by a chaplain and mental health professional targeting MI, forgiveness of the self and others, trauma-related shame, and anger (Starnino et al., 2019). Starnino et al. (2019) reported improvements in PTSD with a medium effect size (d=.62), spiritual injury with a small to medium effect size (d=.40), and negative religious coping with a small to medium effect size (d=.40). However, whilst both interventions were reported to be for MI, neither study explicitly measured MI (Paricos et al., 2025; Paul et al., 2014; Starnino et al., 2019). The final MI intervention in the systematic review conducted by Paricos et al. (2025) reported to target shame was Restore

and Rebuild (R&R; Williamson et al., 2023). This is a weekly individual 20-session intervention delivered by a mental health professional targeting MI, shame, guilt, and self-forgiveness (Williamson et al., 2023). It has been developed from Acceptance and Commitment Therapy (ACT; Hayes et al., 2012), Cognitive Processing Therapy (CPT; Chard et al., 2020), and Compassion Focused Therapy (CFT; Gilbert, 2009) and the RCT is ongoing. The results of the first phase of the RCT indicated significant decreases in MI, PTSD, alcohol misuse, and depression from pre- to post-intervention, with gains being maintained at three-month follow-up (Williamson et al., 2023). As can be observed, despite all three interventions stating shame as an intervention target, none of the studies explicitly measured shame when this was trialled (Paricos et al., 2025). This means that whilst the evidence suggests these interventions to be useful for the treatment of MI in veterans, there remains questions as to *how* they have been effective. Alignment between theoretical and empirical evidence of MI mechanisms and intervention development and trials is needed in order to ensure interventions are specific in their targeting.

Section 4.04 – veteran barriers to accessing support

Barriers to accessing mental health support is a key consideration for the UK AF veteran population as research has suggested internalised stigma of mental health difficulties and perceived stigma of mental health services for those in this population experiencing mental health difficulties (Williamson, Greenberg, & Stevelink, 2019). Shame can exacerbate perceived stigma and negatively impact veteran help-seeking (Gosizk, 2024; Sharp et al., 2020). Facilitators of veteran mental health help-seeking have been identified as campaigns to reduce stigma, veteran and military personnel training and involvement in mental healthcare, and improved accessibility and understanding from mental health professionals (Randles & Finnegan, 2022). Therefore, whilst the primary recommendation of the findings of the current study pertain to shame as a MI intervention target, consideration of shame as a barrier to accessing said MI interventions and how to address this is also important.

Section 4.05 – moderated mediation results interpretation

When a moderation effect is found to be non-significant, there are two main explanations for this: (i) the moderation effect is zero in the population, or (ii) the moderation effect is not zero in the population, however, the study was not sufficiently statistically powered to reject the null hypothesis (Becker et al., 2018). A priori power analysis indicated that 123 participants were required for statistical power to detect a medium effect, and our recruitment matched this suggesting the study to be sufficiently powered (Beck, 2013). Thus,

through reasonable deduction, the interpretation of the findings is that the interacting effect of PMIEa and self-compassion on trauma-related shame was not significant as zero could not be ruled out as the value of the effect. These findings contradict that of previous research reporting self-compassion to significantly moderate the association between PMIEs and mental health outcomes of PTSD, depression and deliberate self-harm (findings summarised in section 1.21; Forkus et al., 2019). The authors of this previous research used the MIES (Nash et al., 2013) as a measure of exposure to PMIEs and distinguished between those with high exposure to PMIEs and low exposure to PMIEs. They found that when there was high exposure to PMIEs, those low in self-compassion demonstrated greater severity of PTSD and depression compared to those with high exposure to PMIEs and were high in self-compassion. However, there were marginal differences in PTSD and depression severity between those high and low in self-compassion when there was low exposure to PMIEs (Forkus et al., 2019). In the current study, the predictor variable was dichotomous – participants either had experienced a specific type of PMIE or they had not – and as such there was no measurement of the number of exposures. Therefore, participants with a singular PMIE were analytically in the same category as participants that may have had multiple PMIEs. It may have been interesting to explore if there was a compounding effect of multiple PMIEs and if the moderating effect of self-compassion demonstrated by Forkus et al. (2019) was replicated with our sample if PMIEs were measured in a similar way.

Section 4.06 – the role of self-compassion

The results of the mediation analysis suggested trauma-related shame to be an appropriate intervention target for veterans with MI due to the significant mediation of the relationship between PMIEa and MI severity. Whilst the findings may not have supported the hypothesised moderating role of self-compassion, they did support and replicate the well-established inverse relationship between shame and self-compassion (Petrocchi et al., 2024). Moreover, whilst not included in the primary analyses in this study, previous research has demonstrated a significant inverse relationship between self-compassion and MI (Morgan et al., 2024), as well as PTSD, and depression following PMIEs (Forkus et al., 2019). For the purposes of meeting the aims of this specific study, exploring the direct associations between self-compassion and MI severity was considered out of scope as this variable was hypothesised to have a moderating role in the relationship between PMIE type and trauma-related shame. However, as part of the exploratory analysis for the extended thesis (see section 3.04), a linear regression analysis indicated a significant negative association between

self-compassion and MI severity. This suggests self-compassion may have a protective role against MI severity, but perhaps not the moderating role suggested in this study's hypothesised model. Thus, a compassion-focused intervention approach (such as CFT; Gilbert, 2009) may be useful for targeting the trauma-related shame experienced by morally injured veterans. However, further research is recommended in the first instance to better establish the mechanistic role of self-compassion in the presentation of MI.

Section 4.07 – the role of self-criticism

Castilho et al. (2017) hypothesised that the effect of shame on mental health outcomes of depression, anxiety, and stress was mediated by the hated-self and the inadequate-self facets of self-criticism. Similarly to the findings of the current study, Castilho et al. (2017) identified hated-self self-criticism to be the stronger mediator, significantly accounting for more of the variance in anxiety and stress than inadequate-self self-criticism. Hated-self self-criticism also significantly mediated the association between shame and depression whereas inadequate-self self-criticism did not. They also observed that shame demonstrated a significant direct effect on all outcome variables when both facets of self-criticism were controlled for and exploratory analysis indicated shame to be a significant mediator of the association between self-criticism and mental health outcomes (Castilho et al., 2017). The results of the current study echo the assertions of distinct mechanistic roles of the hated-self and inadequate-self facets of self-criticism and implore future research and clinical focus specifically towards the experience of hatred towards the self. Furthermore, the findings of Castilho et al. (2017) suggest a bidirectional relationship between shame and self-criticism with exacerbating effects on outcomes of depression, anxiety, and stress. The results of the current study did not identify the hated-self or the inadequate-self facets of self-criticism as significant moderators of the association between PMIEs and shame, however, hated-self was significantly associated with shame. Thus, the mechanistic role of hated-self self-criticism may be different to what was hypothesised and tested. It may have been interesting to explore the role of self-criticism in the relationship between shame and MI as opposed to the relationship between PMIEs and shame to see if our findings mirrored that of Castilho et al. (2017) through demonstrating a significant role for self-criticism in the association between shame and mental health outcomes.

Section 4.08 – limitations pertaining to the cross-sectional design

Further empirical research into the roles of self-criticism and self-compassion would be useful in better understanding the mechanistic underpinning of MI and thus aid confident

assertions regarding appropriate intervention targets. As discussed, due the cross-sectional design we cannot assume causation and the employment of a cohort study design may be beneficial for further developing our understanding of the roles of self-criticism and self-compassion in the presentation of MI (Kesmodel, 2018). Mechanistic testing exploring the interacting effects of self-criticism and shame, as was conducted by Castilho et al. (2017), may be of particular interest to gauge a better understanding of this relationship with MI as an outcome. Equally, the role of self-compassion requires improved understanding as our results suggest this to be a relevant and impactful variable on the severity of MI (section 3.04), however, the hypothesised moderation mechanism was not statistically significant. It is hoped that future research into the mechanisms of MI will provide an evidence base for intervention target selection and future intervention and RCT designs (Turner, 2020).

Section 4.09 – future research emphasis for older adult veterans

The most recent census was the first to ask individuals to report if they had ever served in the AF and as such allowed for demographic data of the UK AF veteran population to be examined wholly for the first time (ONS, 2023). As mentioned, 53% are over the age of 65 (and thus considered older adults), but equally, 31.8% are 80 years old or above (ONS, 2023). It may be that due to recruitment and data collection predominantly being online, older adult veterans were somewhat excluded from this study due to potential barriers of computer literacy (McCosker et al., 2023). Measures were taken to address this through ensuring there was an option for paper completion of the questionnaire pack, however, due to the limited success of dissemination of the study advert via gatekeepers, older adult veterans may not have been aware of the study in the first place in order to request a paper copy if they wished to participate. Older adult mental health has largely been neglected in mental health research (Miller & Cameron, 2024). However, there has been funding allocated to address this gap given the high proportion of veterans in older adulthood (Finnegan & Di Lemma, 2020). Research in this area has shown higher rates of alcohol misuse in older adult veterans than non-veteran older adults (Rhead et al., 2019). Equally, loneliness has been reported to be a greater risk for older adult veterans, with research suggesting this group to have fewer social connections than veteran under the age of 65 (Brewster et al., 2021; Wilson et al., 2018). Suggestions to support older adult veterans include veteran-specific care homes that cater to the needs and priorities of this group (Burstow, 2018). However, veterans are less likely to reside in care homes than older adults of the general population, with this being suggested to be linked the physical health benefits of an active career in the military (Williamson,

Harwood, et al., 2019) and as such the reach and utility of this approach may be limited. This demonstrates that older adult veteran mental health should be a priority and not overlooked. It is recommended that future research explores recruiting via community engagement to minimise the exclusion of this group (Liljas et al., 2017).

Section 5 – Reflection

Conceptualisation

Veteran mental health has been an area of interest and importance to me since witnessing close family members experience great difficulty in adjusting to life after active duty. Anecdotally, these individuals whom I held in such a high regard appeared to have the opposite view of themselves. One day, after nearly 20 years of being a veteran, a family member decided to seek mental health support. They were introduced to the concept of moral injury, and this was a lightbulb moment, one of clarity and significance. Through having their difficulties labelled and described accurately, and to know that they were not alone in feeling this way, the belief that things could be different, and the motivation to experience this difference appeared monumental. The positive impact this had for my family as a whole was indescribable and I began to reflect on how many individuals may have been in the same position as my family member but had not accessed support or psychoeducation. I knew that moral injury was something I wanted to learn more about and had a personal appreciation of the clinical relevancy of a better understanding of this presentation for the UK AF veteran population.

From first reading The Compassionate Mind (Gilbert, 2013) nearly 10 years ago, I have had a longstanding interest in Compassion Focused Therapy (CFT). It is a therapeutic model I have followed in all my clinical placements so far and appreciate the accessible, non-blaming, and shame-targeting approach (Gilbert, 2009). When I first began to read more about moral injury and learned of the conceptualisation of shame and guilt in the development and sustainment of this presentation (Litz et al., 2009), I began to wonder if CFT had been considered as an intervention to support veterans experiencing moral injury. Whilst I found several intervention studies adapting existing PTSD interventions such as PE and CPT (Evans et al., 2021; Wachen et al., 2016) and trials of several novel interventions such as REAL and BSS (Harris et al., 2018; Smigelsky et al., 2022), there did not appear to be any trials of CFT for this presentation. Of note, the majority of moral injury intervention research trialled with veterans has been conducted in the USA (Paricos et al., 2025), however,

CFT was developed in the UK and whilst there is evidence of international trials, its popularity internationally remains somewhat limited (Kotera et al., 2024). The R&R RCT – an ongoing UK-based trial of a novel moral injury intervention for veterans – is an integrated approach included aspects of CPT, ACT, and CFT (Williamson et al., 2023). However, there had been no explicit CFT intervention trials for moral injury with veterans and I considered the possibility of this DClinPsy research project addressing this gap.

I contacted a researcher at The Compassionate Mind Foundation to inquire if they had conducted or planned to conduct any research with veterans or regarding moral injury. They shared a recent a grant application for a three-stage RCT trialling CFT with veterans. This trial was not moral injury specific but rather had been planned to assess the utility of CFT in supporting veteran trauma more broadly, with moral injury being under this umbrella. The grant application was for nearly £70,000 worth of funding and was unfortunately rejected. I began to then think of how I could best use the opportunity of conducting this DClinPsy research project to contribute to this active area of research. I ultimately decided against conducting an intervention study for two main reasons:

1. Lack of empirical basis:

   Further reading around moral injury revealed twelve published definitions (Richardson et al., 2020), lack of consensus regarding the aetiological understanding of moral injury (Griffin et al., 2019), validity and reliability issues with moral injury measures used in research to date (Houle et al., 2024), and a breadth of intervention studies (Paricos et al., 2025). It seemed as though in an effort to address the clinical need, the theoretical conceptualisation of moral injury (Litz et al., 2009) had been applied directly to intervention design without first empirical testing of theoretical mechanisms. There was a saturation of intervention trials in the literature with no observable consensus on what interventions should be targeting and how the trialled interventions addressed the clinical presentation of moral injury (Paricos et al., 2025). It was felt a step-backwards in the theory to practice process was required; prior to further intervention studies, the mechanisms and variables being targeted first needed justifying through empirical association testing.

   A positivist epistemological stance perhaps guided this perception, as this approach entailed the pursuit of the truth regarding the mechanisms of moral injury via objective investigation (Aliyu et al., 2014). Equally, however, it was an ethical stance. Recruiting a

hard-to-reach population with known barriers to accessing mental health support (Barker et al., 2022) into an intervention trial whereby the theoretical mechanisms have not been tested did not seem the most ethically sound approach. As researchers, it is important to consider the ways in which we can unintentionally cause harm, even when the goal of most psychological research is the opposite (Buchanan & Warwick, 2021; Sim, 2010). I feel uncomfortable with the idea of a trial-and-error approach with the intervening of clinical presentations and populations as this risks causing harm through there not being empirical backing of the theoretical mechanisms and key variables being targeted (Jaffe et al., 2015; Williamson, Murphy, Castro, et al., 2021). As such, it was felt most appropriate to focus this project on addressing this mechanism-testing gap.

2. Lack of resource.

As detailed, to conduct a full scale three-stage RCT of CFT with veterans, nearly £70,000 of funding was requested by The Compassionate Mind Foundation. With a DClinPsy project having access to a small amount of funding and being primarily led by one individual (me) part-time over three years, an intervention trial of that quality and scale would not be possible. A Single Case Experimental Design (SCED; Smith, 2012) may have been feasible and provide preliminary evidence regarding the utility of CFT for moral injury, however, this still would not have addressed the above point regarding the lack of empirical testing of proposed mechanisms. The context of a DClinPsy research project provides an opportunity to contribute to the research area through conducting preliminary theory-testing investigations that may provide an empirical basis for future, more generously funded, research trialling interventions for moral injury with veterans. This is especially pertinent when considering that this phase of the theory to clinical practice journey appears to, for the most part, have escaped the attention of funded research in this area.

Design

Through the conceptualisation process, I had established that I was interested in moral injury in veterans, and specifically, exploring the mechanisms of this to gain an understanding as to whether CFT may be a useful intervention approach for this presentation and population. For the theory-testing aspect, I was keen to test a particular aspect of the conceptual model developed by Litz et al. (2009): the mediating role of shame and guilt in the association between PMIEs and MI as an outcome. For identifying potential intervention

targets, and in line with the theoretical assertions of CFT (Gilbert, 2009), I was also interested in testing the moderating roles of self-criticism and self-compassion.

The lack of empirical testing of the theoretical conception of MI heavily weighted on the decision to conduct a quantitative investigation (Griffin et al., 2019; Litz et al., 2009). The distinction between shame and guilt was considered an important focus given the grouping together of these concepts in the limited research that had previously explored MI mechanisms (Griffin et al., 2019). Furthermore, whilst for the reasons outlined in the previous section an intervention study was not considered appropriate at this time point, from a theoretical perspective, CFT was still considered to have potential clinical utility for this population and presentation and as such mechanistic testing of the key targets of this intervention was also of interest (Hollis et al., 2023). Thus, it was determined that the moderating role of self-compassion and self-criticism would also be included in the hypothesised model. It was hoped that a design of this nature could aid our conceptual understanding of MI and have clinical implications in the form of recommendations for intervention targets.

Nevertheless, qualitative investigations were not discounted immediately. Previous research has explored UK AF veterans' experiences of MI. Williamson et al. (2020) reported findings of those with PMIEs experiencing dissonance between their moral values and their experiences and demonstrating differential psychological distress to those that had traumatic experiences not classified as PMIEs. Peris et al. (2022) explored UK AF veterans experiences of betrayal-based PMIEs and proposed the different types of PMIEs be explored and understood distinctly. Smith (2024) identified a theme of moral nourishment whereby participants that experienced nurturing of their moral values during active duty felt more protected from the dissonance with PMIEs. Moreover, qualitative research with clinicians delivering interventions to UK AF veterans with MI reported this to be a common presentation for this population with a lack of availability of evidence-based interventions (Williamson et al., 2019; Williamson et al., 2021).

A qualitative aspect of the current study was considered for a mixed methods design. Given the reported commonality of MI in UK AF veterans, and the reported lack of awareness of this presentation in this population (Williamson et al., 2020), it was considered a potentially unique opportunity to explore the impact of awareness. With my own family member, I had witnessed first-hand the 'lightbulb moment' awareness of a term that

accurately described their experience and difficulties allowed. I had initially proposed an additional screening question to be included as part of the questionnaire battery to identify potential individuals to invite for interviews. There is a standardised description of MI in the MIOS prior to asking participants if they have had an experience of this nature (Litz et al., 2022). I proposed including a second question asking if it was something that they had previously heard of or been aware of. For participants that resonated with the experience of MI but had not heard of this previously, I then proposed inviting these participants to an interview to discuss the experience of gaining this awareness. With mental health awareness having increased substantially over the past two decades (Foulkes & Andrews, 2023), there are now few presentations whereby experience of a presentation is greater than awareness of said presentation. It was felt that this could be an interesting phenomenon to explore and could have clinical utility with regards to recommendations pertaining to psychoeducation.

Unfortunately, when this idea was presented to course staff in the first year of the DClinPsy, there was hesitation regarding the ethical considerations surrounding bringing awareness to a previously unknown presentation and the potential distress this could cause participants. On reflection, my family member's experience may have led to a biased viewpoint held by myself that this experience would likely be positive. However, with increased social media activity of charities such as Combat Stress, awareness campaigns regarding MI are occurring and as such an interview space to discuss this experience and the opportunity for debriefing may have been more protective than harmful. It was disappointing to not have support for an idea that I thought to be interesting and novel but equally, this qualitative element was not wholly connected to the quantitative investigation and as such may have resulted in attempting to conduct two distinct studies at the same time. The quantitative aspect appeared to have the potential greater clinical utility, and when presented less concerns were raised by the course, thus this was felt to be the most pragmatic option.

Another consideration with pursuing a quantitative design was my own professional skill development. During my MSc I conducted a qualitative piece of research which proudly became my first published piece of work (Paricos et al., 2024). I then worked as an Assistant Research Psychologist and supported data collection for intervention studies. I enjoyed research and wanted to continue to build and develop my skillset in the hopes that my qualified career can include both clinical and research elements. I had not conducted a solely quantitative piece of research before, nor had I attempted the data analysis approach warranted to test the hypothesised model. This was therefore considered an opportunity to

develop new research skills under the supervision of experienced researchers and clinicians to hopefully aid future utility of these skills as my career progresses.

Recruitment

Recruitment proved to be one of the more challenging phases of this research project. As demonstrated in Appendix I, from March – July 2024 I contacted 23 Armed Forces and Veterans Breakfast Clubs (AFVBC), 32 Royal British Legion branches, 31 UK-based veteran-focused charities, and 22 social media pages. This was overwhelmingly met with no response, however, when the study advert was disseminated a spike in participation was observed. This indicated that these groups and organisations had the reach in the target population, however, there was difficulty with engaging gatekeepers. During this period, 33 complete datasets were collected. At this stage, I had become concerned about reaching the recruitment goal as it felt as though I had exhausted all the options I could think of and after three months I had barely reached 25% of my recruitment target. I also began to question why there was a lack of interest or support for the study from organisations focusing on the needs of veterans. For those that responded but declined to disseminate, the main reason provided was that of consent – veterans had given their email addresses to be contacted for specific reasons and recruitment to a research study was outside of these parameters. This was understandable and indicated organisations supporting veterans to be protective of the trusting dynamics that had likely taken a long while to foster. Equally, with larger charities that conduct and support research, Combat Stress agreed to share the study advert on their social media, however, declined to disseminate via their recruitment contact pool as there was a conflict of interest due to Combat Stress actively recruiting for their own research projects at the time. This highlights how competing interests can impact recruitment, especially for someone in my position; being in the early stages of my career and not yet having established the necessary professional network or contact pool for recruitment purposes. Help for Heroes reviewed information relating to the study and declined to disseminate. They stated there were concerns regarding safeguarding individuals that withdrew from the study as through their research practices they would ordinarily follow-up via telephone with these individuals to ensure there was an opportunity to debrief. This was a valid concern; however, we had chosen to not collect contact information (beyond the option of sharing an email address for a summary of the research findings) to protect participant anonymity. This experience provided the opportunity to reflect that different opinions and approaches do not make my opinions and approaches incorrect and gave me more confidence in defending my design choices.

The effectiveness of Facebook adverts as a recruitment tool was hugely relieving. With the removal of the requirement for gatekeeper approval/response, the advert was viewed by a wide audience. This may have contributed to the demographic spread of the sample being rather reflective of the UK AF veteran population (ONS, 2023) as there were less restrictive parameters impacting who saw the advert. I was grateful for the support of my supervisors in allocating a portion of my research budget to this recruitment method and for the recognition of the exhaustion of other options. Throughout my research project I have tried to be organised, and I have tried to adhere to the timelines outlined in the initial research proposal. However, I quickly realised how unpredictable recruitment can be and I found this challenging to navigate as I felt very out of control of the outcome. Through monitoring engagement with the study adverts on social media, I was also able to gain a sense of how the target population were responding (as outlined in section 2.05). This demonstrated that the first study advert did not include enough information regarding what was being investigated, why it was being investigated, and who was investigating it for there to be trust and desire to engage and take part. This understanding led to the study advert to be reconfigured, and an amendment added to the ethics application to address the concerns raised by those engaging with the original advert on social media. The more positive and inquisitive response the new study advert invited implied the concerns had been appropriately interpreted and addressed.

Throughout the recruitment planning, I had underestimated the importance of connections with gatekeepers and the barriers to participation. This experience allowed me to reflect on the utility of Expert by Experience (EBE) involvement in the study design and recruitment phases and the difficulties that may have been reduced or avoided had this approach been taken. For example, feedback on the study advert design would have likely led to concerns being raised prior to the commencement of recruitment and reduced this as a barrier for participation. Equally, expert knowledge on the best places to reach veterans and disseminate the study advert would have been invaluable. It is not that EBE inclusion was discounted or not considered from the start; there was a lack of proactiveness on my part which meant the opportune moment to include EBE consultation was missed. The first few months of the course were busy and frankly overwhelming. I lacked confidence in my own ability and worthiness of my place on the course and the idea of conceptualising and designing my own research project was intimidating. Retrospectively, I feel I shied away from actively pursuing EBE involvement as I was avoiding receiving feedback that could have potentially been negative. Avoidance was something I struggled with in my first year of

the course, especially with regards to academic assignments. I failed my first research protocol submission and the avoidance in starting the assignment played a large role in this. I was concerned about getting things wrong or producing work of an inadequate quality. I attempted to include too much and subsequently failed to demonstrate a clear narrative or achievable study design within the confines of a DClinPsy project. Whilst this was challenging at the time, failing the assignment helped me to face this avoidance and begin to work in a more proactive way. This is something that has hugely helped my professional and academic development. Facing the things I was anxious about or unfamiliar with in both my placements and my assignments meant I got so much more out of my second year and have become much more confident. The lack of EBE involvement reflects the position I was in at the time – I was scared to reach out to potential contributors for this to either be rejected or for my ideas to be criticised – by the time I had begun to address this avoidance, the study had been conceptualised and designed and as such it felt that the opportunity to meaningfully include EBE consultation had passed. This is something I would like to do differently in future projects as I do see the importance and value of EBE involvement in research, however, struggled to attempt to access this at the time it would have been most useful.

Data analysis

Prior to conducting the data analysis, I was nervous as I had not conducted moderation, mediation, or conditional process modelling previously. I knew quantitative data analysis was likely going to be less time consuming than qualitative data analysis, however, there remained uncertainty as to how much time would be required as I would first need to learn how to conduct the analysis before then running and interpreting this with my dataset. The temptation was to rush into trying the analysis. I had watched a few videos on the step-by-step 'how to' using SPSS and attempted to follow this, however, quickly realised that whilst I was able to get SPSS to generate the output, I was unsure how to interpret this. I took a step back, read and re-read Hayes (2018) practically cover to cover and took copious of handwritten notes – the goal shifting away from identifying the results of my study and towards wanting to learn *why* certain statistical tests were used and under what parameters, not venturing to the *how* to do this until I felt comfortable that I understood the purpose. It was hard with the time pressures to give myself permission to take this time to learn. Reflecting on the experience now, it almost definitely saved me a lot of time as I could then make confident decisions that I was able to justify and explain; the process felt far from guess-work and of a higher quality. It was also interesting. I wanted to do a quantitative study

design to enhance my research skillset, and this experience felt like I was meeting the intended goal through learning much more about the relevant statistical analyses.

Reflecting on the results themselves, I believe the findings contribute to our understanding of the presentation of MI in veterans and provides preliminary evidence of appropriate intervention targets. The mediation model demonstrating a significant mediating role of trauma-related shame, but not trauma-related guilt is particularly important as it highlights the mechanistic roles of these two variables in MI are distinct. This has clinical implications through suggesting interventions should target shame more specifically as opposed to a grouped and generalised target of shame and guilt combined. The lack of significant findings pertaining to the moderating roles of self-compassion, hated-self, and inadequate-self meant hypotheses three and four were not supported. My initial response to this was disappointment. I reflected on this at the time as I wanted to understand my own response to this result. With there being a well-established positive result publication bias in the field of psychology (Marks-Anglin & Chen, 2020), I believe I had internalised the idea that non-significant results do not contribute to the evidence-base in an important way. I was disappointed as the non-significance of the findings was interpreted as there being nothing meaningful to take from these findings. Once I realised this, I was able to think about the results more objectively and to consider why the results may not have been significant and what information this provides us about the mechanisms tested. I began to appreciate the value of interpreting non-significant findings and the theoretical and clinical implications of this. Furthermore, I realised there was plenty to say about these findings. This experience highlighted my own bias in interpreting significant results as more valuable and provided an opportunity to challenge this.

Overall

The process of seeing the accumulation of over two years of work come together has been hugely rewarding. The idea of writing this thesis and the ominous 45,000 word-limit was intimidating and something that when I started this course, I was unsure if I could achieve. As reflected on in previous sections, the growth I have experienced due to this course in facing my avoidance of challenging tasks enabled me to start this writing process far earlier than I perhaps previously would have. This allowed me to enjoy this process as opposed to being deadline-driven and stressed. I had the opportunity to take the time to be interested in what I was reading and learning about and to reflect on how I wanted to present information and my arguments. It granted plenty of time to collate and digest feedback from

my supervisors and edit accordingly, as opposed to interpreting constructive comments as negative feedback and shying away from this as I have done in past academic endeavours. The overall result is something that I am wholly proud of and something that I am excited to share.

Conducting this project has confirmed my passion and enthusiasm for research. This is something I hope to maintain throughout my career and has expanded my view of the potential career paths and opportunities for clinical psychologists. I firmly believe that quality mental health care is built from evidence-based practice, and I now have the luxury of an education that has given me the opportunity to pursue both. The completion of this research project is thus bittersweet; I am excited to share the findings and contribute to the research area and to move into the next chapter of my career, however, this has been a brilliant experience of personal and professional growth, and it will be sad to see it end.

Word Count: 34,468

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Appendix A

Research Study - Moral Injury in UK Veterans: The Role of Self-Criticism and Self-Compassion

Hi, I'm Arianna Paricos, a Trainee Clinical Psychologist.

I'm doing a research project with a team of Clinical Psychologists at the University of Nottingham aiming to understand moral injury (a type of trauma) in UK Veterans and if this is related to self-criticism and self-compassion.

What does taking part involve?

Completing a questionnaire pack about potentially distressing events you may have encountered during your military service, and about moral emotions and traits that research suggests are associated with moral injury.

The questionnaire pack should take approximately 15-20 minutes to complete.

Who is eligible to take part?

Any UK Veteran that can read and communicate in English and that can give informed consent to take part is eligible.

You can access the questionnaire by **scanning the QR code** or visiting *(insert link to questionnaire)*.

If you would like any further information, have any questions, or would like to request a paper copy of the questionnaire pack, please contact Arianna Paricos: arianna.paricos@nottingham.ac.uk

Appendix B

The University of Nottingham

UNIVERSITY OF LINCOLN

UK Armed Forces Veterans Research Study
Veteran Trauma: The Role of Self-Criticism and Self-Compassion

What are we researching?

We are researching UK Armed Forces Veteran trauma, specifically, a type of trauma called Moral Injury. Moral Injury refers to trauma that stems from acting in, witnessing, or becoming aware of events that transgress moral beliefs and values held. It is hoped that the findings of this study will help inform future research looking into treatment targets for Veterans accessing mental health support for Moral Injury.

What does taking part involve?

Completing a multiple choice online survey about your military experiences (including potentially distressing events), self-criticism, and self-compassion.

The survey takes approximately 15-20 minutes.

All responses are stored and analysed anonymously and securely. You will be asked to provide your name to consent to take part in the study only and this is stored separately to your survey answers.

Who can take part?

Any UK Armed Forces Veteran that can read and communicate in English and can give informed consent can take part.

How do I take part?

You can access the survey by **scanning the QR code** at the top of this study advert or visiting the link below:
https://unioflincoln.questionpro.eu/t/AB3u1CVZB3vqvk

Meet the researcher...

Hi, I'm Arianna Paricos, a Trainee Clinical Psychologist. I'm conducting research with a team of Clinical Psychologists at the University of Nottingham and University of Lincoln aiming to better understand Veteran trauma. If you would like any further information, have any questions, or would like to request a paper copy of the survey, please contact me via email: arianna.paricos@nottingham.ac.uk

Appendix C
Ethics Approval Letter

MHCNS Committee: 21/03/2024
Supervisor: Professor Thomas Schroder
Applicant: Miss Arianna Paricos
Project ID: 3141

Project Title: "Moral Injury in UK Veterans: The Role of Self-Criticism and Self-Compassion"

Dear Arianna,

The committee is pleased to confirm that the above study now has approval on the basis of your application and any subsequent clarifications. You must conduct your research as described in your application, adhere to all conditions under which the ethical approval is granted, and use only materials and documentation specified in your application.

If you need to make any changes (for example to extend your data collection timeframe, change the mode of data collection, or the measures being used), you must create and submit an Amendment Form. To do this, select the 'Create Sub Form' option from the Actions Menu on the left-hand side of the page in the online system and then select 'Amendment Form'.

With best wishes

Dr Jen Yates and Dr Katy Jones

Chair of the MHCNS Ethics Subcommittee

Appendix D

Participant Information Sheet

Participant Information Sheet

(Version 2.0: 18/03/2024)

Title of Study: Moral Injury in UK Veterans: The Role of Self-Criticism and Self-Compassion

Primary Researcher: Arianna Paricos (Trainee Clinical Psychologist)
Chief Investigator: Professor Thomas Schroder
Secondary Research Supervisor: Dr Michael Baliousis
Field Research Supervisor: Dr Rachel Sabin-Farrell

We would like to invite you to take part in our research study. Before you decide we would like you to understand why the research is being done and what it would involve for you. This information sheet provides details of the study purpose, why you have been invited to take part, what taking part will involve, and what will happen after the study has ended. The contact details of the research team are included at the bottom of this information sheet, and we welcome you to contact us should have any questions about the study. Talk to others about the study if you wish. Ask us if there is anything that is not clear.

What is the purpose of the study?

Improving support for veteran mental health is a key focus of the NHS. The purpose of this study is to develop understanding about the role of self-criticism and self-criticism in moral injury. Moral injury is a term used to describe trauma that has developed from experiencing events in which you may have engaged in, witnessed, or heard about acts or behaviours that do not align with your moral beliefs and values. In the case of this study, we are interested in combat-related potentially morally injurious experiences. Through exploring the role of self-criticism and self-compassion in moral injury, it is hoped that this study may help build on our understanding of moral injury and of the mental health of UK Veterans. It is also hoped that the findings will help inform future research looking to identify potential treatment targets to support individuals experiencing moral injury. This research is being carried out as part of a thesis project in partial fulfilment of a Doctorate in Clinical Psychology.

Why have I been invited?

You are being invited to take part because you are a veteran that has served in the UK Armed Forces. We will close the study once there have been 123 completed questionnaires submitted.

Do I have to take part?

It is up to you to decide whether or not to take part. If you do decide to take part following reading this information sheet, you will be asked to complete a consent form on the next page. If you decide that you do not wish to take part, there will be not further contact from the research team. If you decide to take part, you are still free to withdraw at any time and without giving a reason. This would not affect your legal rights.

What will happen to me if I take part?

This is a questionnaire study that you can complete online or by paper copy. If you consent to take part, you will be asked to provide some demographic information, including questions regarding your military service. You will then be asked to complete a questionnaire pack, keeping your military experience in mind as you do so. There are six questionnaires in total. One will ask for demographic information. One will ask about experiences, thoughts, and feelings that are related to moral injury. The other four focus on different individual traits that research suggests are our 'moral emotions'. Completing the study will take approximately 15-20 minutes.

The questionnaires are all multiple choice or scale ratings. Please see example questions below:

People don't deserve second chances	Strongly disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
I try to see my failings as part of the human condition	Almost Never	2	3	4	Almost Always
There is a part of me that wants to get rid of the bits I don't like	Not at all like me	A little bit like me	Moderately like me	Quite a bit like me	Extremely like me
What I did made sense	Extremely true	Very true	Somewhat true	Slightly true	Not at all true
I am so ashamed of what happened to me that I sometimes want to escape from myself.	Not true of me	Somewhat true of me	Mostly true of me	Completely true of me	

If you participate in the study online, once you have completed the questionnaires a debrief sheet will appear. This will give further information about the study, contact details for the researcher and support services, should you wish to contact these. You can request to receive a summary of the findings of the study once it has been completed, however, this is optional. There are no further actions required once you have completed the questionnaires.

If you request a paper version of the questionnaire, you will be asked to provide your postal address (this information will be stored securely) in order for a member of our research team to send you the questionnaire pack. This will include this information sheet, a consent form, the questionnaire pack, a debrief sheet, and a prepaid return envelope. We ask that the completed consent form and questionnaire pack are posted back to the research team using the prepaid envelope within two weeks of you receiving the questionnaire. You can request to receive a summary of the findings of the study once it has been completed, however, this is optional. There are no further actions required once you have returned the consent form and questionnaire pack.

Expenses and payments

Participants will not be paid to participate this study. Due to the nature of the study, no travel expenses should be incurred in relation to participation.

What are the possible disadvantages and risks of taking part?

This study asks you to reflect on difficult military experiences and this may be distressing. We ask that you consider the personal impact of thinking about these experiences when answering the questionnaire pack before you decide to take part as participation in this study is voluntary and therefore should not be a distressing experience. The majority of the questions ask you to rate statements on a scale and do not ask you to explain or detail your experiences. Any questions that ask you to give more information are optional and you do not have to complete these to participate in this study. All questionnaire responses will be treated as confidential and stored anonymously. You can withdraw from the study at any point without giving reason.

What are the possible benefits of taking part?

We cannot promise the study will help you directly but the information we get from this study may help build on our understanding of moral injury and of the mental health of UK Veterans. It is also hoped that the findings will help inform future research looking to identify potential treatment targets to support individuals experiencing moral injury.

What happens when the research study stops?

When taking part in the study, there will be an option to provide your contact details should you wish to receive information regarding the outcome of the study. If you would like to receive this information, we will ask you to consent to us storing your contact details until the end of the study. Providing your contact details is optional and if you do not wish to receive study outcome information you will not be contacted after participating in the study.

What if there is a problem?

If you have a concern about any aspect of this study, you should ask to speak to the researchers who will do their best to answer your questions. The researchers' contact details are given at the end of this information sheet. If you remain unhappy and wish to complain formally, you can do this by contacting the Division of Psychiatry and Applied Psychology Research Ethics committee at MS-DRAPEthics@exmail.nottingham.ac.uk

In the event that something does go wrong and you are harmed during the research and this is due to someone's negligence then you may have grounds for a legal action for compensation against the University of Nottingham but you may have to pay your legal costs.

Will my taking part in the study be kept confidential?

We will follow ethical and legal practice and all information about you will be handled in confidence.

If you join the study, we will use information collected from during the course of the research. This information will be kept **strictly confidential**, stored in a secure and locked office, and on a password protected database at the University of Nottingham. Under UK Data Protection laws, the University is the Data Controller (legally responsible for the data security) and the Chief Investigator of this study (named above) is the Data Custodian (manages access to the data). This

means we are responsible for looking after your information and using it properly. Your rights to access, change or move your information are limited as we need to manage your information in specific ways to comply with certain laws and for the research to be reliable and accurate. To safeguard your rights, we will use the minimum personally – identifiable information possible.

You can find out more about how we use your information and to read our privacy notice at:

https://www.nottingham.ac.uk/utilities/privacy.aspx.

The data collected for the study will be looked at and stored by authorised persons from the University of Nottingham who are organising the research. They may also be looked at by authorised people from regulatory organisations to check that the study is being carried out correctly. All will have a duty of confidentiality to you as a research participant and we will do our best to meet this duty.

Although unlikely, if the questionnaire pack is being completed online there is a possibility of data breach from unauthorised individuals through hacking. We take data protection seriously and all questionnaire responses online will be exported with 72 hours to reduce this risk and stored anonymously in a password protected file only accessible by the research team. In the unlikely event of a data breach, you will be notified.

Your contact information will be kept by the University of Nottingham for 12 months after the end of the study so that we are able to contact you about the findings of the study. This information will be kept separately from the research data collected and only those who need to will have access to it. All other data (research data) will be kept securely for 7 years. After this time your data will be disposed of securely. During this time all precautions will be taken by all those involved to maintain your confidentiality, only members of the research team given permission by the data custodian will have access to your personal data.

In accordance with the University of Nottingham's, the Government's and our funders' policies we may share our research data with researchers in other Universities and organisations, including those in other countries, for research in health and social care. Sharing research data is important to allow peer scrutiny, re-use (and therefore avoiding duplication of research) and to understand the bigger picture in particular areas of research. Data sharing in this way is usually anonymised (so that you could not be identified) but if we need to share identifiable information we will seek your consent for this and ensure it is secure. You will be made aware then if the data is to be shared with countries whose data protection laws differ to those of the UK and how we will protect your confidentiality.

Although what you say to us is confidential, should you disclose anything to us which we feel puts you or anyone else at any risk, we may feel it necessary to report this to the appropriate persons.

What will happen if I don't want to carry on with the study?

Your participation is voluntary, and you are free to withdraw at any time, without giving any reason, and without your legal rights being affected. If you withdraw, we will no longer collect any information about you or from you, but we will keep the information about you that we have already obtained as we are not allowed to tamper with study records and this information may

have already been used in some analyses and may still be used in the final study analyses. To safeguard your rights, we will use the minimum personally-identifiable information possible.

After completing the questionnaire pack, you can withdraw your data within two weeks. After this it will not be possible to withdraw your data due the reasons outlined above.

What will happen to the results of the research study?

Questionnaire responses will be stored and analysed anonymously. The data from the questionnaire responses will be used to produce a set of findings which will be written up and submitted as a thesis for the Trent Doctorate in Clinical Psychology by June 2025. Research results may also be submitted for publication in a peer-reviewed journal and presented at relevant conferences. A summary of the findings will be shared with participants who consented to this and any organisation or service it may be of interest to. There will be no personally identifiable information in any report or publication.

Who is organising and funding the research?

This research is being organised and funded by the University of Nottingham.

Who has reviewed the study?

All research in healthcare is looked at by independent group of people, called a Research Ethics Committee, to protect your interests. This study has been reviewed and given favourable opinion by The Division of Psychiatry and Applied Psychology Research Ethics Committee.

Further information and contact details

Thank you for reading this information sheet. If you have any further questions about the study, please contact us on the details below:

Arianna Paricos
Primary Researcher/Trainee Clinical Psychologist
Email: arianna.paricos@nottingham.ac.uk

Professor Thomas Schroder
Chief Investigator/Professor of Clinical Psychology and Psychological Therapies
lwzts@exmail.nottingham.ac.uk

Dr Michael Baliousis
Secondary Research Supervisor/Research Clinical Psychologist
mbaliousis@lincoln.ac.uk

Appendix E

Consent Form

CONSENT FORM

(Version 2.0: 18/03/2024)

Title of Study: Moral Injury in UK Veterans: The Role of Self-Criticism and Self-Compassion

Name of Researcher: Arianna Paricos

Name of Participant: **Please initial box**

1. I confirm that I have read and understand the information sheet version number 2.0 dated 18/03/2024 for the above study and have had the opportunity to ask questions. ☐

2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, and without my medical care or legal rights being affected. I understand that I can request my data is removed from the study within 2 weeks of participation and that after 2 weeks this will not be possible due to the reasons outlined in the participant information sheet. ☐

3. I understand that relevant sections of data collected in the study may be looked at by authorised individuals from the University of Nottingham, the research group and regulatory authorities where it is relevant to my taking part in this study. I give permission for these individuals to collect, store, analyse and publish information obtained from my participation in this study. I understand that my personal details will be kept confidential. ☐

4. I agree to take part in the above study. ☐

The following items are optional, and you do not need to consent to these in order to take part in the study:

5. I understand that the information collected about me will be used to support other research in the future and may be shared anonymously with other researchers. ☐

6. I would like my contact details to be stored securely in order for me to be provided with a summary of the study findings at the end of the research. ☐

Name of Participant	**Date**	**Signature**
Name of Person taking consent	Date	Signature

2 copies: 1 for participant, and 1 for the project notes

Appendix F
Debrief Sheet

Participant Debrief Sheet

Title of Study: Moral Injury in UK Veterans: The Role of Self-Criticism and Self-Compassion
Name of Researcher(s):
Primary Researcher: Arianna Paricos
Chief Investigator/Research Supervisor: Professor Thomas Schroder
Secondary Research Supervisor: Dr Michael Baliousis
Field Research Supervisor: Dr Rachel Sabin-Farrell

We'd like to thank you for taking part in our research study. This research will provide crucial information and broaden our understanding of moral injury in UK veterans.

What was the aim of the study?

The aim of this study is to understand if trauma-related shame, trauma-related guilt, self-criticism, and self-compassion exacerbate or protect against moral injury distress following experiencing potentially morally injurious events. We predict that higher trauma-related shame and self-criticism will exacerbate moral injury distress following experiencing potentially morally injurious events and that higher self-compassion will be a resilience factor against moral injury distress following experiencing potentially morally injurious events. Previous research has reported mixed findings regarding the role of trauma-related guilt, and we therefore aim to develop our understanding of this through the current study's findings. The purpose of this is to build our theoretical understanding of moral injury in order to inform future research regarding treatment and support for morally injured veterans.

Questions and withdrawing

If you have any further questions about the study, please feel free to contact the researcher – Arianna Paricos on arianna.paricos@nottingham.ac.uk or their supervisor (Professor Thomas Schroder) on lwzts@exmail.nottingham.ac.uk at any time.

If you want to withdraw your data from the study, please let the researcher know within two weeks of completing the questionnaire pack.

Further help and support

If you have any ethical concerns regarding the current research, your treatment as a participant or your involvement in the study please feel free to contact the Division of Psychiatry and Applied Psychology Research Ethics Committee at MS-DRAPEthics@exmail.nottingham.ac.uk.

If you have been affected by any of the issues raised by taking part in this study the following organisations may be able to provide help and advice:

Combat Stress is the UK's leading mental health charity for veterans offering free treatment and support to ex-servicemen and women of the UK Armed Forces. Call them on 0800 138 1619, text them on 07537 404 719 or email helpline@combatstress.org.uk.

Samaritans - call 116 123 to speak to a Samaritan. The Samaritans Veterans free app can provide you with emotional support after your career in the Armed Forces.

Big White Wall offers online mental wellbeing support 24/7 where you can share your concerns with others who feel like you. It's safe, anonymous and has Wall Guides (counsellors) available 24/7. This service is free to veterans.

Contact Details of Researcher(s)

Arianna Paricos
Primary Researcher/Trainee Clinical Psychologist
Email: arianna.paricos@nottingham.ac.uk

Professor Thomas Schroder
Chief Investigator/Professor of Clinical Psychology and Psychological Therapies
lwzts@exmail.nottingham.ac.uk

Dr Michael Baliousis
Secondary Research Supervisor/Research Clinical Psychologist
mbaliousis@lincoln.ac.uk

Appendix G

Demographic Proforma

Question	Response Options
1. Please enter your age in the box below	Open text box
2. Which gender do you most identify with?	• Female • Male • Transgender Female • Transgender Male • Gender Variant/Non-conforming • Other (open text box) • Prefer not to say
3. What is your ethnicity?	• White • Mixed or multiple ethnic groups • Asian or Asian British • Black, African, Caribbean or Black British • Other ethnic group (open text box) • Prefer not to say
4. What is your current marital status?	• Single • Married or in a domestic partnership • Divorced • Widowed • Separated • Prefer not to say
5. What is your highest educational qualification?	• GCSE/O-Levels/CSE • GCE/A-Levels/BTEC National Diploma/Higher School Certificate • Degree • Master's Degree • PhD/Doctorate • No education • Other (open text box) • Prefer not to say
6. How would you describe your current employment status?	• Employed full-time • Employed part-time • Self-employed • Unemployed • Apprentice • Away from work, ill, on maternity leave, or temporarily laid off • Student and unemployed • Student and employed • Retired • Other (open text box) • Prefer not to say

7. Which of the following best describes your average household income before tax?	• Below £10,000 • £10,001 - £24,999 • £25,000 - £49,999 • £50,000 - £74,999 • £75,000 - £99,999 • £100,000 or more • Prefer not to say
8. Please specify which region of the UK you are currently based:	• Scotland • Wales • Northern Ireland • North West England • North East England • Yorkshire and the Humber • West Midlands • East Midlands • London • East of England • South West England • South East England • Prefer not to say
9. Please specific the branch of the UK Armed Forces you served with:	• The British Army • The Royal Navy • The Royal Airforce • Prefer not to say
10. In what year did you join the UK Armed Forces?	Open text box
11. In what year did you leave the UK Armed Forces?	Open text box
12. What was the reason for leaving the UK Armed Forces?	• Normal service leaver (defined as personnel leaving 1. On completion of engagement; 2. Have been given notice to leave; 3. Been given notice of discharge under redundancy). • Early service leaver (defined as personnel who have been discharged having completed less than 4 years of service either 1. Compulsorily or 2. At their own request) • Medical discharge • Retirement • Other (open text box) • Prefer not to say
13. How many times were you deployed during active service?	Open text box
14. Where were you deployed to? Please list deployment history	Open text box

15. Have you experienced any of the following common mental health difficulties? Tick all that apply	• Depression • Anxiety • PTSD • OCD • Bipolar Disorder • Psychosis (including schizophrenia) • Personality Disorder • Suicidal thoughts • Thoughts of self-harm • Self-harm (without suicidal intent) • Self-harm (with suicidal intent) • Other (open text box) • Prefer not to say

Appendix H

Lay Summary

What was being researched and why?

This study looked at how self-compassion and self-criticism are connected to moral injury in UK Armed Forces veterans. Moral injury is the emotional distress someone feels after doing something, seeing something, or being affected by something that goes against their moral values. It has been linked with feelings of shame, guilt, and depression. The researchers wanted to understand how different types of these experiences are linked to the severity of moral injury. They were also interested in whether self-compassion or self-criticism play a role. This was to help future research looking to identify possible treatment targets to support those experiencing moral injury.

How was this researched?

UK Armed Forces veterans were surveyed to learn about their experiences of moral injury, trauma-related shame, trauma-related guilt, and their levels of self-compassion and self-criticism. 123 veterans completed the full survey.

What were the findings?

Doing something against one's moral values was connected to moral injury, and trauma-related shame played a significant role in this connection. However, the study did not find clear evidence that self-compassion or self-criticism affected the link between doing something against one's moral values and the level of shame or guilt participating veterans felt. Still, both self-compassion and a type of self-criticism known as 'hated-self' were associated with trauma-related shame. Self-compassion was associated with lesser shame and self-criticism in the form of 'hated-self' was associated with greater shame.

What are the recommendations?

Based on these findings, the researchers suggest that Compassion Focused Therapy (CFT) could be a helpful therapy for veterans with moral injury. They recommend more research is conducted to better understand these factors and improve ways to support veterans who experience moral injury.

Appendix I

Table I-1

Organisations, charities, and social media pages contacted regarding recruitment advert dissemination

Category	Name/Locality	Date Contacted	Outcome
Armed Forces and Veterans Breakfast Clubs (AFVBC)			
	Rutland AFVBC	27/03/2024	No response
	Market Harborough AFVBC	26/04/2024	No response
	Derby AFVBC	26/04/2024	No response
	Shardlow AFVBC	26/04/2024	No response
	Wirksworth AFVBC	26/04/2024	No response
	Crich AFVBC	26/04/2024	Email undeliverable
	Bakewell AFVBC	26/04/2024	No response
	Mansfield and Ashfield AFVBC	26/04/2024	No response
	Bingham and District AFVBC	26/04/2024	No response
	Coalville AFVBC	26/04/2024	No response
	Leicester AFVBC	26/04/2024	No response
	Quinton AFVBC	26/04/2024	No response
	Birmingham North AFVBC	26/04/2024	No response
	Dudley AFVBC	26/04/2024	No response
	Walsall AFVBC	26/04/2024	No response
	Wolverhampton AFVBC	26/04/2024	No response
	Boston AFVBC	26/04/2024	No response
	Billingborough AFVBC	26/04/2024	Email undeliverable
	Bourne AFVBC	26/04/2024	No response
	Horncastle AFVBC	26/04/2024	No response
	Lincoln AFVBC	26/04/2024	No response
	Skegness AFVBC	26/04/2024	No response
	Heacham AFVBC	26/04/2024	No response
Royal British Legion (RBL) Branches			
	Spondon RBL	01/05/2024	No response
	Swadlincote RBL	03/05/2024	No response
	Melbourne RBL	03/05/2024	No response
	Ilkeston RBL	03/05/2024	No response
	Ashby de la Zouch RBL	03/05/2024	No response
	Oakwood RBL	03/05/2024	No response
	Clipstone and Forest RBL	03/05/2024	No response

	Colston Bassett RBL	03/05/2024	No response
	Eastwood and District RBL	03/05/2024	No response
	Mapperley, Porchester, and District RBL	03/05/2024	No response
	Retford and District RBL	03/05/2024	No response
	Papplewick and Linby RBL	03/05/2024	No response
	Worsop, Medan Vale and District RBL	03/05/2024	No response
	Arley RBL	03/05/2024	No response
	Bilston RBL	03/05/2024	No response
	Henley in Arden RBL	03/05/2024	No response
	Nuneaton and Stodingford RBL	03/05/2024	No response
	Rugby RBL	03/05/2024	No response
	Saffords Priors RBL	03/05/2024	No response
	Stratford upon Avon RBL	03/05/2024	Email undeliverable
	Solihull RBL	03/05/2024	Email undeliverable
	Warwick RBL	03/05/2024	No response
	Boston RBL	03/05/2024	No response
	Mablethorpe and District RBL	03/05/2024	No response
	Stamford RBL	03/05/2024	No response
	Washingborough and District RBL	03/05/2024	No response
	Wrangle and District RBL	03/05/2024	Email undeliverable
	Galanos RBL	03/05/2024	Declined to disseminate
	Long Eaton RBL	03/05/2024	Disseminated via mailing list
	Farnsfield and District RBL	03/05/2024	Out of date contact information
	Mansfield RBL	03/05/2024	Disseminated via mailing list
	Worksop RBL	03/05/2024	Declined to disseminate
Charities			
	Combat Stress	01/05/2024	Disseminated via social media
	TheVeteran.UK	08/05/2024	No response
	Soldiers', Sailors' & Airmen's Families Association (SSAFA)	08/05/2024	No response

	Fighting with Pride	08/05/2024	Disseminated via newsletter
	Help for Heroes	09/05/2024	Declined to disseminate
	North Notts & Mansfield Veteran Support Group	15/05/2024	No response
	Forces Alcohol and Gambling Support (FLAGS)	15/05/2024	No response
	Andy's Man Club	15/05/2024	No response
	Royal Navy Benevolent Trust	15/05/2024	No response
	UK Veterans Hearing Foundation	14/05/2024	Disseminated via mailing list and social media
	The Not Forgotten	24/05/2024	No response
	National Memorial Arboretum	24/05/2024	No response
	UK Veterans Live	25/05/2024	No response
	Helping Homeless Veterans	25/05/2024	No response
	Taxi Charity for Military Veterans	25/05/2024	No response
	Royal Navy and Royal Marines Charity	15/05/2024	Disseminated via mailing list
	Veteran Outreach Support	06/06/2024	No response
	Firstlight Trust	06/06/2024	No response
	Forces Employment Charity	06/06/2024	No response
	Royal Naval Association	06/06/2024	No response
	Poppy Factory	06/06/2024	Disseminated via website
	PTSD Resolution	24/06/2024	No response
	Head Up	24/06/2024	No response
	The Defence Medical Welfare Service	24/06/2024	No response
	Who Dares Cares	24/06/2024	No response
	Care after Combat	25/06/2024	Email undeliverable
	Team Endeavor	27/06/2024	No response
	Erskine Veteran Charity	27/06/2024	No response
	Forces Support	24/06/2024	Declined to disseminate
	Veteran Volunteer Service	08/07/2024	No response

	REORG Charity	08/07/2024	Email undeliverable
	Veterans Growth	08/07/2024	Disseminated via mailing list
Social media pages			
	Military Humor	23/03/2024	No response
	Veterans in Communities	23/03/2024	No response
	Veteran Community Network	08/05/2024	No response
	Veterans Supported United UK	25/05/2024	No response
	Veterans Care UK	23/03/2024	No response
	UK Veterans	23/03/2024	No response
	The Cateran Yomp Society	23/03/2024	No response
	Veterans 4 Veterans (UK)	23/03/2024	No response
	Battle Buddy UK Veterans Helping Veterans	23/03/2024	No response
	Veterans in Action	23/03/2024	No response
	The British Veterans Association	23/03/2024	No response
	Military Veterans UK	23/03/2024	No response
	Female Veterans UK	23/03/2024	Disseminated via social media pages
	UK Veterans Across the Globe	23/03/2024	No response
	UK Veterans Club	23/03/2024	No response
	Veteran Activities for Mental Health	23/03/2024	No response
	Forgotten Veterans UK	23/03/2024	No response
	Veterans Tribe	23/03/2024	Disseminated via social media pages
	Support Our Veterans UK	25/05/2024	Disseminated via social media pages
	Joining Forces	25/05/2024	Disseminated via social media pages
Other			
	Nottinghamshire Healthcare NHS Foundation Trust Veteran Network	08/07/2024	Disseminated through network by the co-chair
	Reddit British Army page	03/05/2024	Posted by author
	Reddit Royal Navy page	03/05/2024	Posted by author

	Reddit Royal Airforce page	03/05/2024	Posted by author
	Reddit British Military page	03/05/2024	Posted by author
	LinkedIn	01/07/2024	Disseminated via author's professional network
	Paid Facebook adverts	12/07/2024 – 17/08/2024	Recruitment target reached

Appendix J

Psychological Trauma: Theory, Research, Practice, and Policy Journal Submission Guidelines

https://www.apa.org/pubs/journals/tra

Poster

MORAL INJURY IN UK VETERANS: THE ROLE OF SELF-CRITICISM AND SELF-COMPASSION

The University of Nottingham

Authors: Arianna Paricos(ab), Professor Thomas Schroeder(ab), Dr Michael Baliousis(ab), Dr Rachel Sabin-Farrell(c)
Affiliations: (a) University of Nottingham, (b) University of Lincoln, (c) Derbyshire Healthcare NHS Foundation Trust

UNIVERSITY OF LINCOLN

Introduction

Higher rates of common mental health difficulties, PTSD, and alcohol and substance use, as well as poorer outcomes for evidence-based PTSD interventions have been reported for UK veterans comparative to the general population (1-2).

Combat-related moral dilemmas and associated traumatic experiences may not always fit the fear and victimisation trauma models than underpin our understanding of and intervention approaches for PTSD (3).

Moral Injury (MI) refers to the distress and dissonance experienced due to incongruence between one's moral beliefs/values and the action one has engaged in, witnessed, or learned of (4).

Our mechanistic understanding of MI is currently limited (5) and this study sought to investigate the associations between variables theoretically linked to MI for the purposes of aiding intervention target selection.

Hypotheses

Type of Potentially Morally Injurious Experience (PMIE) will predict MI severity.

Trauma-related shame and trauma-related guilt will mediate the relationship between PMIE-type and MI severity.

Self-compassion will moderate (weaken) the effect of PMIE-type on trauma-related shame and trauma-related guilt in the hypothesised mediation model.

Two forms of self-criticism (hated-self and inadequate-self) will moderate (strengthen) the effect of PMIE-type on trauma-related shame and trauma-related guilt in the hypothesised mediation model.

Method

Design:
Cross-sectional design
Questionnaire battery
Online recruitment and participation

Measures:
Demographic proforma
Moral Injury Outcome Scale
Trauma-Related Shame Inventory
Trauma-Related Guilt Inventory
Forms of Self-Criticising/Attacking and Self-Reassurance Scale
Self-Compassion Scale - Short-Form

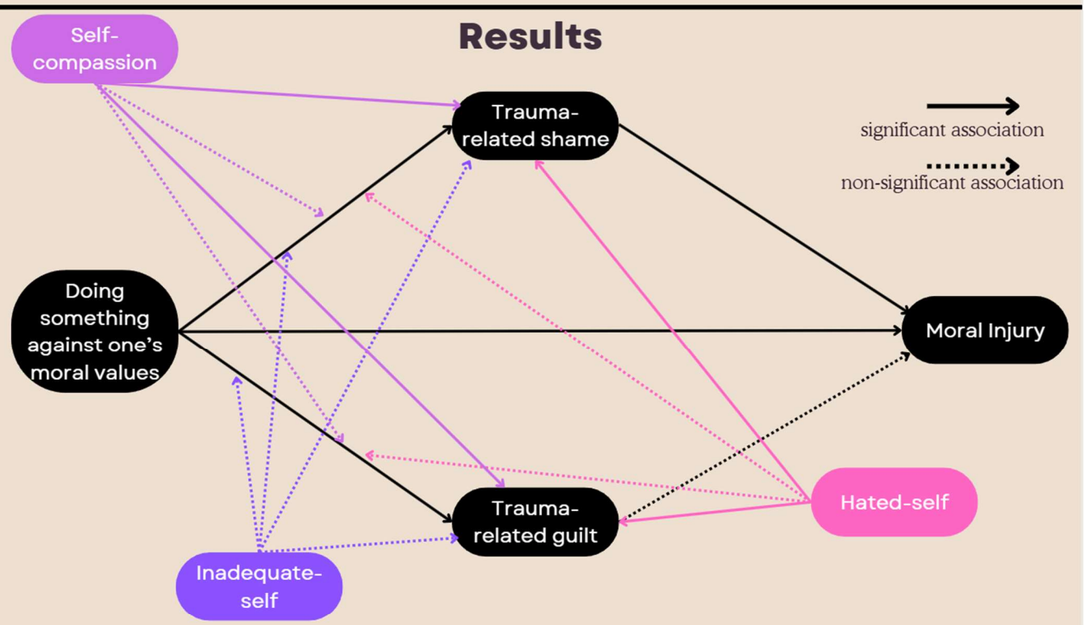
Data analysis:
Hypothesis 1 - Multiple linear regression analysis
Hypothesis 2 - Parallel multiple mediator modelling (Hayes' PROCESS SPSS macro 4)
Hypotheses 3 and 4 - conditional process analysis (Hayes' PROCESS SPSS macros 7 and 9)

Participants

123 complete datasets.

Age M(SD) - 56.65(11.00)
Gender - 83.1% male
Ethnicity - 93.2% white
Armed Forces Branch:
63.5% British Army
20.8% Royal Air Force
13.7% Royal Navy
Years served M(SD) - 15.98(9.82)
No. of deployments M(SD) - 4.73(5.07)

Results



The association between having had a PMIE and MI severity was dependent on PMIE type – doing something against one's moral values was significantly associated with MI severity, whereas witnessing or being directly affected by someone doing something against one's moral values was not.

When exploring the mechanisms of the relationship between doing something against one's moral values and MI severity, trauma-related shame was indicated to mediate this relationship, however, trauma-related guilt was not, meaning there are implications for our conceptual understanding of MI (4).

The hypotheses regarding the moderating roles of self-compassion, hated-self, and inadequate-self were not supported by the results. However, self-compassion was significantly negatively associated with shame and positively associated with guilt, and hated-self was significantly positively associated with shame and negatively associated with guilt. The findings have implications for our understanding of and approach to treating MI in veterans.

Future Directions

1. Further empirical mechanistic investigations exploring the role of self-compassion and self-criticism in the presentation of MI.
2. Specific focus on the experiences of MI of female veterans, veterans of ethnic minority backgrounds, and older adult veterans as there is limited representation in the literature.
3. Intervention studies designed to target variables identified through empirical mechanism-testing. Consideration of Compassion Focused Therapy as an intervention pending further investigation into the role of self-compassion and self-criticism in MI.

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