Assessing Moral Injury and its Clinical Associations in a UK Secure Care Population

Abstract

Introduction: Moral Injury (MI) represents a type of trauma that can manifest after committing or witnessing transgressions which result in feelings of shame, guilt, and inner turmoil. Although originally conceived and researched in military settings, emerging research has focused on broader populations including health professionals, social workers, police, and prison staff. Few empirical studies have focused on service-user populations, especially those in forensic clinical settings despite the risk factors associated with these groups.

Method: This cross-sectional study assessed the presence of MI along with its clinical associations among a UK forensic secure care sample (n=38). It used a series of brief psychometric tools including a modified Moral Injury Event Scale (MIES), International Trauma Questionnaire (ITQ), Recovering Quality of Life (ReQoL-20), State Shame and Guilt Scale (SSGS), and Self-Compassion Scale-Short Form (SCS-SF).

Results: MI was endorsed by most participants (89.5%) with an overall moderate-to-high level rating (M=38.2). Other-transgressions (M=9.2) and betrayal (M=13.6) were relatively higher compared with self-transgressions (M=15.4) based on possible maximum sub-domain scores. The overall MI scores were associated with ratings of trauma (r=.550), guilt (r=.470), and poorer quality-of-life (r=-.341), though not shame or self-compassion (p>.05). Regression analyses revealed a moderate contribution of ITQ scores in MIES score variability.

Discussion: MI scores were similar to or higher than other populations from across the literature demonstrating a high presence of potentially morally injurious events and related

distress among the sample. The findings support the need for trauma-based assessments of moral emotional experiences within a forensic secure care context.

Introduction

The concept of Moral Injury (MI) reflects a condition of intense psychological distress and impaired daily functioning resulting from perpetrating, failing to prevent, or not intervening in traumatic and morally compromising events (Litz et al., 2009; Shay, 1995). MI is characterised by shame, guilt, and inner turmoil and is associated with negative psychosocial outcomes including increased suicidality and self-harm, sleep disorders, substance use, treatment-seeking, and poorer physical health and quality-of-life (Battles et al., 2018; Hall et al., 2022; McEwen et al., 2020). MI is shown to be a consistent marker of distress with meta-analyses reporting moderate-to-high associations of self-reported difficulties (Hall et al., 2022; McEwen et al., 2020). As a trauma-based condition, it is positioned as related to, though distinct from, Post-Traumatic Stress Disorder (PTSD), which is defined by fear and anxiety-based mechanisms. Accordingly, MI can co-exist with PTSD or occur independently (Barnes et al., 2019; Bryan et al., 2016; Hall et al., 2022; Nash et al., 2013; Williamson, Murphy, Stevelink, et al., 2020). It is a concept initially and most often researched in military groups, although recent developments have focused on non-military contexts (Hall et al., 2022; McEwen et al., 2020). Non-military researched groups include health professionals (Borges et al., 2021; Lamb et al., 2021), social workers (Haight et al., 2017), and those working within prisons (Kothari et al., 2020; Maddocks, 2021), although little to no empirical studies exist for service-user populations, especially those in forensic clinical settings.

While there remain definitional inconsistencies and few established frameworks, MI is generally presented as following exposure to Potentially Morally Injurious Events (PMIEs) (McEwen et al., 2020; Nash, 2019). PMIEs are high-stake situations caused by actions committed or omitted by oneself or others (Litz et al., 2009; Shay, 1995). As with PTSD, PMIEs are necessary but not the sole predictor of distress. Potential contributory factors of

distress following PMIEs include having a trauma history, being younger, female, minority ethnic, ex-military, homeless, incarcerated, and abusing alcohol or substances (Edwards et al., 2021; Nicholson et al., 2022; Wojciechowski, 2021). Protective factors include social and familial support (Khan et al., 2021; Martin et al., 2017) and forgiveness and self-compassion (Evans et al., 2018).

As research expands, studies have identified risks of MI for those working in forensic settings (Kothari et al., 2020; Maddocks, 2021) due to the high-stakes and ethically compromising situations encountered. However, these remain targeted at staff and not those in receipt of services despite them directly encountering traumatic situations (Kothari et al., 2020). Although limited by small and heterogeneous samples, recent qualitative studies have reported experiences consistent with MI, including guilt, shame, inner conflict, and a sense of betrayal resulting from authority figures, institutions, and caregivers (Maddocks, 2021; Roth et al., 2021).

MI and Forensic Secure Care

Within the UK, forensic secure care hospitals support those with severe mental health problems who represent a risk to the public. Services adopt a rehabilitation model involving multidisciplinary support and are tiered according to High, Medium, and Low secure levels based on risk and clinical need (Centre for Mental Health, 2011). Secure care represents a high-cost service, accounting for approximately 20% of England's mental health budget (Centre for Mental Health, 2011). Admissions can experience long waiting lists and prolonged lengths of stay, prompting the need for improved treatment packages, risk management support, and service-user co-production in research, policy, and practice (Centre for Mental Health, 2011).

MI may be of relevance to those in secure care populations for several reasons. Research shows that these populations are exposed to greater traumatic events than the general population (Bebbington et al., 2017; Facer-Irwin et al., 2021; Ford et al., 2019; Macinnes et al., 2016). Trauma and PMIEs can result in various consequences which increase the likelihood of encountering forensic services including greater anger, hostility, and substance use (Kelley, Braitman, et al., 2019; Maguen et al., 2021; Martin et al., 2017; Wojciechowski, 2021), homelessness (Edwards et al., 2021), sexual victimisation (Facer-Irwin et al., 2021), direct interpersonal violence (Facer-Irwin et al., 2021), and terrorism, radicalisation or extremism (Williamson et al., 2021). Research indicates a correlation between traumatic experiences and an increased likelihood of engaging in violent or offending behaviour (Ardino, 2012; Bianchini et al., 2022; Nedegaard & Cronin, 2021). Committing offences in the context of lowered/altered inhibitions due to substance use or psychotic episodes may also be distressing upon (re)gaining insight (Adshead et al., 2015; Battles et al., 2018; Roth et al., 2021). Studies have found a high prevalence of PTSD in forensic settings, and posttraumatic experiences arising from those who violently offend in the context of severe mental health problems (Every-Palmer et al., 2019; Harner et al., 2015). The complex interplay of PMIEs, trauma, and other severe mental health problems present important clinical implications for the identification and treatment of MI within secure care settings.

Complex PTSD (CPTSD) is common in forensic populations and represents a psychological condition that can develop among those experiencing prolonged and repeated trauma, such as childhood abuse, domestic violence, or captivity (Bebbington et al., 2017; Facer-Irwin et al., 2021; Ford et al., 2019; Macinnes et al., 2016). Studies show that comorbid MI and C/PTSD are associated with adverse mental health problems including increased anxiety, depression,

suicidality, and substance use (Battles et al., 2018; Bryan et al., 2016; Hall et al., 2022; Williamson, Murphy, Stevelink, et al., 2020). While MI and CPTSD show similar emotional reactions, such as guilt and shame, and often correlate and coexist, they differ conceptually, with CPTSD characterised by symptom-related trauma experiences such as hypervigilance and flashbacks, and MI by guilt, shame, anhedonia, and alienation (Barnes et al., 2019; Battles et al., 2018). While there is an overlap in symptomology between PTSD and MI, they are considered distinct and have unique effects on mental health (Barnes et al., 2019; Battles et al., 2018; Jones, 2020). PTSD is rooted in the experience of a traumatic event, while MI stems from the violation of deeply held moral or ethical beliefs, usually emerging after an event. While both PTSD and MI can lead to negative mental health, research suggests MI may have an impact beyond the effects of PTSD (Battles et al., 2018; Hall et al., 2022; Kelley, Bravo, et al., 2019; McEwen et al., 2020). For instance, MI has been associated with complex emotional responses, such as shame and guilt, impacting mental well-being and eroding self-esteem and sense of purpose and meaning (Evans et al., 2018; Jones, 2020; Kelley, Bravo, et al., 2019).

While advancing the understanding of MI in forensic services seems appropriate clinically, there exist several challenges regarding its assessment. The qualities of shame and withdrawal likely prevent identification which is compounded by a forensic context that deters admissions of vulnerability due to risks of violence, intimidation, and exploitation (Hesselink & Booyens, 2021; Maddocks, 2021; Roth et al., 2021). Not only are PMIEs distressing and pose risks for vulnerable individuals, but they likely relate to judicial concerns which could arguably prevent disclosure for fear of legal ramifications (Williamson, Murphy, Castro, et al., 2020). Offence-induced PTSD can occur when a person experiences PTSD symptoms because of their actions, such as committing a crime (Chung et al., 2016; Mossière & Marche, 2020), and has been associated with increased aggression, violent outbursts, and higher rates of committed offences

(Sommer et al., 2017; Widom, 2014). The prevalence of offence-related PTSD among convicted homicide perpetrators is 42.6% (Badenes-Ribera et al., 2021). Offence-induced PTSD may complicate the assessment and treatment of MI, as the individual may feel guilty or ashamed of their actions, overlapping with the MI conceptual definitions (Jones, 2020).

The relationship between personal moral frameworks and offending behaviour is complex. Moral disengagement and offence justification, minimisation, and condoning among offenders may make MI less likely (Alleyne & Wood, 2010; Clarke, 2017; Kerig et al., 2016; Maddocks, 2021; McCormack & Bennett, 2021; Ye et al., 2021). Criminal gangs and radicalising groups can promote and normalise violent behaviours, reducing the impact of transgressions on personal moral codes (Alleyne & Wood, 2010; Kerig et al., 2016; Williamson et al., 2021). However, the evidence does suggest that offenders can and do have morals (Maddocks, 2021; Roth et al., 2021) and these can change during incarceration (Mapham & Hefferon, 2012; Mcloughlin, 2018; Stevens, 2012) and upon stabilisation for those experiencing psychosis (Roth et al., 2021). Despite the nuanced and dynamic role of moral emotional experiences, they do not appear readily considered by services.

Although scant evidence exists, the literature presented here suggests MI may be a relevant and assessable construct among offending populations. Given the rising costs, demands, and psychological consequences of inpatient stays, including the risk of re-traumatisation and service dependency, recent developments have focused on enhancing throughput towards greater community-based interventions (NHS, 2016). Improved intervention packages and assessment strategies are called upon to improve care quality and reduce the lengths of stay (Centre for Mental Health, 2011; NHS, 2016). Given the extensive and continuing distress experienced by this population, MI assessments may prove valuable. Considering the

rehabilitation aim of forensic secure care hospitals, and the function of support directed at mental health assessment and intervention, these settings represent an important context for understanding the emergence of MI.

Aims

Evidence suggests those in forensic secure care settings represent an at-risk group for MI, yet there are no empirical studies about its prevalence and possible clinical associations. This research sought to assess within a UK secure-care population:

(i)   MI prevalence and

(ii)   Its associations with ratings of trauma, shame and guilt, quality-of-life, and self-compassion.

Considering existing evidence and conceptual models, MI was hypothesised as being present and associated with trauma, shame, and guilt, and inversely with quality-of-life and self-compassion.

Method

Participants

A total of 38 (22.9% response rate) participants were recruited from eight single-sex adult secure care sites (five medium-secure; three low-secure) in the West Midlands, UK. The corresponding author visited 25 medium secure and five low secure wards. They were unable to visit five wards because of Covid-19 restrictions (n=3), no response was received (n=2), or due to ward refusal (n=1). One participant withdrew following the data collection session but did not offer a reason. There were no adverse experiences reported by them or other individuals relating to the study. The average age of the sample was 39.3 years (SD=10.51), who were

mostly Male (81.6%), White/Caucasian (68.4%), and recruited from Medium-secure wards (78.9%) (see Table 1).

Procedure

The study used a cross-sectional design involving psychometric assessments on the incidence of PMIEs, MI, and potential clinical associations across UK secure care settings. Participants were recruited as those expressing interest via ward announcements and liaising with ward teams to approach eligible candidates. Candidates were eligible if their Responsible Clinician deemed them as having the capacity to consent, were detained on the ward for at least 1-month and could read, speak, and comprehend English with or without an interpreter. Recruitment excluded those declining, experiencing an adverse response to information relating to the research, were actively suicidal, self-harming or at risk of harm-to-others, were in seclusion, had active psychotic or dissociative experiences, were taking or dependent on alcohol or other substances (except nicotine), or received medication which affected their concentration or wakefulness.

Participants were recruited between October-2021 to March-2022, and those expressing an interest received an information sheet with 48-hours to consider their involvement and ask questions. Those completing data collection were provided two-weeks to request their responses be removed before all data was fully anonymised. Participants were informed of their rights to withdraw, their voluntary participation, response confidentiality, and their data handling prior to signing a consent form before data collection commenced.

Data collection was undertaken in an interview format, with the researcher speaking the items aloud and the participant responding, with sessions lasting an average of 15-minutes

(range: 10-to-60-minutes). The corresponding author (SS) collected n=33 sets of questionnaires and two assistant researchers (LF; CF) collected n=5. All procedures were reviewed and approved by a university internal ethics review body, NHS Research Ethics Committee, and the participating organisations.

Measures

Five-Item Event Type Questionnaire

The study designed a questionnaire containing an introductory statement defining MI and five-items based on the characteristics of PMIEs (see Supplementary Materials). The statement and questions were adapted from other studies including UK military personnel (Williamson, Murphy, Stevelink, et al., 2020) and Canadian male offenders (Mossière & Marche, 2020; Ternes et al., 2019), with wording modified to a non-military context and for readability. The five-items evaluated Event frequency and Age (Years) (e.g., *'Is there an event or multiple events your answers relate to?'* rated *'Yes, one Event'*; *'Yes, multiple events'*; *'No'*; *'Don't Know'*), the effect of drugs/alcohol during the event(s), and for whom the event(s) involved (e.g., *'Family'*; *'Friend'*; *'Someone you knew informally'*; *'Stranger'*). For ethical and judicial reasons, participants were not asked details about the event(s) and to only answer the closed questions while keeping an event in mind. Those responding with '*Multiple Events*' were asked to think about the most recent/impactful event, and those answering '*No Event*' were retained for comparison. These procedures follow recommendations from across the literature showing that meaningful research on MI is possible without knowing in-depth details about PMIEs (Frederickson, 2019; Mossière & Marche, 2020; Williamson, Murphy, Castro, et al., 2020).

Moral Injury Event Scale (MIES)

The MIES (Nash et al., 2013) was originally designed for the US-military and contains nine self-report, general, and non-temporal items about MI. This study used Bryan et al. (2016) three-factor solution (Transgression-Self; Transgression-Other; Betrayal) for its sub-scales and adapted the final three-item's wording for a secure care population following other examples across the literature (e.g., Haight et al., 2017; Levi-Belz et al., 2020; Sugrue, 2020). The first six-items for the Transgression-Self (4-items, e.g., '*I acted in ways that violated my own moral code*') and Transgression-Other (2-items, e.g., '*I saw things that were morally wrong*') sub-scales were relevant for non-US-military contexts. For the Betrayal sub-scale (3-items), the 7th item's wording '*leaders*' was changed to '*people*', the 8th item '*fellow service members*' to '*professionals*' (i.e., those in authority positions), and the 9th item '*others outside the US military*' to '*other people*'.

Items were rated using a six-point Likert scale (1='*Strongly Disagree*' to 6='*Strongly Agree*') with ratings summed to produce Total and Sub-scale scores and higher scores signifying higher MI. Although the MIES does not include clinical thresholds or severity bandings, Boska and Capron (2021) arbitrarily applied a cut-off score of ≥28 and Lamb et al., (2021) a ≥17 score. As Boska and Capron (2021) represent a more conservative cut-off and is consistent with other studies rating items >3 as a proxy for MI statements (i.e., >3x9-items) (Haight et al., 2017; Levi-Belz et al., 2020; Maguen et al., 2021; Sugrue, 2020), the analyses adopted the ≥28 cut-off threshold to indicate probable MI. The current sample reported good internal consistencies for all items (Total: α=.80) and sub-scales (Transgression-Self: α=.85; Betrayal: α=.75) apart from Transgression-Other (α=.59). Transgression-Other was retained for theoretical purposes (e.g., three-factor analyses) and because it was above α>.50 (Hinton et

al., 2004, p. 364; Nunnally & Bernstein, 1993); however, the authors acknowledge this should be interpreted with caution.

International Trauma Questionnaire (ITQ)

The ITQ (Cloitre et al., 2018) is an 18-item tool designed to measure PTSD (9-items; symptoms, functional impairment) and CPTSD (9-items; Disturbances in Self-Organisation (DSO)) using a 5-point Likert scale (0='*Not at all*' to 4='*Extremely*') about experiences in the last month. Example items include: '*Being "super-alert", watchful, or on guard*' and '*Feeling jumpy or easily startled*'. Scores were calculated using the dimensional scoring method, adding items 1-to-6 for the PTSD Sub-scale (range: 0-24), items 10-to-15 for the DSO Sub-scale (range: 0-24), and Full-Scale ITQ (PTSD+DSO; range: 0-48), with higher scores signifying higher symptom severities. Diagnostic criteria of PTSD or CPTSD are inferred via the endorsement of symptoms in each cluster, and in the presence of symptoms, individuals are assigned either diagnosis, not both. The internal consistencies for this sample were α=.93 at Full-Scale, α=.90 at PTSD Sub-scale, and α=.88 at DSO Sub-scale.

Recovering Quality of Life (ReQoL-20)

The ReQoL-20 (Keetharuth et al., 2018) is designed to measure quality-of-life across 20-items using 5-point Likert scales (0-4) about the last week ('*None of the time*' to '*Most or all of the time*'). Scores were calculated as the total of all items with higher scores indicating higher quality-of-life (range: 0-80) and scores below 50 were categorised as within a clinical population range (Keetharuth et al., 2018). Example items include: '*I felt happy*' and '*I felt lonely*'. The internal consistency for this sample was α=.92.

State Shame and Guilt Scale (SSGS)

The SSGS (Marschall et al., 1994) measures current ('*at the moment*') feelings of Shame (5-items) and Guilt (5-items) using a 5-point Likert scale (1='*Not feeling this way at all*' to 5='*Feeling this way very strongly*'). Higher scores signify a stronger intensity of feelings with Shame and Guilt calculated separately (range: 5-25). Example items include: '*I feel remorse, regret*' and '*I feel small*'. The internal consistencies were α=.90 for Shame and α=.88 for Guilt.

Self-Compassion Scale-Short Form (SCS-SF)

Self-Compassion ratings were measured using the SCS-SF (Raes et al., 2011) which includes 12-items using a 5-point Likert scale (1='*Almost never*' to 5='*Almost always*'). A final score represents the total of all items (range: 12-60) with higher scores indicating greater self-compassion. Average self-compassion ratings are around the 50th clinical percentile (Hayes et al., 2016) and a validation sample Mean (M)=48.1 (Standard Deviation (SD)=11.6) (Raes et al., 2011). Example items include: '*I try to see my failings as part of the human condition*' and '*When something upsets me I try to keep my emotions in balance*'. The internal consistency for the present sample was α=.86.

Data Analysis

The corresponding author calculated descriptive statistics for each measure. Non-parametric tests compared scores by Socio-Demographic groups (e.g., Gender), Site Level (e.g., Low-secure Vs Medium-secure), and Event Type Characteristics (e.g., Single Vs Multiple Events), along with Chi-Squared tests for subgroup associations. Spearman's correlational analyses assessed continuous variables (e.g., Event Age) and measure scores, along with the clinical associations between measures. Multiple regression analyses assessed the influence of

significantly associated sample characteristics and psychometric scores on the MIES Total score. Within measure missing data was <5% and randomly allocated so average values were used to replace missing entries. Sensitivity analyses were performed to assess for possible completer and non-completer effects, organisational effects, and early and later responders (e.g., first Vs last 3-months). All statistical analyses used SPSS v.26 (IBM Corp, 2019).

Results

Preliminary Analyses

The comparison of psychometric scores between Socio-Demographic, Site Level and Event Type factors revealed few statistically significant differences. The differences included Males (Mean Rank (MR)=19.29) recording higher SCS-SF ratings than Females (MR=8.50) (U(26,7)=31.50, p=.007), and those residing in Medium-secure settings (MR=16.13) reporting lower ReQoL ratings than Low-secure (MR=24.31) (U(27,8)=57.50, p=.046). The average event age (or most recent/impactful event) occurred on average 11.5 (SD=12.3) years ago though the data was not normally distributed. The age of event did not correlate with any psychometric scores except a statistically significant negative association with the MIES Transgression-Other (r(33)=-.445, p=.010). Most respondents (n=34, 89.5%) reported thinking of event(s) (Single event=50.0%; Multiple Events: 39.5%), which did not occur under the influence of Drugs/Alcohol (79.4%) or full intoxication (85.3%) and involved Strangers (41.2%) or someone Known Informally (38.2%). Events involving Strangers or Someone Known Informally compared with Family or Friends were more common among White/Caucasian than Non-White/Caucasian respondents (X^2(1,34)=4.52, p=.033). Sensitivity analyses revealed no significant differences in psychometric scores between organisations and

early (n=15) and late (n=23) responders (first/last 3-months) indicating consistent ratings across the data collection.

Table 1

Socio-demographic, Study Level and Event Type Characteristics of the Overall Sample (n=38)

Primary Analyses

The MIES recorded a Total mean score of M=38.1 (SD=11.6) and Sub-scale scores of M=15.4 (SD=7.1) for Transgression-Self, M=9.2 (SD=3.4) for Transgression-Other, and M=13.6 (SD=4.9) for Betrayal. Based on the possible maximum score ranges presented in Table 2, these ratings reflect moderate-to-high levels. At a participant level, 81.6% scored above 3 on average at an item level and ≥28 overall, while on the Sub-scales these proportions were 60.5% for Transgressions-Self, 78.9% for Transgressions-Other, and 76.3% for Betrayal. Item-level score averages were typically within the '*Moderately Agree*' range, with the highest rated being '*I saw things that were morally wrong*' (M=4.8, SD=1.9), and the lowest being '*I violated my own morals by failing to do something that I felt I should have done*' (M=3.5, SD=2.1) (see Figure 1). Mann Whitney U Tests revealed no significant differences between those scoring above or below the ≥28 MIES Total score threshold when comparing scores on the ReQoL (p=.116), SSGS Guilt (p=.162), SSGS Shame (p=.699), and SCS-SF (p=.224), however these were likely underpowered to detect differences due to low numbers in the below threshold group.

Figure 1

Item-Level Averages and Standard Error Bars for the MIES in Ascending Order (n=38)

The numbers completing all psychometrics varied due to the sessions ending prematurely because of self-reported fatigue, although all consented to retain their responses. The ITQ recorded a Total mean score of M=11.7 (SD=11.7), PTSD score of M=5.3 (SD=6.4), and DSO score of M=6.5 (SD=6.2). According to the ITQ criteria, 32.4% of participants met the threshold for CPTSD and 8.8% for PTSD. Kruskal-Wallis tests comparing ITQ criteria (CPTSD; PTSD; None), reported significant differences in MIES Total scores (H(2)=11.87, p=.003), Transgression-Self (H(2)=9.67, p=.008), and Betrayal (H(2)=6.79, p=.034), but not Transgression-Other (H(2)=5.93, p=.052). Post-hoc pairwise comparisons using Bonferroni corrections found that those categorised with CPTSD had significantly higher MIES Total scores (MR=25.95) than None (MR=13.20) (p=.002), significantly higher Transgression-Self scores (MR=24.05) than None (MR=13.10) (p=.009), and significantly higher Betrayal scores (MR=22.91) than PTSD (MR=8.33) (p=.034).

The overall mean ReQoL (n=35) scores of M=50.3 (SD=18.3) were on the threshold and within a non-clinical range, but those in medium-secure settings (M=46.9, SD=19.0) recorded means within a clinical range than low-secure settings (M=61.5, SD=11.1) (p=.046). The SSGS (n=34) Shame score was M=8.6 (SD=5.6) and the Guilt score was M=11.2 (SD=6.2). The SCS-SF (n=33) recorded a mean score (M=39.4 (SD=10.8) below validation samples (M=48.1, SD=11.6) (Raes et al., 2011) but above the 50th clinical percentile (66th percentile) (Hayes et al., 2016), with Males (M=42.2, SD=8.8) recording higher scores than Females (M=28.9, SD=11.9) (p=.007).

Using the ≥28 MIES Total score threshold and ITQ criteria, most participants presented with MI-Only (47.1%), followed by those with both MI-CPTSD (32.4%) and MI-PTSD

(8.8%), and None (11.8%). Given the low numbers, the MI-CPTSD and MI-PTSD groups were combined (MI-C/PTSD) to compare other psychometric scores. Kruskal-Wallis tests reported no significant differences between groups for ReQoL (p=.084) and SSGS Shame (p=.204) but did so for SSGS Guilt (H(2)=8.55, p=.014) and SCS-SF (H(2)=, p=.005). Post-hoc pairwise comparisons using Bonferroni corrections found that those with both MI-C/PTSD had significantly higher SSGS Guilt scores (MR=23.25) than those with MI-Only (MR=14.16) (p=.034), and significantly lower SCS-SF scores (MR=10.68) than MI-Only (MR=21.37) (p=.009).

Clinical Associations

Table 2 presents descriptive statistics and psychometric intercorrelations. The MIES Total and Sub-scales strongly correlated with one another (r=.569 to .800, p≤.01) apart from Transgression-Self with Transgression-Other or Betrayal. There were moderate correlations between the MIES and ITQ at Total (r=.618, p<.001) and Sub-scale (r=.382 to .625, p≤.05) levels, except for Transgression-Self and the ITQ DSO Sub-scale.

The MIES Total and ReQoL were negatively and moderately correlated (r=-.341, p=.045) meaning higher MIES scores were associated with lower quality-of-life ratings. The SSGC Guilt was moderately correlated with the MIES Total (r=.470, p=.005) and Transgression-Self (r=.464, p=.006) but not Transgression-Other or Betrayal scores. There were no significant associations between the MIES and SSGC Shame scale or SCS-SF ratings. The ITQ scales recorded moderate-to-large correlations with other measures, including negative associations with the ReQoL (r=-.473 to -.525, p≤.01) and SCS-SF (r=-.525 to -.617, p≤.01) and positive associations with the SSGS Guilt (r=.400 to .552, p≤.01) and SSGS Shame (r=.418 to .604, p≤.05). The ReQoL negatively correlated with the SSGS Shame (r=-.538, p=.001) but not with

the SSGS Guilt or SCS-SF. Finally, there were significant associations between the SCS-SF

and the SSGS Shame ($r=-.502$, $p=.003$) but not SSGS Guilt.

Table 2

Spearman Correlations between Psychometrics at Total and Sub-scale Levels

Regression Analyses

   After identifying significant associations, a multiple regression analysis was undertaken

using ITQ Total, ReQoL, and SSGS Guilt ratings to determine MIES Total scores. SSGS

Shame, socio-demographic and event-type factors were not considered due to their non-

significance in the clinical associations ($p>.071$) and as individual variables in the regression

analyses ($p>.079$). Three factors were deemed appropriate according to the guideline of at least

10 participants per predictor variable (Van Voorhis & Morgan, 2007). Statistical assumptions

and variable suitability were checked, including normality of the dependent variable

(Kolmogrov-Smirnov: $p=.182$), multicollinearity (correlation $< .70$), variable linearity (P-P

plots), and absence of standardised residual outliers ($> \pm3$).

   The variables were entered together and separately to assess contributions and provide

conservative estimates with fewer variables (Table 3). Together, they accounted for 49.5% of

the MIES score variance. However, only the ITQ Total showed significance in the model

($F(3,33)=2.51$, $p<.018$), indicating its major role in explaining the variance. ReQoL and SSGS

Guilt scores accounted for 26.7% of the variance ($F(2,33)=5.66$, $p<.008$), while SSGS and ITQ

Total accounted for 39.2% of the variance ($F(2,33)=11.03$, $p<.001$). Individually, ITQ Total

explained 38.0% of the variance (F(1,33)=15.70, p<.001), indicating a moderate contribution to MIES score variability.

Table 3

Regression of Factors between MIES Ratings and ITQ, ReQol, and SSGS Guilt

Discussion

Experiences of PMIEs and MI were commonly reported by participants. The findings indicate the presence of MI within a secure care population. Overall, the ratings were moderate-to-high based on percentile score ranges and average item-level categories. The Transgression-Other and Betrayal sub-scales were rated higher than Transgression-Self suggesting others' transgressive acts contributed to overall scores. MI scores seemed to be a marker of distress, with moderate associations for ratings of PTSD, CPTSD, poorer quality-of-life, and guilt. Contrary to theoretical models, MI did not correlate with the measures of shame or self-compassion. Although it's unclear what events participants were referring to and whether this related to index offences, most recalled incidents involving informal acquaintances or strangers, particularly for White/Caucasian participants, and tended not to occur under drug/alcohol influence or intoxication. Although limited to around half the sample (n=18), the mean event age (11.5 years) greatly exceeded the length of stay (2.5 years) in secure care settings.

Comparisons with the Literature

Compared with other studies using similar MIES scoring methods, this sample (M=38.1) recorded higher ratings than UK health professionals (M=15.5; Lamb et al., 2021) and US

military samples (M=28.7-33.9; Cameron et al., 2020; Evans et al., 2018; Thomas et al., 2021) and of equivalence with the Canadian military and law enforcement (M=39.9), and PTSD treatment-seeking civilians (M=39.3 (Terpou et al., 2022). Although the MIES does not have any established thresholds, most of the sample reported higher ratings than those used by Lamb et al. (2021) (≥17) and Boska and Capron (2021) (≥28), and individual item-scores used by others including ≥3 (Haight et al., 2017; Levi-Belz et al., 2020; Maguen et al., 2021; Sugrue, 2020), and >4 for two-thirds of the items (Held et al., 2021; Wisco et al., 2017). Approximately 80% of responses were >3 across the whole MIES and Transgression-Other sub-scale, 75% for Betrayal, and 60% for Transgression-Self, each of which is above those cited in non-military samples (Borges et al., 2021; Hoffman & Nickerson, 2021; Khan et al., 2021; Sugrue, 2020). For the other psychometric ratings, scores were similar to post-treatment clinical samples and lower-to-moderate distress bandings, which may reflect the rehabilitation focus of secure care interventions (Cloitre et al., 2018; Hayes et al., 2016; Keetharuth et al., 2018; Marschall, et al., 1994; Raes et al., 2011).

Qualitative research exploring MI in forensic populations aligns with this study (Maddocks, 2021; Roth et al., 2021). These sources found that MI resonated with their participants, especially the instances of other-transgressions and betrayal emerging as a loss of trust and anger towards others and institutions (Maddocks, 2021; Roth et al., 2021). Litz and Kerig (2019) propose two types of PMIEs, those committed by an individual or those directly or indirectly committed by others, with the former leading to greater shame and social withdrawal and the latter towards guilt, anger, and resentment.

Clinical Implications

Both MI and PTSD have been shown to co-occur which has been associated with increased anxiety, suicidality, and intervention challenges (Bryan et al., 2016; Williamson, Murphy, Castro, et al., 2020; Williamson, Murphy, Stevelink, et al., 2020). In keeping with other findings, MI was moderately associated with C/PTSD reflecting their trauma-based underpinnings but seemingly distinct nature, supporting the inclusion of moral components in trauma-based assessments (Bryan et al., 2016; Hall et al., 2022; McEwen et al., 2020; Williamson, Murphy, Castro, et al., 2020). The links between MI and psychological distress, as shown in this study and meta-analyses (Hall et al., 2022; McEwen et al., 2020), further support the assessment of moral emotional experiences and their consideration in treatment models.

Given the study limitations, it wasn't possible to fully assess the differences between those with MI or C/PTSD, or both. Perhaps due to the arbitrary criteria for the presence of MI, it's notable that no participant met the criteria for C/PSTD-Only as most exceeded the MI-Only threshold (Boska & Capron, 2021). In keeping with the literature, comorbid MI and C/PTSD were present and associated with poorer mental health outcomes (Battles et al., 2018; Bryan et al., 2016; Hall et al., 2022; Williamson, Murphy, Stevelink, et al., 2020), however given the limitations outlined, this must be interpreted with caution. While MI and C/PSTD correlate and share overlapping symptomologies, including shame and guilt, they present different implications for mental health interventions including targeting the underlying causes of depression, hopelessness, and anger (Barnes et al., 2019; Jones, 2020).

The associations with guilt and not shame, along with the relatively higher ratings for the Transgression-Other and Betrayal sub-scales, suggest the guilt-based mechanisms contributed

to the MI ratings. A counterargument may be that non-significant associations with shame reflect the study design recruiting those willing to participate so that those with higher social withdrawal would decline, especially in forensic settings which can discourage disclosures (Hesselink & Booyens, 2021; Maddocks, 2021; Roth et al., 2021). Guilt-associated MI could reflect anger and externalised blame or a desire to make amends or address perceived injustices (Roth et al., 2021). These interpretations might also explain the non-significant associations with self-compassion scores as other-directed compassion and forgiveness might mitigate perceived other-transgressions. That said, although theoretical models identify the role of compassion as a potential mediating factor, other findings remain mixed about its influence on MI (Forkus et al., 2019; Kelley, Bravo, et al., 2019; Manalo, 2019).

As an emerging field and under-researched population, the links between MI and re-offending risk are currently limited. Using interviews with forensic populations, Roth et al. (2021) found that moral pain, which is consistent with MI, was a driver of behaviour and criminality risk. Psychopathy, which is associated with atypical moral judgment, immoral behaviour, and reoffending risk in forensic populations (Ye et al., 2021) may influence reoffending in the presence of PMIEs. Reflecting on trauma presentations more broadly, particularly when offence-related, can impact reintegration into society, increasing the risk of reoffending (Ardino, 2012; Battles et al., 2018; Ford et al., 2019; Sommer et al., 2017; Widom, 2014). Trauma-related symptoms may interfere with therapeutic engagement and intrusive thoughts, emotional dysregulation, and difficulty managing stress can undermine progress, impacting rehabilitation (Battles et al., 2018; Ford et al., 2019; Roth et al., 2021). As trauma co-occurs with other mental health conditions and substance abuse disorders, this could further complicate the treatment process and increase the risk of relapse.

Future Directions and Research

This study did not involve in-depth methods to understand the nature of MI and, as an emerging field, there are few conceptual frameworks to draw upon. Initial MI definitions have focused on PMIEs, but emerging developments have proposed that a single identifiable event may not be distinguishable in certain individuals and might reflect accumulated moral distress from persistent traumatic experiences (Nash, 2019). These considerations seem relevant for forensic secure care populations who report greater exposure to traumatic events, including in childhood, than the general population (Bebbington et al., 2017; Facer-Irwin et al., 2021; Ford et al., 2019). Further work investigating the potential causal mechanisms and behavioural outcomes of MI within this population would be likely beneficial.

Considering the various ethical, clinical, and legal implications of investigating MI in a forensic context (Frederickson, 2019; Williamson, Murphy, Castro, et al., 2020), this study offers a viable means for assessment. Contrary to societal expectations, offenders have been shown to have a moral code which can change during their incarceration (Maddocks, 2021). Morality occurs dynamically according to context, culture, and settings (Maddocks, 2021; Parish, 2014). Moral codes are inherent in the forensic system which detains individuals for having transgressed societal moral norms. Forensic populations experience social exclusion and stigma which are factors that have been shown to exacerbate MI-related distress (Maddocks, 2021; Mossière & Marche, 2020; Ternes et al., 2019). Research suggests that clinicians can be unaware or reluctant to explore moral emotional experiences, with few reporting having heard of MI (Levi-Belz & Zerach, 2022; Maddocks, 2021; Roth et al., 2021; Williamson, Murphy, Stevelink, et al., 2020). Avoidance of these experiences, whether intentional or not, could compound feelings of shame or guilt among those in receipt of services. What's more, interventions aimed at alleviating PTSD, including thought challenging

and re-appraisal, may be less well-suited than interventions focused on meaning-making and acceptance (Forkus et al., 2019; Litz et al., 2009; Mordeno et al., 2022). This study could not fully differentiate the impact of MI or C/PTSD and their comorbidities on mental health outcomes, so future research could expand on this and refine their conceptual distinctions. As an emerging field, there exist limited empirically tested interventions for MI, particularly for forensic populations. Future research investigating the optimal treatments for MI in forensic settings along with the broader perspectives of those within the system, including clinicians and social networks, could greatly enhance the rehabilitation potential of secure care settings.

Given the time constraints on data collection, the choice of measures was limited. Consultation with service-user groups and health professionals advised reducing the time burden on participants to enhance the response rate and manage fatigue. As this study represents a first step in researching MI in forensic settings, future studies should expand on the areas assessed. Given the increased prevalence of traumatic experiences among forensic populations (Facer-Irwin et al., 2021; Ford et al., 2019; Macinnes et al., 2016) and it's moderating nature on MI (Battles et al., 2018; Jones, 2020), additional assessments should include measures of Adverse Childhood Experiences (ACEs), emotional regulation, and impulsivity. Moreover, a mixed-methods study using qualitative approaches might reveal further information about the mechanisms between PMIEs to MI emergence in a forensic context. Any qualitative component of MI research must be attentive to the ethical and judicial implications when discussing offence-related incidents which might warrant breaches of confidentiality (Williamson et al., 2021).

Limitations

Recruitment for the study was hampered by the Covid-19 pandemic which prevented consistent and optimal ward access for prospective candidates to express and sustain their interests. A low response rate, although comparable with similar research (26%, Community Mental Health Survey, 2021) but not others (70%, Bebbington et al., 2017; 51%, Facer-Irwin et al., 2021), means the sample reflects a minority of those approached. Most of the sample were Male, White/Caucasian, and from Medium-secure settings, and a small proportion did not complete all measures. Interpretations of the clinical associations are limited by small socio-demographic and event-characteristic subgroups, and the cross-sectional design restricted the ability to make causal inferences between factors. The tool to measure MI, the MIES, was modified and has not been validated for non-US-military samples. Additionally, the Transgression-Other sub-scale was retained for theoretical purposes but recorded a low internal consistency. For ethical and methodological reasons, the assessment was limited, and specific relevant data was not obtained, including information about ACEs, which are both high in forensic settings (Facer-Irwin et al., 2021; Ford et al., 2019; Macinnes et al., 2016) and can influence MI's emergence (Battles et al., 2018; Jones, 2020). Likewise, the event details underlying the MI ratings were not comprehensively explored following the ethical and legal implications relating to this population (Williamson, Murphy, Castro, et al., 2020).

Conclusions

This cross-sectional study found moderate-to-high levels of self-reported MI which shared moderate associations with C/PTSD, guilt, and poorer quality-of-life ratings. Although lacking clinical thresholds, severity bandings, and consistent scoring methods, this sample reported relatively high MIES scores compared with other sources, which is supportive of the concept's relevance for this group. Shame and self-compassion ratings were not associated with MI

which might reflect the study design or the need for conceptual adaptations for specific populations. This research supports the use of MI and trauma-based assessments within secure care settings to inform clinical and service rehabilitation strategies.

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