Moral Injury Outcome Scale (MIOS) Study

Summary Report

19 January 2022

Acknowledgements

Citation

Disclaimer

Enquiries
Dr Lisa Dell | Director Military Mental Health
Phoenix Australia | Centre for Posttraumatic Mental Health
Department of Psychiatry | The University of Melbourne
Level 3, Alan Gilbert Building, 161 Barry Street, Carlton VIC 3053
T: +61 3 9035 5599
lisa.dell@unimelb.edu.au | www.phoenixaustralia.org

Contents

Background

In the field of posttraumatic mental health, posttraumatic stress disorder (PTSD) has long been considered the signature disorder. Dominant models of PTSD (cf. Brewin, Dalgleish, & Joseph, 1996; Ehlers & Clark, 2000; Foa, Steketee, & Rothbaum, 1989) emphasise fear-based mechanisms in the development of the disorder. However, there is increasing recognition that the full range of reactions and impacts of exposure to war and other traumatic events involves emotions other than fear. In particular, traumatic events that involve transgression of one's moral code can lead to emotions such as shame and betrayal, which may be the mechanism for the development of moral injury (Drescher et al., 2011; Litz et al., 2009).

Moral injury is a relatively new concept but growing rapidly in popularity. The term was first coined by American psychiatrist Jonathan Shay, and stemmed from his extensive work with Vietnam Veterans. In his seminal writing 'Achilles in Vietnam', Shay draws parallels between Achilles' moral undoing and the lived experience of the Vietnam Veterans with whom he was working (Shay, 1994). His observation highlighted that, since antiquity, military personnel have been confronted with moral insults, and faced ethical dilemmas during the course of service. Importantly, these experiences can leave lasting impacts that go beyond periods of operational deployment (McCormack & Ell, 2017). Modern insurgencies, and post 9/11 conflicts in particular, have amplified these issues (Phelps, Kartl, Lau, & Forbes, 2015). Such conflicts often require soldiers to act in multiple roles, including humanitarian aid, peacekeeping operations and combat, in complex and dynamic environments where a soldier's values are constantly challenged (Evans, 2015). The ethical minefield associated with modern insurgencies increases the moral burden on modern service members.

Early definitions of moral injury emphasised the nature of morally injurious events themselves rather than the psychosocial and spiritual outcomes of those events. Shay (2012) initially proposed that moral injury can be defined as a "(i) Betrayal of what's right (ii) by someone who holds legitimate authority (in the military – a leader) (iii) in a high stakes situation" (Shay, 2012, p. 59). His definition highlights the relational aspect of moral injury between soldiers, command and the military culture as a whole. In times of high duress, a breakdown of trust is deeply harmful. Qualitative research with veterans of post 9/11 conflicts echo these sentiments, with "Military leadership perceived as incompetent and 'out of touch' with life on the ground" and "Military leadership perceived as self-serving and uncaring" among the most commonly cited organisational factors leading to moral injury (Currier, McCormick, & Drescher, 2015, p. 110).

Building on Shay's work, Litz and colleagues (2009) have popularised the term moral injury in the last decade, defining moral injury as "the lasting psychological, biological, spiritual, behavioural and social impact of perpetrating, failing to prevent, or bearing witness to acts that transgress deeply held moral beliefs and expectations" (Litz et al., 2009, p. 697). In this definition, one's own personal value system takes centre stage as does an individual's own actions or inactions. A later definition focuses more on the impact of the event, characterising the outcome of moral injury as "Disruption in an individual's confidence and

expectations about one's own or others' motivation or capacity to behave in a just and ethical manner" (Drescher et al., 2011, p. 9). While there is not yet a consensus definition of moral injury, there is consensus on the need to separate the morally injurious event itself from its impacts, and that both components are important for the empirical study of this field to advance (Frankfurt & Frazier, 2016).

The epidemiology and treatment of moral injury has been severely hampered by the lack of an internationally recognised, gold standard assessment of the outcomes or consequences of moral injury. The Moral Injury Outcome Scale (MIOS) addresses this gap by bringing together an international collaboration (Australia, United States, Canada, United Kingdom, and Israel) to develop and validate a moral injury outcome measure to increase the reliability of assessment and improve the care of current and ex-serving Defence members worldwide.

The project was executed in three phases:

Phase 1: Develop the construct of moral injury outcomes by completing qualitative interviews with ex-serving Defence members, mental health clinicians and Australian Defence Force (ADF) chaplains.

Phase 2: In collaboration with our international partners, translate and refine the themes of moral injury into a self-report questionnaire i.e. the MIOS and test its reliability (internal consistency) in a sample of ex-serving Defence members.

Phase 3: Test the MIOS psychometric properties, validity (convergent and discriminant) in a sample of ex-serving and currently serving Defence members.

Methodology

International consortium

The international consortium (IC) consisted of study sites across Australia, the US, the UK, Israel, and two sites in Canada (Ottawa and Canada more broadly) to ensure cross-country validity. The IC was led by Professor Brett Litz. Meetings were held monthly among consortium members throughout the MIOS project.

Ethics

Each member of the IC was responsible for obtaining ethical approvals within their own country. Australian ethics approval was sought from Departments of Defence and Veterans' Affairs Human Research Ethics Committee (DDVA HREC) in September of 2017 for Phase 1 of the project. A total of six amendments were made between 2017 and 2019 to include additional research personnel; to expand recruitment to mental health clinicians working or living across Australia (May 2018), ex-serving Defence members nationwide (September 2018) and chaplains who have worked with current ADF members (October 2018); to increase the sample size; and to make other small revisions such as changes to demographics and inclusion criteria.

Phases 2 and 3 were approved by DDVA HREC and ADF Command in September 2020. Two amendments were made for the addition of research personnel, inclusion criteria, reduction of sample size and the addition of measures for validity testing (March and June 2021).

A protocol comprising the study's design, aims, recruitment, risk management, analysis plans and dissemination of results was developed, approved and circulated to key personnel as part of the ethics submission process.

Procedure

Recruitment

Phase 1

Recruitment began in June 2018. An intake phone line and email were used to facilitate recruitment and receive expressions of interest from mental health clinicians, ADF chaplains and ex-serving ADF members. Initial advertisement and recruitment drives were intentionally slow to test the processes and protocols, and to trial remote interviewing across Open Arms – Veterans & Families Counselling (Open Arms) sites. Phoenix Australia then engaged in a successful, stronger communications drive to increase recruitment of mental health clinicians, ex-serving ADF members and chaplains who have worked with members of the ADF. This included:

- flyers in Open Arms offices
- social media and online advertisements through Phoenix Australia, Open Arms, Mates4Mates, Soldier On, Warriors Return, Returned Services League (RSL) Western Australia, RSL Tasmania and National Centre for Veterans' Healthcare (NSW)

- briefings to mental health clinicians at Open Arms
- distribution of information sheets to clinicians of Mates4Mates and Soldier On
- paid Facebook advertisements through Phoenix Australia's Facebook page.

Phase 2

A steering group meeting held in November 2020 to address recruitment issues resulted in Dr Duncan Wallace, Psychiatrist at the ADF Centre for Mental Health, promoting the study through the Royal Australian and New Zealand College of Psychiatrists Military, Veterans and Emergency Services Mental Health Network to its 281 members on 3 December 2020. This additional strategy was added to the recruitment plan in response to recruitment issues in Phase 1.

Phase 3

Phase 3 recruitment began in April 2021. Mental health clinicians and ADF chaplains who expressed interest in promoting Phase 3 of the study were contacted and provided with advertising materials such as flyers and online advertisement examples. Advertisements contained a direct link to a REDCap questionnaire. Advertisements were also distributed via Phoenix Australia and Open Arms social media channels, including LinkedIn, Facebook and Twitter.

Phase 1: Developing the construct of moral injury outcomes

The primary aim of Phase 1 was to generate information about the behavioural, social, spiritual, biological, and psychological consequences of exposure to potentially morally injurious events (PMIEs), in order to develop broad domains of impact to be used for the generation of scale items. IC members initially developed a set of domains of impact that result from exposure to PMIEs using theory and consensus among members of the IC. The domains were used to develop interview questions for a qualitative study consisting of semi-structured interviews with serving members from IC sites other than Australia and ex-serving military members, mental health clinicians and ADF chaplains in Australia. Interviews aimed to elicit observations of what participants experience and understand as the *consequences* of PMIEs. Theory and consensus-based domains involved in PMIE outcomes were:

1. the presence of moral emotions
2. alterations in self-perception
3. social impacts
4. beliefs about life's meaning and purpose.

The research question for Phase 1 was:

- What domains of impact are reported by ex-serving military members, mental health clinicians and chaplains, following exposure to a PMIE?

Inclusion and exclusion criteria

Ex-serving Defence members:

Inclusion

- 18+ years of age
- Ex-serving ADF members
- Experienced a PMIE during ADF service
- Deployed at least once on operational service
- Willingness and ability to discuss the *consequences* of PMIEs
- Living in Australia.

Exclusion

- Current participants of Rapid Exposure Supporting Trauma Recovery (RESTORE) intensive prolonged exposure trial (underway at the time of recruitment)
- Inability to complete the interview e.g. being unable to understand the question being asked
- High level of risk to self or others
- Active reservist.

Practitioners:

Inclusion

- 18+ years of age
- Have relevant training background e.g. social work, psychiatry, psychology and chaplaincy
- Working (or have worked) with current or ex-serving Defence members who have experienced PMIEs
- Willingness to discuss the *consequences* of the PMIEs described by the clients in an anonymous manner either in person or in written form
- Working in Australia.

Sites

Ex-serving ADF members were invited to attend an interview at Open Arms counselling rooms in Melbourne, Australia. Where participants could not attend the rooms in Melbourne, interviews were completed over telephone/video conferencing. These participants completed tele-interviews from their closest Open Arms office. Mental health clinicians and ADF chaplains completed interviews either remotely or face to face at a place of their choosing.

Interviews

In a semi-structured interview, ex-serving ADF members were asked to identify the worst and most currently distressing military experience that went against their beliefs about right and wrong and to describe the ways

that their life changed as a result of this event. Participants were invited to describe the event if they felt comfortable doing so but not to provide any identifying details. A risk protocol was developed to mitigate risk in instances where participants started providing details of the PMIE. Mental health clinicians and chaplains were asked about PMIEs of ex-serving ADF members. These interview findings were used to generate phenomenological content.

The concept of saturation (i.e. the point at which collection of new data does not shed any further light on the issue under investigation) was used to guide the number of participants. Guidelines suggest that between five and 25 interviews are required to achieve saturation in phenomenological research (Creswell, 1998). The target sample for the Australian site was up to 40 ex-serving ADF members and up to 30 mental health clinicians and ADF chaplains.

Qualitative analysis

The methodology used to analyse qualitative data was guided by Braun and Clarke (2006) guidelines on how to conduct a thematic analysis in qualitative research. This analysis included reading the interview transcripts, generating initial codes, searching for and reviewing themes, generating clear definitions of themes, and elucidating the overall story from the transcribed data. As the science around moral injury was emerging, the project maximised content validation in the development of the MIOS. Content validation is the extent to which the item in an instrument captures all aspects of a given construct. Classic test construction steps, such as using experts in the field to generate consensus-driven content, were used to maximise content validity. Final codes were used for the development of a codebook.

Codebook development

Overseen by Professor Brett Litz's team in Boston, an initial codebook was developed using data from active sites in the consortium to ensure international representation (US, Canada, Australia and the UK). Overall, nine interviews were used in the first draft from care providers (*n*=3), current serving members (*n*=1) and ex-serving military members (*n*=5). The initial MIOS codebook was circulated to IC members and in the first quarter of 2019, all teams focused on iteratively developing and refining the codebook using a subset of their data.

The consortium developed a finalised codebook and the iterations resulted in a number of drafts being formulated and overseen by the team at Boston, but involving all the sites. Phoenix Australia staff attended all these meetings and provided a number of iterative suggestions to the codebook as a whole. The iteration process occurred in a number of ways. Firstly, subsections of the codebook were moved to more appropriate areas, new subsections of the codebook emerged from the iterative analysis, and finally existing themes were refined and better articulated to capture the data. All the consortium members' iterations and suggestions were amalgamated into a final codebook that was circulated by the Boston team at the end of the first quarter of 2019. Consortium members analysed subsets of their data to verify the final codebook and conducted inter-rater reliability to ensure the codebook could be used consistently by raters.

Phase 1 outcomes

Semi-structured interviews were conducted with seven current serving members, 73 ex-serving members, 35 clinicians, and ten chaplains across the IC. Within Australia, 15 ex-serving members, 10 mental health clinicians and 2 ADF chaplains completed interviews. Interview data underwent thematic analysis that was discussed by members of the IC and used to generate consensus definitions of themes and codes or components within each domain. Theory and the qualitative data resulted in the generation of six themes – or domains of impact (Figure 1).
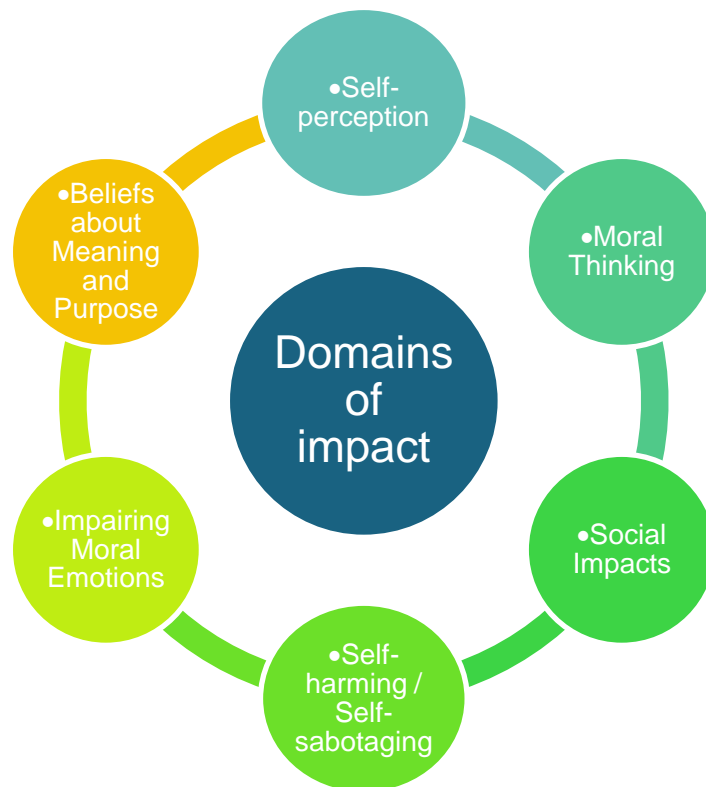
Figure 1. *Domains of impact generated by theory and qualitative component results.*

Each IC site generated items from their data that were consistent with each component definition. After removal of overlapping items, a large pool of 300 items was retained. Consortium members with clinical expertise or construct knowledge rated each item as core to the construct of moral injury or not core. This resulted in a set of 49 items being retained.

An online card sort task was conducted to determine the goodness-of-fit of the 49 retained items to the proposed domains. Researchers (*n*=19) who were unfamiliar with the construct of moral injury were included in this task. Thirty-four (34) items on which at least 50% of the raters agreed were retained.

Each member of the IC sought feedback from 1-2 clinicians who are familiar with moral injury, regarding formatting and the general look and feel of the MIOS. This feedback was discussed and, where agreed, incorporated into the draft 34 item MIOS questionnaire. Feedback was provided by an expert psychometrician and content expert, on wording, logic and rating scheme. These suggestions were

discussed and, where agreed, incorporated. The resultant working instructional set and response framework were added to the 34 items to undergo reliability testing in Phase 2 of the project.

Phase 2: Reliability testing

Aims

The primary aim of Phase 2 was to assess the reliability (internal consistency) of the draft 34-item MIOS and to trim items with insufficient reliability. Further, a confirmatory factor analysis (CFA) was undertaken to determine whether items of the MIOS loaded onto the best fitting model determined from exploratory factor analyses conducted on Phase 2 data, and cross-country validity was determined via invariance testing.

The two research questions in Phase 2 were:

1. Does the MIOS have adequate internal consistency?
2. Are the MIOS subscales supported by a confirmatory factor analysis?

Reliability analysis

The first 34-item draft of the MIOS was administered to current and ex-serving members across four consortium sites (noting for Australia, only ex-serving members were included in Phase 2). This resulted in a **total sample size of 1,160 participants**.

Exploratory factor analysis (EFA) was conducted to investigate the scale dimensionality. Internal consistency between items was initially examined using the Statistical Packaged for Social Scientists (SPSS). Following this, a CFA was conducted in Mplus to further examine internal consistency. Items that did not have very good internal consistency reliability were removed from the response set. A final version of the MIOS was constructed, and the format and instructions for the scale were finalised (see Appendix I).

Phase 2 outcomes

Participant sample

At the Australian site, a total of 173 ex-serving ADF members completed (or partially completed) the MIOS in an online survey.

The Australian sample comprised 68 per cent male, and 33 per cent female, and the majority were aged 40-60 years (69%), with a range of years served in the ADF. Participants were primarily enlisted in the Australian Army (68%), with smaller proportions in the Royal Australian Air Force (19%), and Royal Australian Navy (12%); see Figure 2 (note that only those who

Canada	Australia
360	173

United States	United Kingdom
363	264

provided the relevant information are included in this Figure). Almost equal proportions of participants were ranked as General Enlistees (33%), Commissioned Officers (33%), and Non-Commissioned Officers (35%). Seventy-seven per cent of participants had been deployed during their service, more than half to warlike operations (55%).
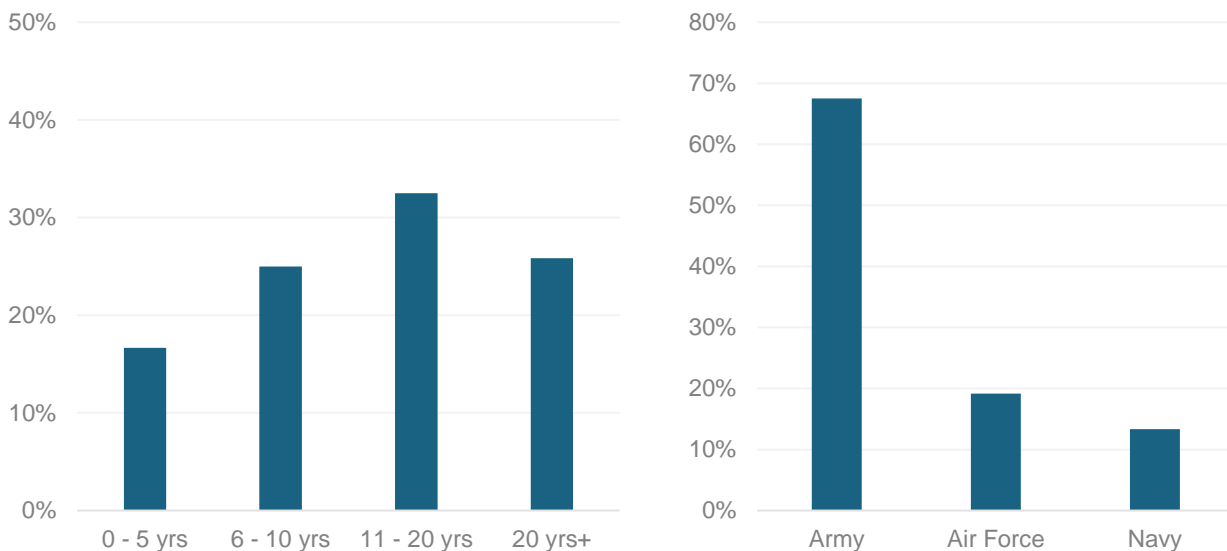
Figure 2. *Distribution of participants across service length and type groups* (*n*=94).

In regard to experiencing a PMIE (*noting that participants could endorse multiple categories)*:

- 65 participants (55%) reported that the event involved something they did or failed to do
- 93 participants (79%) indicated the event involved observing someone else acting (or failing to act)
- 103 participants (87%) reported that the event involved being directly impacted by someone else (or people) acting (or failing to act).

With respect to whether the index event would also meet PTSD Criterion A, which assesses whether an individual has experienced a traumatic event, 77 participants (64%) reported that the event involved actual or threatened death, serious injury or sexual violence. Further, a brief screen for PTSD found that:

- 74 participants (62%) reported having nightmares about the event or thought about the event when they did not want to
- 76 participants (63%) reported that they had to try hard not to think about the event or went out of their way to avoid situations that reminded them of the event.

Participants were given the opportunity to provide a brief description of their morally injurious experience, excluding names, dates and specific places to ensure privacy. A total of 88 (73%) participants provided a description, resulting in a wide range of experiences being reported.

Exploratory factor analysis

Preliminary analyses were conducted on international samples, as data collection in Australia lagged behind other countries. At first, an EFA was conducted to assess dimensionality of the MIOS, on data collected from a Canadian sample of 533 participants.

All 34 items on the MIOS were initially included in analyses and Eigenvalues and parallel analysis suggested that five factors were detected. Further investigations revealed that only one item loaded on factor 5, three loaded onto factor 4 and four onto factor 3 in the absence of cross-loadings. Further, a Scree plot was produced and indicated that a two-factor model was most appropriate, with the two factors being shame-related outcomes and trust violation-related outcomes. The EFA found that factor 1 (shame-related MI) accounted for 44.64 per cent and factor 2 (trust violation-related MI) for 6.02 per cent of the variance across MIOS items. Factors 1 and 2 correlated at .47.

To reduce the scale size, items with a factor loading of <.30 or cross-loading of >.30 were removed, as well as redundant items with content overlap. Subscales had an equal number of items following removal of some items. EFA was conducted on the final 14-item MIOS. Factor 1 accounted for 42.15 per cent of the variance within items and factor 2 accounted for 5.75 per cent of the variance. Factors 1 and 2 correlated at .74. Item loadings are presented in Appendix B, Table B1.

Internal consistency

Acceptable values for internal consistency were found for the 14-item MIOS. Internal consistency values ranged from .85 to .90 among data from the IC. Within the Australia sample, Cronbach's alpha values were .86 for shame-related outcomes and .81 for trust violation outcomes. Bivariate correlations between subscale scores were moderate to strong across the IC. In Australia, subscale scores moderately correlated at .50. Subscale item correlations are presented in Appendix B, Table B2.

Confirmatory factor analysis

CFA was conducted and found the two-factor model fit the data well with factor loadings ranging from .30 to .81 within the IC and correlating at .65, .77 and .77 for Ottawa, US and England, respectively.

Invariance testing

Cross-national invariance testing found the US–Canada (Ottawa) and the UK–Canada (Ottawa) configurational models fit the data well and factors were consistent across countries (see Appendix B, Table B3). Factor loadings between the US and Canada (Ottawa) were not significantly different, alongside the invariance model which was not significantly different from the metric model for these countries in the IC.

Factor loadings for the UK–Canada (Ottawa) models were found to be equivalent, showing no significant difference between metric and configural models. Scalar invariance was not met; however, further analyses revealed partial scalar invariance was satisfied once one item was freed from the intercept. Mean differences between UK and Canada revealed UK was significantly higher on both subscale outcomes. Finally, data from Australia and all countries within the IC was regressed onto MIOS factors and found no countries had a significant effect on either subscales. Modification indices found cross-country fit at < 3.31, indicating that items performed similarly across all countries.

Phase 3: MIOS validity testing

Aims and hypotheses

The aim of Phase 3 was to assess the validity (convergent and discriminant validity) of the MIOS items in a sample of current and ex-serving military members. Both ex-serving and current serving members participated in this phase of the project. The research question in this phase was:

- Does the MIOS correlate highly with measures assessing similar constructs, and poorly with measures assessing dissimilar constructs?

The final battery included the final version of the MIOS (developed in Phase 2) as well as measures to assess exposure to PMIEs.

It was expected that the MIOS would correlate highly with the following measures:

Convergent validity

- The Posttraumatic Stress Disorder Check List 5 (PCL5)

- The Dimensions of Anger Reactions 5 (DAR-5)

- The Patient Health Questionnaire (PHQ-9)

- The Brief Inventory of Psychosocial Functioning (B-IPF)

- Expressions of Moral Injury Scale – Military Version (EMIS-M)

- State Shame and Guilt Scale (SSGS)

- Trauma Related Guilt Inventory (TRGI)

- Morality and Ultimate Meaning subscales (8 items) from the Religious and Spiritual Struggles scale (RSS)

It was expected that MIOS would have a low correlation (divergent validity) with:

Divergent validity

- **Short Dark Triad** (SD3)
- **Marlowe-Crowne Social Desirability Scale** (MCSD)
- **The Heartland Forgiveness scale** (HFS)
- **An adapted Schuster Social Support Scale** (SS)
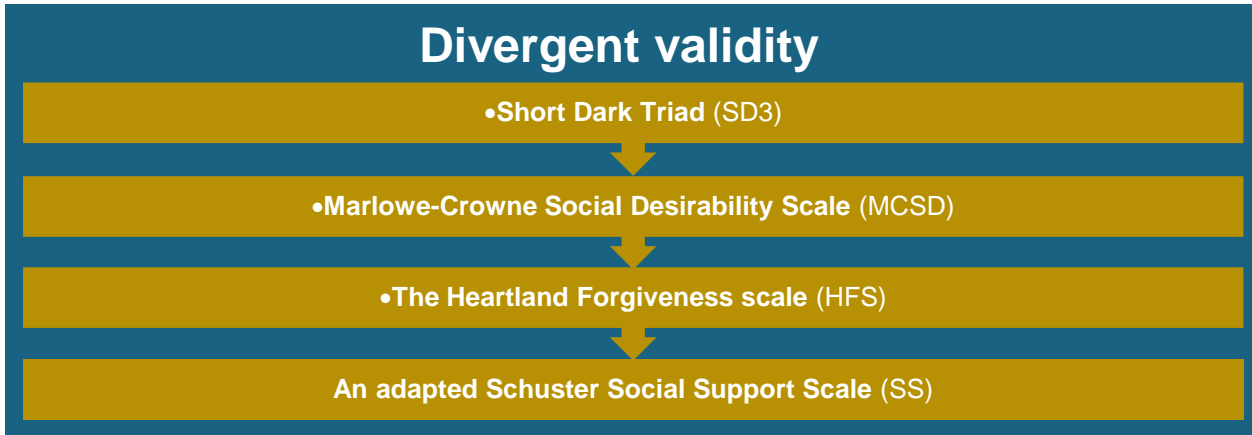
Convergent and discriminant validity of the MIOS were evaluated by delivering the battery of psychometric questionnaires via REDCap to a new sample of current and ex-serving members who have been on operational service (excluding current serving special officer (SO) Personnel with Afghanistan service, as they were being researched/inquired upon as a group via too many other activities). The following measures of exposure were also assessed:

Exposure

- **The Combat Exposure Scale (CES)**
- **Moral Injury Events Scale (MIES)**
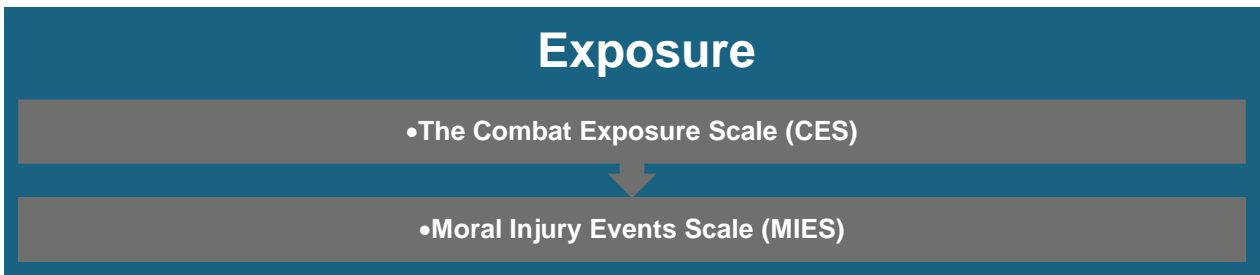
Participants were not required to provide details of any particular events that they have experienced and/or witnessed. However, they were given the option to provide a brief description of an index event, with instructions not to include names, dates, or specific places to ensure privacy.

Phase 3 outcomes

Participant sample

The 14-item MIOS was administered to a total of 149 current and ex-serving military members in Australia, and more broadly across Canada (Ottawa) (*n*=533), US (*n*=360), Canada (*n*=239) and the UK (*n*=264).

At the Australian site, a total of 91 ex-serving and 58 current serving ADF members completed the survey. The sample comprised 70 per cent male, 29 per cent female and 1 per cent other; over a third were aged 50-59 years (32%), with a range of years served in the ADF. Seventy-five per cent of participants had been deployed during their service, the majority to warlike operations (54%). Descriptive statistics are reported in Appendix C, Table C1.

Participants had experienced a range of PMIEs and were most likely to have experienced an MI-Betrayal event (79.1%) or an MI-Other event (76.7%), noting that participants were able to report experiences with

---

more than one PMIE. Participants also experienced a range of PTSD symptoms, most commonly avoidance (73.4%). PMIE event types and PTSD symptom findings are reported in Appendix C, Table C2.

Validity testing

Bivariate correlations between MIOS and included measures were conducted to assess for convergent validity and divergent validity in data from the IC (Appendix C, Table C3), as well as in Australian data alone (Appendix C, Table C4).

Convergent validity

Table 1 presents correlations for convergent validity testing. As expected, the MIOS scores were found to have a significant positive correlation with measures of PTSD severity (PCL-5); anger (DAR-5); depression (PHQ-9); functioning (B-IPF); moral injury as an outcome (EMIS-M self and EMIS-M other); guilt (SSGS and TRGI); and spirituality (RSS).

Discriminant validity

Table 2 presents correlations for divergent validity testing. The MIOS total score was found to have significant negative correlations with measures of social desirability (MCSD); forgiveness of self and situations (HFS self and HFS others) and social support (SS friends, family, team and superior) and significant positive correlation with psychopathy (SD3 psychopathy). The MIOS total score did not significantly correlate with forgiveness of others, but as expected, the trust violations subscale had a significant negative correlation with forgiveness of others. The MIOS score was unrelated to Machiavellianism and Narcissism.

Table 1. *Correlations from convergent validity testing.*

	1	2	3	4	5	6	7	8	9	10	11	12
1. MIOS Shame	-											
2. MIOS Trust violation	.456**	-										
3. MIOS Total	.870**	.835**	-									
4. PCL-5	.495**	.549**	.662**	-								
5. DAR-5	.491**	.492**	.588**	.646**	-							
6. PHQ-9	.430**	.510**	.565**	.780**	.474**	-						
7. B-IPF	.592**	.538**	.664**	.715**	.590**	.644**	-					
8. EMIS-M self	.603**	.537**	.687**	.681**	.504**	.638**	.630**	-				
9. EMIS-M other	.275**	.566**	.499**	.533**	.451**	.421**	.560**	.589**	-			
10. SSGS	.634**	.292**	.564**	.590**	.512**	.562**	.490**	.666**	.275**	-		
11. TRGI	.585**	.121	.435**	.359**	.246*	.230	.372**	.489**	.087	.575**	-	
12. RSS	.468**	.457**	.559**	.522**	.345**	.583**	.493**	.678**	.361**	.629**	.560**	-

* p < .05; ** p < .01

Table 2. *Correlations from divergent validity testing.*

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. MIOS Shame	-												
2. MIOS Trust violation	.456**	-											
3. MIOS Total	.870**	.835**	-										
4. MCSD	-.326**	-.217*	-.328**	-									
5. HFS self	-.465**	-.457**	-.545**	.295**	-								
6. HFS others	-.033	-.205*	-.135	.427**	.161	-							
7. HFS situations	-.282**	-.433**	-.418**	.312**	.526**	.407**	-						
8. SS friends	-.183	-.193*	-.224*	.037	.215*	-.046	.149	-					
9. SS family	-.311**	-.239*	-.331**	.168	.284**	.104	.129	.430**	-				
10. SS team	-.195	-.257**	-.268**	.102	.265**	-.053	.050	.455**	.345**	-			
11. SS superior	-.207*	-.402**	-.357**	.071	.329**	.008	.119	.288**	.189	.524**	-		
12. SD3 Machiavellianism	.022	-.138	-0.64	-.254*	.020	-333**	-156	-.020	-.017	.015	.085	-	
11. SD3 Narcissism	-.020	-.039	-.034	.002	.235*	.030	-.048	.146	.010	.102	.115	.253**	-
13. SD3 Psychopathy	.290**	.269**	.337**	-.310**	-.092	-.355**	-.375**	-.152	-.191	-.073	-.029	.327**	.403**

* $p < .05$; ** $p < .01$

Discussion

Phase 1 and 2 results were, as anticipated, consistent with IC prior knowledge of PMIE outcomes. In Phase 1, consensus was achieved among the IC for resultant themes that emerged during thematic analysis. In Phase 2, 34 items were assessed for reliability and found to have adequate internal consistency as anticipated.

It was hypothesised that the MIOS would have a significantly positive correlation with measures of PTSD severity (PCL-5); anger (DAR-5); depression (PHQ-9); functioning (B-IPF); moral injury as an outcome (EMIS-M self and EMIS-M other); guilt (SSGS and TRGI); and spirituality (RSS). Consistent with hypotheses, MIOS had significant correlations with all measures assessing convergent validity.

It was also hypothesised that the total MIOS would have significant negative correlations with measures of psychopathy (SD3 psychopathy); social desirability (MCSD); forgiveness of self, others and situations (HFS self, HFS others and HFS situations); social support (SS friends, family, team and superior); Machiavellianism and Narcissism (SD3). Findings were, in part, consistent with hypothesis whereby the MIOS was found to have significant negative correlations with all scales except for forgiveness of others, Machiavellianism and Narcissism.

The MIOS comprises two subscales: MIOS shame and MIOS trust violation. As predicted, the MIOS shame subscale had significant negative correlations with social desirability (MCSD), forgiveness of self and situations (HFS-self and HFS-situations), and social support from family and superiors (SS family and SS superior). The MIOS trust violation subscale was found to have significant negative correlations with social desirability (MCSD), forgiveness of self, others and situations (HFS), and all types of social support (SS). Both subscales had a significant positive correlation with psychopathy (SD3). Though this finding was not anticipated, it is consistent with some research that has implicated unconscious shame as a factor of psychopathy (Heinze, 2017).

Next steps

It is anticipated that the MIOS will be subject to further research over the next few years by members of the IC as well as other researchers internationally, to establish empirically derived severity scores and a definition of moral injury "caseness". In the interim, the MIOS can be used in clinical practice and epidemiological research as a reliable and valid measure of moral injury outcomes, with the following guidance on administration and scoring.

MIOS Administration and Scoring

The MIOS is a two-page self-report measure of moral injury outcomes suitable for clinical and research purposes. The first page entails an assessment of exposure to three types of PMIEs, defined as events that went against the person's moral code or values (doing something or failing to do something, observing someone else acting or failing to act, or being directly impacted by someone else [or people] acting or failing to act). The Primary Care PTSD Screen (Prins et al., 2016) is used to assess whether the PMIE was also a Criterion A event and the extent of possible PTSD symptoms as a result. The second page includes the 14 MIOS items, all indexed to the PMIE that is the worst and most currently distressing. Respondents are asked

to indicate how strongly they agree with each statement in the past month with ratings on a 5-point Likert scale, with 0 = strongly disagree, to 4 = strongly agree.

Moral injury "caseness" requires consideration of functional impairment as well as symptom severity. The Brief Inventory of Psychosocial Functioning (B-IPF; Kleiman et al., 2020) is used to assess the functional impact of the MIOS symptoms endorsed across seven domains (romantic relationships, relationships with children, family relationships, friendships, work, training/education, and day to day activities). The instructions embedded in the MIOS are: "Please write in a number for each item below that represents how much these experiences have made it hard for you to function in each of the following areas (if not applicable, use N/A)". B-IPF total scores represent an index of overall functional impairment, with higher scores indicating greater functional impairment. Future research will investigate the optimal threshold severity score on the MIOS that is associated with functionally impairing MI. In order to contribute to the generation of population norms and the caseness definition, the sharing of de-identified MIOS data with the IC is encouraged.

The MIOS can be used in research and clinical settings as part of a mental health assessment to identify exposure to a potentially morally injurious experience and assess the presence and severity of any moral injury outcomes. Similarly, it can be used pre- and post-treatment to assess any change in MI symptoms following treatment. Written user instructions containing an explanation of the administration and scoring will be available to researchers and clinicians administering the MIOS.

> The MIOS comprises two subscales with seven items in each:
>
> - o Shame-related subscale items 1, 3, 7, 8, 12, 13 and 14
> - o Trust Violation-related subscale items 2, 4, 5, 6, 9, 10, 11
>
> The total score range is 0 – 56 for the total score and 0 – 28 for each of the two subscales. With respect to symptom severity, the following categorisations are offered as a guide:
>
> - ➢ 14 – 28 = mild MI
> - ➢ 29 – 42 = moderate MI
> - ➢ 35 – 56 = severe MI

Conclusions

The development of the MIOS followed best practice approaches to scale development, with a ground-up approach to content generation based on qualitative interviews with service members, veterans, mental health clinicans and chaplains, followed by cross-nation reliability and validity testing (Yeterian et al., 2019). This gives us confidence that the final measure is reliable, valid and applicable to current serving and veteran populations in Australia as well as internationally. Further research is needed to establish empirical cut-off scores on the MIOS, indicating a positive screen for moral injury. This will be important for future epidemiological studies seeking to assess the prevalence of moral injury.

With the increasing recognition of moral injury as a potential outcome of exposure to traumatic military experiences, the MIOS would be a valuable addition to a standard battery of assessment instruments for veterans presenting with posttraumatic mental health problems, as well as a measure of treatment outcome. Again, further research will provide guidance on the interpretation of scores on the MIOS, beyond the comparison data that is currently available on average scores for those exposed and not exposed to a PMIE, and change scores after treatment. Importantly, the wording of the MIOS intentionally avoids reference to military experience. This makes it potentially applicable to other populations exposed to PMIEs. Additional research will be needed to establish the validity of the MIOS in assessing MI in other populations.

Abbreviations

ADF	Australian Defence Force
B-IPF	Brief Inventory of Psychosocial Functioning
CES	Combat Exposure Scale
CFA	Confirmatory factor analysis
DAR-5	Dimensions of Anger Reactions
DDVA HREC	Departments of Defence and Veterans' Affairs Human Research Ethics Committee
Defence	Department of Defence
EFA	Exploratory factor analysis
EMIS-M	Expressions of Moral Injury Scale – Military Version
HFS	Heartland Forgiveness Scale
MCSD	Marlowe–Crowne Social Desirability Scale
MI	Moral injury
MIES	Moral Injury Events Scale
MIOS	Moral Injury Outcome Scale
PCL-5	PTSD Checklist for DSM-5
PHQ-9	Patient Health Questionnaire
PMIE	Potentially morally injurious event
RSS	Ruminative Responses to Depression Questionnaire
SSGS	State Shame and Guilt Scale
TRGI	Trauma-Related Guilt Inventory
SD3	Short Dark Triad
SS	Schuster Social Support Scale (adapted version)
US	Unites States
UK	United Kingdom

References

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77-101. doi:10.1191/1478088706qp063oa

Brewin, C. R., Dalgleish, T., & Joseph, S. (1996). A dual representation theory of posttraumatic stress disorder. *Psychol Rev, 103*(4), 670-686. doi:10.1037/0033-295x.103.4.670

Creswell, J. W. (1998). *Qualitative inquiry and research design: Choosing among five traditions*. Thousand Oaks, CA, US: Sage Publications, Inc.

Currier, J., McCormick, W., & Drescher, K. (2015). How Do Morally Injurious Events Occur? A Qualitative Analysis of Perspectives of Veterans With PTSD. *Traumatology, 21*. doi:10.1037/trm0000027

Drescher, K. D., Foy, D. W., Kelly, C., Leshner, A., Schutz, K., & Litz, B. (2011). An Exploration of the Viability and Usefulness of the Construct of Moral Injury in War Veterans. *Traumatology, 17*(1), 8-13. doi:10.1177/1534765610395615

Ehlers, A., & Clark, D. M. (2000). A cognitive model of posttraumatic stress disorder. *Behav Res Ther, 38*(4), 319-345. doi:10.1016/s0005-7967(99)00123-0

Evans, M. (2015). A commander's perspective *Moral injury: Unseen wounds in an age of barbarism* (pp. 63-78). Sydney: UNSW Press.

Foa, E. B., Steketee, G., & Rothbaum, B. O. (1989). Behavioral/cognitive conceptualizations of post-traumatic stress disorder. *Behavior Therapy, 20*(2), 155-176. doi:10.1016/S0005-7894(89)80067-X

Frankfurt, S., & Frazier, P. (2016). A Review of Research on Moral Injury in Combat Veterans. *Military Psychology, 28*. doi:10.1037/mil0000132

Heinze, P. (2017). Psychopathy, unconscious shame and attachment: Considering the psychodynamics of psychopathy. *Psychodynamic Practice, 23*(1), 7-32. doi:10.1080/14753634.2016.1269663

Litz, B. T., Stein, N., Delaney, E., Lebowitz, L., Nash, W. P., Silva, C., & Maguen, S. (2009). Moral injury and moral repair in war veterans: a preliminary model and intervention strategy. *Clin Psychol Rev, 29*(8), 695-706. doi:10.1016/j.cpr.2009.07.003

McCormack, L., & Ell, L. (2017). Complex psychosocial distress postdeployment in veterans: Reintegration identity disruption and challenged moral integrity. *Traumatology, 23*(3), 240-249. doi:10.1037/trm0000107

Phelps, A., Kartl, D. z., Lau, W., & Forbes, D. (2015). The utility of moral injury *Moral Injury: Unseen Wounds in an Age of Barbarism*. Sydney: University of New South Wales Press.

Shay, J. (1994). *Achilles in Vietnam: Combat trauma and the undoing of character*. New York, NY, US: Atheneum Publishers/Macmillan Publishing Co.

Shay, J. (2012). *Moral Injury*. Retrieved from https://oralhistoryreview.org/wp-content/uploads/2019/04/Shay-Jonathan-Moral-Injury-Intertexts-Lubbock-16-1-Spring-2012-57-6685-86-2012-.pdf

Yeterian, J. D., Berke, D. S., Carney, J. R., McIntyre-Smith, A., St Cyr, K., King, L., . . . Litz, B. T. (2019). Defining and Measuring Moral Injury: Rationale, Design, and Preliminary Findings From the Moral Injury Outcome Scale Consortium. *J Trauma Stress, 32*(3), 363-372. doi:10.1002/jts.22380

Appendix A – Moral Injury Outcome Scale

Moral Injury Outcome Scale*

<u>Instructions</u>: This questionnaire asks about experiences you may have had after a very stressful experience in which:

- You did something (or failed to do something) that went against your moral code or values (e.g., you harmed someone or failed to protect someone from harm), or
- You saw someone (or people) do something or fail to do something that went against your moral code or values (e.g., you witnessed cruel behavior), or
- 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).

Have you had an experience (or experiences) as described above?

_____Yes   _____No: Please do not complete this questionnaire

Please answer questions A-C while thinking about <u>the worst event that currently bothers you the most</u>. This could be one of the examples above, or some other very stressful experience that went against your core values.

A. Did the event involve something you did or failed to do?
_____Yes   _____No

B. Did the event involve observing someone else acting (or failing to act)?
_____Yes   _____No

C. Did the event involve being directly impacted by someone else (or people) acting (or failing to act)?
_____Yes   _____No

For events that had multiple features, which aspect was the worst (A, B, or C) _____?

Please also answer questions 1-3 below **:

1. *What year did this event happen _____?*

2. *Did the event involve actual or threatened death, serious injury, or sexual violence?*
_____Yes   _____No

3. *In the past month, have you…*
   a. had nightmares about the event or thought about the event when you did not want to?
   _____Yes   _____No

   b. tried hard not to think about the event or went out of your way to avoid situations that reminded you of the event(s)?
   _____Yes   _____No

   c. been constantly on guard, watchful, or easily startled?
   _____Yes   _____No

   d. felt numb or detached from people, activities, or your surroundings?
   _____Yes   _____No

   a. felt guilty or unable to stop blaming yourself or others for the event(s) or any problems the event(s) may have caused?
   _____Yes   _____No

PLEASE GO TO NEXT PAGE →

If you feel comfortable, please briefly describe the worst event referenced on the first page:

Keeping this worst event in mind, please read each of these statements and circle one of the numbers to the right to indicate how much you would agree with the statement <u>in the past month</u>.

In the past month, how strongly would you <u>agree</u> with the following statements:	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
1. I blame myself.	0	1	2	3	4
2. I have lost faith in humanity.	0	1	2	3	4
3. People would hate me if they really knew me.	0	1	2	3	4
4. I have trouble seeing goodness in others.	0	1	2	3	4
5. People don't deserve second chances.	0	1	2	3	4
6. I am disgusted by what happened.	0	1	2	3	4
7. I feel like I don't deserve a good life.	0	1	2	3	4
8. I keep myself from having success.	0	1	2	3	4
9. I no longer believe there is a higher power.	0	1	2	3	4
10. I lost trust in others.	0	1	2	3	4
11. I am angry all the time.	0	1	2	3	4
12. I am not the good person I thought I was.	0	1	2	3	4
13. I have lost pride in myself.	0	1	2	3	4
14. I cannot be honest with other people.	0	1	2	3	4

PLEASE ANSWER THE NEXT 7 ITEMS

Please write in a number for each item below that represents how much these experiences have made it hard for you to function in each of the following areas (if not applicable, use N/A)***:

Not at All			Somewhat			Extremely
0	1	2	3	4	5	6

1. Romantic relationships with spouse or partner _____
2. Relationships with your children _____
3. Family relationships _____
4. Friendships or socializing _____
5. Work _____
6. Training or education _____
7. Day to day activities, such as chores, errands, managing medical care _____

Appendix B – Phase 2 statistical tables

Table B1. *Pattern matrix factor loadings for 14-item Moral Injury Outcome Scale.*

Item	Shame-related Outcomes	Trust Violation-related Outcomes
I am not the good person I thought I was.	**.91**	-.13
I feel like I don't deserve a good life.	**.74**	.02
I keep myself from having success.	**.73**	.02
People would hate me if they really knew me.	**.71**	.07
I have lost pride in myself.	**.67**	.15
I blame myself.	**.60**	-.01
I cannot be honest with other people.	**.55**	.09
I have lost faith in humanity.	-.11	**.87**
I lost trust in others.	-.05	**.82**
I have trouble seeing goodness in others.	-.01	**.77**
I am angry all the time.	.18	**.62**
I am disgusted by what happened.	.02	**.49**
People don't deserve second chances.	.09	**.38**
I no longer believe there is a higher power.	.05	**.30**

Note. Bolded values represent loadings ≥ .30.

Table B2. *Descriptive statistics for 14-item Moral Injury Outcome Scale.*

Variable	M	SD	α
Canada			
MIOS total score	25.31	11.38	.90
Shame-related Outcomes	11.28	6.64	.88
Trust Violation Outcomes	14.03	5.85	.81
Canada (Ottawa)			
MIOS total score	27.32	9.08	.85
Shame-related Outcomes	11.98	5.75	.85
Trust Violation Outcomes	15.34	4.69	.72
United States			
MIOS total score	25.14	11.36	.90
Shame-related Outcomes	11.36	6.82	.90
Trust Violation Outcomes	13.78	5.58	.78
United Kingdom			
MIOS total score	32.87	10.54	.89
Shame-related Outcomes	16.29	6.20	.86
Trust Violation Outcomes	16.58	5.35	.79
Australia			
MIOS total score	27.74	10.42	.88
Shame-related Outcomes	12.17	6.35	.86
Trust Violation Outcomes	15.56	5.52	.81

Table B3. *Cross-national invariance fit indices.*

Model	χ^2(df)	CFI	TLI	RMSEA	RMSEA 90% CI
US and Canada (Ottawa)					
Configural model	331.72(152)***	.944	.933	.063*	.053, .072
Metric model	344.11(164)***	.944	.938	.060*	.051, .069
Scalar model	393.30(176)***	.932	.930	.064**	.056, .073
Partial scalar model	378.25(175)***	.937	.934	.062*	.054, .071
UK and Canada (Ottawa)					
Configural model	326.14(152)***	.925	.910	.068**	.057, .078
Metric model	340.51(164)***	.924	.916	.065**	.056, .075
Scalar model	406.54(176)***	.901	.897	.072***	.063, .081
Partial scalar model	354.55(175)***	.915	.911	.066**	.056, .075

Note. ***p<.001, **p<.01, *p<.05. CFI = comparative fit index. TLI = Tucker-Lewis Index. RMSEA = Root mean square error of approximation. CI = confidence interval.

Table B4. *Moral Injury Outcome Scale descriptive statistics and inter-item/item-total correlations – Canada.*

Item	M (SD)	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. I blame myself.	1.94 (1.29)	1													
2. People would hate me if they really knew me.	1.54 (1.27)	.45	1												
3. I feel like I don't deserve a good life.	1.33 (1.21)	.47	.60	1											
4. I keep myself from having success.	1.71 (1.18)	.47	.52	.58	1										
5. I am not the good person I thought I was.	1.51 (1.16)	.49	.65	.60	.57	1									
6. I have lost pride in myself.	1.89 (1.32)	.45	.55	.58	.64	.65	1								
7. I cannot be honest with other people.	1.41 (1.25)	.33	.53	.42	.43	.50	.49	1							
8. I am angry all the time.	1.93 (1.25)	.43	.48	.48	.47	.50	.55	.37	1						
9. I have lost faith in humanity.	2.22 (1.26)	.32	.46	.44	.37	.38	.50	.31	.60	1					
10. I have trouble seeing goodness in others.	1.91 (1.20)	.27	.49	.44	.43	.40	.49	.41	.57	.61	1				
11. People don't deserve second chances.	1.31 (1.02)	.15	.28	.31	.27	.30	.30	.28	.29	.30	.38	1			
12. I am disgusted by what happened.	2.45 (1.21)	.28	.31	.30	.26	.26	.31	.25	.41	.35	.33	.31	1		
13. I no longer believe there is a higher power.	1.87 (1.32)	.17	.25	.19	.19	.22	.21	.20	.23	.30	.28	.18	.18	1	
14. I lost trust in others.	2.40 (1.24)	.36	.41	.40	.47	.40	.50	.39	.58	.63	.59	.33	.43	.23	1
15. Total MIOS	1.82 (0.82)	.54 (.61)	.70 (.75)	.68 (.73)	.66 (.72)	.69 (.74)	.73 (.78)	.57 (.64)	.70 (.75)	.65 (.71)	.66 (.72)	.41 (.49)	.46 (.53)	.30 (.42)	.66 (.72)

Note. All correlations significant at *p* < .001. Uncorrected item-total correlations in brackets (else are corrected item-total correlations).

Appendix C – Phase 3 statistical tables

Table C1. *Phase 3 sociodemographic characteristics of PMIE endorsing participants vs. non-PMIE endorsing participants (n=149).*

Demographic Characteristic	Non-PMIE Endorsers (*N* = 19)		PMIE Endorsers (*N* = 130)		Difference	Chi-squared	Significance level
	n	%	*n*	%	%	*χ2*	*p*
Serving status							
Current serving	8	42.1	50	38.5	3.6		
Ex-serving	11	57.9	80	61.5	3.6	0.093	0.761
Gender							
Male	17	89.5	88	67.7	21.8		
Female	2	10.5	41	31.5	21.0		
Other	0	0.0	1	0.8	0.8	3.798	0.150
Age range						25.280	0.001*
18-19	1	5.3	0	0.0	5.3	6.760	0.009
20-29	0	0.0	3	2.3	2.3	0.490	0.484
30-39	2	10.5	32	24.6	14.1	1.960	0.162
40-49	3	15.8	36	27.7	11.9	1.210	0.271
50-59	7	36.8	40	30.8	6.0	0.250	0.617
60-69	1	5.3	14	10.8	5.5	0.490	0.484
70-79	5	26.3	4	3.1	23.2	16.000	< 0.001*
80+	0	0.0	1	0.8	0.8	0.160	0.689
Deployed							
No	2	10.5	35	26.9	16.4		
Yes	17	89.5	95	73.1	16.4	2.388	0.122
Type of deployment							
Warlike	13	68.4	68	52.3	16.1	1.735	0.188
Peacekeeping	5	26.3	58	44.6	18.3	2.275	0.131
Humanitarian	3	15.8	29	22.3	6.5	0.418	0.518
Border protection	3	15.8	25	19.2	3.4	0.129	0.720
Not specified	2	10.5	5	3.8	6.7	1.652	0.199

Note. PMIE = potentially morally injurious event.

*Statistically significant at the 95% confidence level. *Note.* A Bonferroni corrected p value of 0.006 was used to determine statistical significance in post-hoc tests of age.

Table C2. *Phase 3 event types and PTSD screener findings.*

	PMIE Endorsers (*N* =130)	
	n	*%*
MI-Self event [a]	60	46.5
MI-Other event [a]	99	76.7
MI-Betrayal event [a]	102	79.1
Worst aspect [b]		
MI-Self	18	19.8
MI-Other	24	26.4
MI-Betrayal	49	53.8
Criterion A event [c]	75	58.6
PTSD screener symptoms [c]		
Intrusions	63	49.2
Avoidance	94	73.4
Hyperarousal	69	53.9
Numbing	87	66.9
Guilt/blame	78	60.9
Number of PTSD symptoms endorsed [c]		
0	21	16.4
1	7	5.5
2	15	11.7
3	21	16.4
4	29	22.7
5	35	27.3

Note. PMIE = potentially morally injurious event.

[a] Missing n=1

[b] Missing n=39 (includes those with events that did not involve multiple aspects)

[c] Missing n=2

Table C3. *MIOS total and subscale descriptives and correlations across all Phase 3 sample PMIE-endorsers.*

Variable	US					Israel					Australia				
	N	M (SD)	1	2	3	N	M (SD)	1	2	3	N	M (SD)	1	2	3
1. MIOS Total Score	350	33.59 (13.37)	-			71	14.55 (9.28)	-			87	27.3 (9.98)	-		
2. MIOS Shame Subscale	350	16.51 (7.28)	.966**	-		71	5.96 (5.2)	.886**	-		87	11.8 (6.07)	.864**	-	
3. MIOS Trust Subscale	350	17.08 (6.62)	.958**	.851**	-	71	8.59 (5.25)	.889**	.575**	-	87	15.49 (5.64)	.840**	.451**	-
PCL-5	349	50.05 (19.41)	.729**	.705**	.698**	71	20.01 (16.48)	.574**	.587**	.433**	84	58.95 (19.22)	.631**	.496**	.567**
PHQ-9	350	15.35 (6.59)	.619**	.619**	.569**	71	2.51 (3.84)	.486**	.475**	.388**	79	11.76 (6.74)	.520**	.406**	.458**
B-IPF	350	30.50 (9.06)	.717**	.690**	.689**	69	22.96 (24.84)	.441**	.327**	.455**	87	53.40 (26.69)	.636**	.569**	.511**
TRGI	350	2.09 (.68)	.301**	.363**	.209**	71	1.36 (.78)	.403**	.536**	0.181	77	1.39 (.77)	.379**	.580**	0.026
SSGS	350	34.77 (10.24)	.696**	.732**	.602**	71	19.44 (8.75)	.687**	.673**	.546**	84	22.54 (9.22)	.541**	.660**	.228*
RSS Scale	350	3.42 (.98)	.685**	.707**	.607**	71	2.20 (1.01)	.667**	.574**	.610**	72	18.54 (8.26)	.513**	.457**	.386**
DAR-5	350	16.28 (5.41)	.711**	.684**	.685**	71	11.20 (4.62)	.664**	.573**	.606**	82	12.40 (6.00)	.634**	.538**	.525**
EMIS-M Self Subscale	350	30.91 (8.43)	.744**	.745**	.684**	71	15.30 (5.97)	.782**	.755**	.633**	70	23.17 (7.43)	.686**	.588**	.547**
EMIS-M Other Subscale	350	29.13 (7.15)	.643**	.587**	.654**	71	19.75 (8.63)	.718**	.587**	.687**	70	28.19 (7.44)	.479**	.249*	.558**
MCSD Scale	350	5.87 (2.47)	-.333**	-.305**	-.336**	71	7.35 (1.78)	0.228	0.233	0.173	69	6.81 (2.64)	-.300**	-0.297*	-0.197
SD3 Machiavellianism Subscale	350	3.65 (.74)	.641**	.619**	.615**	71	2.83 (.82)	.442**	.349**	.434**	71	2.74 (.58)	-0.11	-0.035	-0.154
SD3 Narcissism Subscale	350	3.12 (.49)	.248**	.247**	.229**	71	2.84 (.50)	0.121	0.084	0.131	69	2.37 (.59)	-0.025	-0.046	0.007
SD3 Psychopathy Subscale	350	3.11 (.76)	.631**	.615**	.599**	71	2.16 (.56)	.477**	.474**	.373**	68	2.15 (.64)	.335**	.260*	.301*

Note. B-IPF = Brief Inventory of Psychosocial Functioning. DAR-5 = Dimensions of Anger Reactions-5. EMIS-M = Expressions of Moral Injury Scale – Military Version. MCSD = Marlowe–Crowne Social Desirability. MIOS = Moral Injury Outcomes Scale. PCL-5 = PTSD Checklist for DSM-5. PMIE = Potentially Morally Injurious Event. PHQ-9 = Patient Health Questionnaire-9. RSS = Religious and Spiritual Struggles. SD3 = Short Dark Triad. SSGS = State Shame and Guilt Scale. TRGI = Trauma-Related Guilt Inventory. * $p < .05$; ** $p < .01$

Table C4. *Descriptive statistics and correlations for study variables among PMIE-endorsers.*

Variable	N	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
1. MIOS Total Score	126	27.71	9.72	-																						
2. MIOS Shame	126	11.98	6.01	.870**	-																					
3. MIOS Trust Violation	126	15.74	5.38	.835**	.456**	-																				
4. PCL-5	117	59.47	19.26	.622**	.495**	.549**	-																			
5. PHQ-9	112	12.06	6.50	.565**	.430**	.510**	.780**	-																		
6. B-IPF	125	55.42	26.74	.664**	.592**	.538**	.715**	.644**	-																	
7. TRGI	107	22.91	12.70	.435**	.585**	.121	.359**	.230*	.372**	-																
8. SSGS	117	22.75	9.10	.564**	.634**	.292**	.590**	.562**	.490**	.575**	-															
9. RSS	102	19.58	8.75	.559**	.468**	.457**	.522**	.583**	.493**	.560**	.629**	-														
10. DAR	115	12.12	5.58	.588**	.491**	.492**	.646**	.474**	.590**	.246*	.512**	.345**	-													
11. MCSD	99	6.54	2.69	-.328**	-.326**	-.217*	-.139	-.195	-.210*	-.055	-.088	-.162	-.221*	-												
12. EMIS-M self	100	23.74	7.75	.687**	.603**	.537**	.681**	.636**	.630**	.489**	.666**	.678**	.504**	-.251*	-											
13. EMIS-M other	100	28.52	7.08	.499**	.275**	.566**	.522**	.421**	.560**	.087	.275**	.361**	.451**	-.439**	.589**	-										
14. SD3 Machiavellianism	107	2.77	0.58	-.064	.022	-.138	-.044	-.121	.037	-.039	-.084	-.112	.148	-.254*	-.148	.134	-									
15. SD3 Narcissism	105	2.39	0.57	-.034	-.020	-.039	-.100	-.200*	-.177	-.056	-.112	-.185	.079	.002	-.144	-.189	.253**	-								
16. SD3 Psychopathy	104	2.18	0.62	.337**	.290**	.269**	.239*	.129	.141	.189	.107	.157	.459**	-.310**	.230*	.212*	.327**	.403**	-							
17. HFS self	108	24.99	6.49	-.545**	-.465**	-.457**	-.455**	-.567**	-.522**	-.307**	-.475**	-.557**	-.340**	.295**	-.600**	-.486**	.020	.235*	-.092	-						
18. HFS others	108	24.18	6.92	-.135	-.033	-.205*	-.154	-.034	-.115	.009	-.039	-.031	-.302**	.427**	-.131	-.514**	-.333**	.030	-.355**	.161	-					
19. HFS situations	108	25.03	4.30	-.418**	-.282**	-.433**	-.332**	-.285**	-.341**	-.138	-.205*	-.176	-.319**	.312**	-.373**	-.377**	-.156	-.048	-.375**	.526**	.407**	-				
20. SS friends	107	7.76	2.01	-.224*	-.183	-.193*	-.128	-.094	-.127	-.152	-.090	-.194	-.173	.037	-.213*	-.089	-.020	.146	-.152	.215*	-.046	.149	-			
21. SS family	107	7.54	2.52	-.331**	-.311**	-.239*	-.220*	-.250*	-.239*	-.257*	-.191	-.220*	-.332**	.168	-.258*	-.237*	-.017	.010	-.191	.284**	.104	.129	.430**	-		
22. SS team	107	7.92	3.09	-.268**	-.195*	-.257*	-.236*	-.250*	-.235*	-.266**	-.311**	-.311**	-.216*	.102	-.332**	-.202*	.015	.102	-.073	.265**	-.053	.050	.455**	.345**	-	
23. SS superior	107	7.73	3.53	-.357**	-.207*	-.402**	-.279**	-.310**	-.325**	-.151	-.214*	-.251*	-.203*	.071	-.381**	-.322**	.085	.115	-.029	.329**	.008	.119	.288**	.189	.524**	-

Note. B-IPF = Brief Inventory of Psychosocial Functioning. DAR = Dimensions of Anger Reactions. EMIS = Expressions of Moral Injury Scale – Military Version. HFS = Heartland Forgiveness Scale. MCSD = Marlowe-Crowne Social Desirability. MIOS = Moral Injury Outcomes Scale. PCL-5 = PTSD Checklist for DSM-5. PMIE = Potentially Morally Injurious Event. PHQ-9 = Patient Health Questionnaire-9. RSS = Religious and Spiritual Struggles Scale. SD3 = Short Dark Triad. SSGS = State Shame and Guilt Scale. SS = Schuster Social Support Scale. TRGI = Trauma-Related Guilt Inventory.

* p < .05; ** p < .01