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Affective Mechanisms of Moral Injury in Trauma Recovery Among Asylum Seekers: Exploring the Protective Effects of Mindfulness and Compassion Training

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Abstract

We aimed to investigate and then therapeutically mitigate the affective-risk mechanisms of moral injury (MI) on trauma recovery among asylum seekers. Study aims were tested in a single-site, randomized, waitlist-controlled trial of mindfulness-based trauma recovery for refugees (MBTR-R) among 158 Eritrean trauma-affected asylum seekers (46.2% female) residing in a high-risk, urban, postdisplacement setting in Israel. First, parallel mediation in PROCESS documented that shame and anger both independently mediated the effects of MI related to moral transgressions committed by the asylum seeker and moral transgressions committed by trusted others (MI-betrayal) on posttraumatic stress disorder (PTSD) and depression. Second, moderated parallel mediation in PROCESS documented that at 1-week postintervention, MBTR-R moderated the mediated pathways between MI-betrayal, anger, PTSD, and depression. Findings contribute to understanding MI-related affective mechanisms in trauma recovery and how mindfulness- and compassion-based training may therapeutically affect these pathways to recovery after displacement.

Keywords

anger, asylum seekers, betrayal, compassion, depression, forced displacement, mindfulness, moral injury, PTSD, refugees, shame

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More than 122 million people are currently forcibly displaced by conflict, persecution, and natural disaster (UNHCR, 2024), driving a global, public, mental-health crisis (Connell, 2012; Giacco & Priebe, 2017; Li et al., 2016; Nakash et al., 2015; Silove et al., 2017; UNHCR, 2021; Van Reisen & Mawere, 2017). One dimension of the emerging intervention science tailored to forcibly displaced persons (FDP; Collins et al., 2011; UNHCR, 2021, 2023) involves the identification of malleable risk factors and pathways that may inform candidate therapeutic targets among FDP (Nickerson et al., 2014, 2017; Uphoff et al., 2020; Yuval & Bernstein, 2017; Yuval et al., 2017). Accordingly, we focused here on one candidate risk factor endemic to forced displacement, moral injury (MI; Williamson et al., 2021), and its putative affective-risk mechanisms in trauma recovery after displacement and a promising therapeutic approach using mindfulness- and compassion-based training to try to buffer these MI-related affective-risk pathways.

MI has been conceptualized as a syndrome characterized by "the lasting psychological, biological,

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spiritual, behavioral, and social impact of perpetrating, failing to prevent, or bearing witness to acts that transgress deeply held moral beliefs and expectations" (Griffin et al., 2019, p. 697). This includes MI as a result of witnessing actions or moral transgressions committed by others (MI-other), by one's self (MI-self), or by trusted others whose actions violate the individual (MI-betrayal; Bryan et al., 2016; Nash et al., 2013). Theories of trauma recovery have implicated MI-other, MI-self, and MI-betrayal in the development of posttraumatic stress disorder (PTSD) and related mental-health symptoms, particularly following traumatic events involving moral transgressions (Griffin et al., 2019; Horowitz, 1976; Hynie, 2017; Janoff-Bulman, 1989; McCann, 1990; McEwen et al., 2021; Schweitzer et al., 2006)

To understand the mechanisms linking MI to recovery, theory and empirical research have implicated common affective responses to MI, including anger, guilt, and shame, in the development and maintenance of poor MI-related mental-health outcomes, including PTSD and depression (A. O. Bryan et al., 2014; Currier, Holland, Drescher, & Foy, 2015; Ehlers & Clark, 2000; Ehlers & Murray, 2021; Haight et al., 2017; Lee et al., 2001; Litz et al., 2009; Nash et al., 2013). Indeed, MI and related affective responses may interfere with trauma recovery and treatment seeking through self-regulatory strategies and behaviors, such as concealment, social withdrawal, behavioral reactivity, or interpersonal conflict (Currier, Holland, Drescher, & Foy, 2015; Haight et al., 2017; Lancaster & Erbes, 2017).

Although most of this work has been conducted among veterans and Western, educated, industrialized, rich, and democratic (WEIRD) populations (Henrich et al., 2010), MI has also been implicated in trauma recovery among survivors of collective and interrelational trauma and loss, including refugees and asylum seekers (Hoffman et al., 2018; McEwen et al., 2023; Nickerson et al., 2015). Events endemic to forced displacement often entail the experience of moral transgressions or attribution of responsibility for transgressions that were harmful to others or one's self or violated values or social conventions (e.g., harm to others necessary for survival, abandoning dependents such as children or family, witnessing violence and atrocities, experiencing sexual violence or torture; Bryant et al., 2023; Giacco et al., 2018; Griffin et al., 2019; Litz et al., 2009; Mollica et al., 1992). More specifically, forced displacement often entails experiencing transgressions of one's own moral values to survive, such as witnessing atrocities without capacity to intervene or leaving loved ones behind (i.e., MI-self), witnessing others commit moral transgressions (i.e., MI-other), and being victim to moral transgressions committed by trusted others (i.e., MI-betrayal). Moreover, pathogenic features of postdisplacement settings may exacerbate MI and its maladaptive consequences. For example, the harsh and isolating context of many postmigration settings (e.g., harsh policies, discrimination and xenophobia, lack of social support and community belonging; Hynie, 2017; Schweitzer et al., 2006) may amplify social withdrawal, loneliness, and feelings of alienation, which, in turn, may mitigate corrective, disconfirming interpersonal experiences (e.g., unconditional love, feeling that they are still accepted) important to recovery from MI and trauma (Griffin et al., 2019; Houtsma et al., 2017; Litz et al., 2009). Worse yet, FDP often experience barriers to seeking and receiving mental-health care after displacement, further maintaining MI and its sequelae (Asgary & Segar, 2011; Byrow et al., 2020).

Accordingly, there is growing, albeit still relatively limited, empirical study of MI among FDP. Seminal studies have documented that MI may be linked to anger, shame, PTSD, and depression above and beyond trauma-event exposure and postmigration living difficulties (Hoffman et al., 2018, 2019; Hoffman & Nickerson, 2022; Nickerson et al., 2015, 2018, 2020). Among FDP samples of various backgrounds (e.g., Iraq, Iran, Afghanistan, Syria, Sri Lanka, Turkey) residing in Australia and Switzerland, MI-other was associated with negative emotions, such as fear, anger, and shame, and PTSD, depression, and suicidality (Hoffman et al., 2018, 2019; Nickerson et al., 2015, 2020), whereas MI-self was associated with greater anger and depression symptoms (Hoffman et al., 2018; Nickerson et al., 2018, 2020).

In light of these findings, initial intervention studies have sought to buffer the pathogenic role of MI on trauma recovery (Burkman et al., 2021; Kelley et al., 2022; Steenkamp et al., 2013). Mindfulness- and compassion-based interventions represent one such intervention approach (Kelley et al., 2022; Litz & Carney, 2018). For example, mindfulness fosters attention regulation (monitoring, control) that may enable more skillful responding to MI-related negative thoughts, inhibitory control, and emotional responding and avoidance (Boyd et al., 2018; Kelley et al., 2022). Likewise, by cultivating acceptance, mindfulness training may permit more adaptive exposure to memories and painful emotions that, in turn, facilitate emotional and cognitive processing and reduced maladaptive emotional reactivity, avoidance, and reexperiencing (Lang et al., 2012; Thompson et al., 2011). Relatedly, cultivating nonjudgement, acceptance, and compassion toward one's self and others may help reduce blame, anger, shame, and guilt toward one's self and others (Boyd et al., 2018; Kelley et al., 2022) and facilitate restorative social and intersubjective processes, such as

interconnection, social support, and forgiveness (Currier, Holland, Drescher, & Foy, 2015; Currier, Holland, & Malott, 2015; Kelley et al., 2022; Lang et al., 2012).

Preliminary findings among veterans have documented that mindfulness and self-compassion may moderate or buffer associations between MI and psychiatric symptoms (Davies et al., 2019; Kelley et al., 2019). Likewise, initial randomized controlled trials of adaptive disclosure, which incorporates elements of mindfulness and compassion, have demonstrated evidence of effectiveness and safety in treatment of MI among military veterans (Gray et al., 2021; Litz & Carney, 2018; Litz et al., 2021; Walser & Wharton, 2021). Note that MI-intervention studies broadly and mindfulness-based MI-intervention research more specifically have been primarily limited to veterans and WEIRD populations (Williamson et al., 2021). Initial steps have been made to explore the potential therapeutic utility of mindfulness- and compassion-based training among FDP (Aizik-Reebs et al., 2021; Blignault et al., 2023; Foka et al., 2021; Jeebodh-Desai, 2022; Özcan Neslihan, 2021; Pillay & Eagle, 2021; Shaw et al., 2019; Tol et al., 2020; Tubbs Dolan et al., 2022; Van der Gucht et al., 2019). A recent randomized, waitlist-controlled trial documented that mindfulness-based trauma recovery for refugees (MBTR-R) led to reduced rates and severity of stress- and trauma-related mental-health outcomes, including PTSD, depression, anxiety, multimorbidity, significant albeit small elevations in subjective well-being, and evidence of safety among a sample of trauma-affected East African (Eritrean) asylum seekers living in an unstable, high-risk, urban, postdisplacement setting in Israel (Aizik-Reebs et al., 2021).

In summary, the field lacks study of MI among FDP, including limited study of the affective-risk pathways, including shame and anger, through which MI-self, MI-other, and MI-betrayal may contribute to poor mental-health outcomes after displacement. Moreover, it is not yet known whether training mindfulness and compassion may help to moderate or therapeutically buffer these MI-related affective-risk pathways for poor trauma recovery among FDP following intervention.

Present Study Aims

First, we sought to test whether MI is associated with shame and anger and, thereby, poor trauma- and stress-related mental-health outcomes after displacement among asylum seekers (Connell, 2012; Lee et al., 2001; Nakash et al., 2015; Van Reisen & Mawere, 2017). More specifically, at baseline (preintervention), we sought to test whether levels of shame and anger statistically mediated the expected associations between type and severity of MI and severity of PTSD and depression symptoms after displacement. Second, in a model of moderated parallel mediation conducted at postintervention, we sought to test whether mindfulness- and compassion-based training tailored to FDP, relative to a wait-list control condition, therapeutically buffered or statistically moderated these mediating MI-related affective-risk pathways. More specifically, we sought to test, at postintervention, whether the direct pathways between MI (predictor) and anger and shame (mediators) would be significantly weakened by mindfulness- and compassion-based training such that anger and shame would no longer mediate the expected (preintervention) relations between MI and poor mental-health outcomes among asylum seekers randomized to the intervention relative to wait-list control.

Transparency and Openness

For preregistration, the study design and aims were registered at ClinicalTrials.gov (NCT04380259). Investigators can contact A. Bernstein for access to de-identified study data or all study materials. We report how we determined our sample size, all data exclusions, all manipulations, and all measures in the study. The study received human subjects research ethics approval by a University of Haifa Institutional Review Board committee and was carried out in accordance with the provisions of the Declaration of Helsinki.

Method

Design

This study was a single-site, randomized controlled trial of MBTR-R—a 9-week, mindfulness- and compassion-based, trauma-sensitive, and socioculturally adapted group intervention for FDP—compared with a waitlist-control condition (Aizik-Reebs et al., 2021).

Participants

A community sample (N = 158; 46.2% women) of trauma-exposed Eritrean asylum seekers residing in an unstable, urban postmigration setting in Israel was recruited via public flyers, community recruitment, local nongovernmental organizations, and municipal organizations working with FDP. Over the course of 1 year, Eritrean asylum seekers were recruited via three cohorts and randomly assigned to either MBTR-R or waitlist-control condition. Exclusion criteria were (a) current active suicidality (e.g., ideation with intent/plan), (b) current psychotic symptoms, and (c) any current mental-health treatment (e.g., psychiatrist, psychotherapy, psychosocial support group). Random assignment was

Table 1. Moral Injury Event Scale Total and Subscale Scores Before Intervention

	Men		Women				Total	
	M (*SD*)	*n*	*M* (*SD*)	*N*	*t*	*p*	*M* (*SD*)	*N*
MI-total	3.79 (1.32)	85	3.37 (1.12)	73	2.15	.033*	3.59 (1.24)	157
MI-other	4.69 (1.71)	84	4.08 (1.87)	73	2.12	.035*	4.40 (1.81)	157
MI-self	3.69 (1.58)	85	3.20 (1.45)	72	2.01	.046*	3.47 (1.54)	158
MI-betrayal	3.29 (1.85)	84	3.02 (1.73)	72	0.95	.344	3.17 (1.79)	158

Note: MI = moral injury. *$p < .05$.

conducted via random-number generation in blocks of two conditions with a ratio of three MBTR-R participants to two waitlist-control participants.

Procedure

Following assessment for eligibility to participate in the study through a phone screening, consent, and random assignment to condition, participants completed a preintervention assessment, the 9-week intervention or identical waitlist-control period, and 1-week postintervention and 5-week follow-up assessments (Aizik-Reebs et al., 2021). Finally, we report how we determined our sample size, all data exclusions, all manipulations, and all measures in the study.

MBTR-R intervention condition. MBTR-R is a mindfulness-based group (10–15 participants) intervention consisting of nine 2.5-hr weekly sessions. MBTR-R includes systematic training in formal and informal mindfulness practices common to mindfulness-based interventions (e.g., body scan, sitting meditation, mindful movement, 3-min breathing space; Crane et al., 2017), formal and informal loving-kindness and self-compassion practices (Germer & Neff, 2015), and normalizing psychoeducation about posttraumatic stress, stress reactivity, and depression (Bramble, 2017; Neuner et al., 2004; Palic & Elklit, 2011). Critically, trauma-sensitive adaptations to mindfulness meditation practices were included to reduce risk of adverse responding to meditation training and optimize salutary benefits from meditation training (Treleaven, 2018). Finally, to optimize conditions for participants to learn mindfulness and intervention principles and to benefit from the group format, delivery of MBTR-R was socioculturally adapted.

Waitlist-control condition. Following the 9-week waitlist period and 1-week postintervention assessment, participants randomized to waitlist-control were offered an equivalent group intervention (i.e., 22.5 total hr, group instructor and cultural mediator, psychoeducation and low-intensity cognitive-behavior-therapy skill training, relaxation techniques). When participants were randomly assigned to condition, MBTR-R and the waitlist-control interventions were described nearly identically—in terms of purpose, total number of hours, and so on—to ensure similar expectancy effects and motivation between conditions.

Measurements

Questionnaires. All measures were translated and back-translated and psychometrically evaluated and validated in earlier research—either in our or other research groups' studies of these specific African refugee populations (Badri et al., 2012; Hadash et al., 2017; Reebs et al., 2017). All translated measures were pilot-tested and revised in an iterative process, which included cognitive interviewing with translators and Eritrean asylum seekers to ensure linguistic and sociocultural meaning (Miller et al., 2014; Sartorius & Kuyken, 1994). All participants were asked to fill out a demographic self-questionnaire that assessed gender, sex assigned at birth, and level of education.

We used the Moral Injury Event Scale (MIES)-Modified (Nash et al., 2013). The original MIES is a nine-item, Likert-type, self-report scale (1 = *strongly disagree*, 6 = *strongly agree*) designed to measure MI-self, MI-other, and MI-betrayal, including event exposure and related distress, among military personnel and veterans. Based on Nickerson et al. (2015), who adapted the MIES to FDP from the Middle East, we similarly adapted the wording of the MIES to asylum seekers from East Africa (Eritrea; see Table 1 and Appendix 1). Despite important questions about measurement of MI using the MIES (Houle et al., 2024; Litz et al., 2022), we believed it was important to use the MIES to ensure some degree of continuity between early studies of FDP and this initial study also exploring therapeutic effects of mindfulness- and compassion-based training in buffering MI-related risk pathways.

The State Shame and Guilt Scale (SSGS; Marschall et al., 1994) is a 10-item Likert-type (1 = *not feeling this way at all*, 5 = *feeling this way very strongly*) self-report measure of shame and guilt. It has been used among many populations, including FDP (Lear et al., 2022;

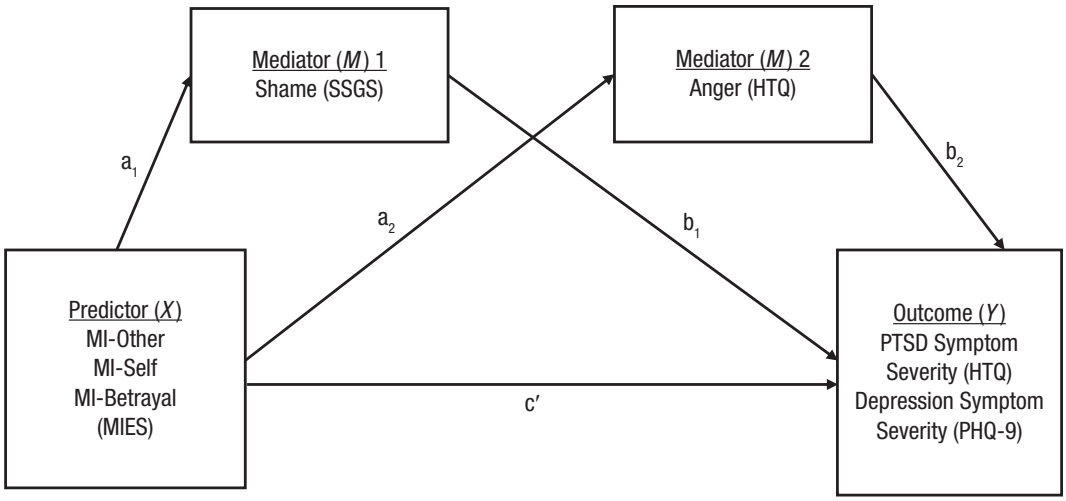

Fig. 1. Parallel mediation: MI, shame and anger, and trauma recovery after displacement at preintervention. Shame and anger were entered as parallel mediators to estimate the indirect effect of MI-other (Models 1 and 2), MI-self (Models 3 and 4), and MI-betrayal (Models 5 and 6) on PTSD-symptom severity (Models 1, 3, and 5) and depression-symptom severity (Models 2, 4, and 6). MI = moral injury; MIES = Moral Injury Event Scale; SSGS = State Shame and Guilt Scale; HTQ = Harvard Trauma Questionnaire; PHQ-9 = Brief Patient Health Questionnaire; PTSD = posttraumatic stress disorder.

Oren-Schwartz et al., 2023). We focused here on shame and not guilt, following earlier findings indicating that although shame was strongly implicated in poor trauma recovery, similar risk associated with guilt depended on its co-occurrence with shame (Oren-Schwartz et al., 2023).

The Harvard Trauma Questionnaire (HTQ; Mollica et al., 1992) was used to measure trauma exposure and PTSD-symptom severity (Aizik-Reebs et al., 2021). The HTQ was developed for use across sociocultural groups and languages and thus is a well-established instrument to measure PTSD symptoms in diverse, forcibly displaced populations, including East African populations specifically (Darzi, 2017; Hollifield et al., 2002; Nakeyar & Frewen, 2016; Reebs et al., 2017). The HTQ item of anger ("Feeling irritable or having outbursts of anger") was used to measure anger. Consequently, the total PTSD-symptom-severity score was calculated without the item measuring anger.

The Brief Patient Health Questionnaire (PHQ-9; Spitzer et al., 1999) is a nine-item, Likert-type (0 = *not at all*, 3 = *nearly every day*), self-reported measure of depressive symptoms. The PHQ-9 is a commonly used measure of depression in diverse populations, including FDP.

Data analysis

First, in an accelerated, bootstrapped, cross-product test of a parallel-mediation model using PROCESS in SPSS (Hayes, 2017), we tested whether shame (SSGS) and anger (HTQ) together and individually statistically mediated the associations between MI-self, MI-other, and MI-betrayal (MIES) on preintervention levels of PTSD (HTQ) and depression-symptom severity (PHQ-9). For visualization of parallel-mediation models, see Figure 1. Second, in an accelerated, bootstrapped, moderated parallel-mediation model using PROCESS in SPSS, we tested whether MBTR-R (vs. waitlist control) moderated the association between MI (MIES) with shame (SSGS) and anger (HTQ) and, thereby, levels of PTSD (HTQ) and depression-symptom severity (PHQ-9) at postintervention. We planned to test only moderated effects at postintervention for mediation models that were significant at preintervention—such that there would be a significant mediated risk pathway that could be meaningfully moderated. For visualization of moderated parallel-mediation models, see Figure 2.

Results

Descriptive statistics

Parallel-mediation models. For descriptive statistics of MI-other, MI-self, and MI-betrayal MIES-subscale scores at preintervention, see Table 1. For indirect mediating effects and confidence intervals for each of six accelerated, bootstrapped, parallel-mediation models, see Table 2. As predicted, shame and anger each independently mediated the association between MI-self and PTSD (Model 3) and with depression-symptom severity (Model 4). Likewise, shame and anger each independently mediated the association between MI-betrayal and PTSD (Model 5) and with depression-symptom severity (Model 6).

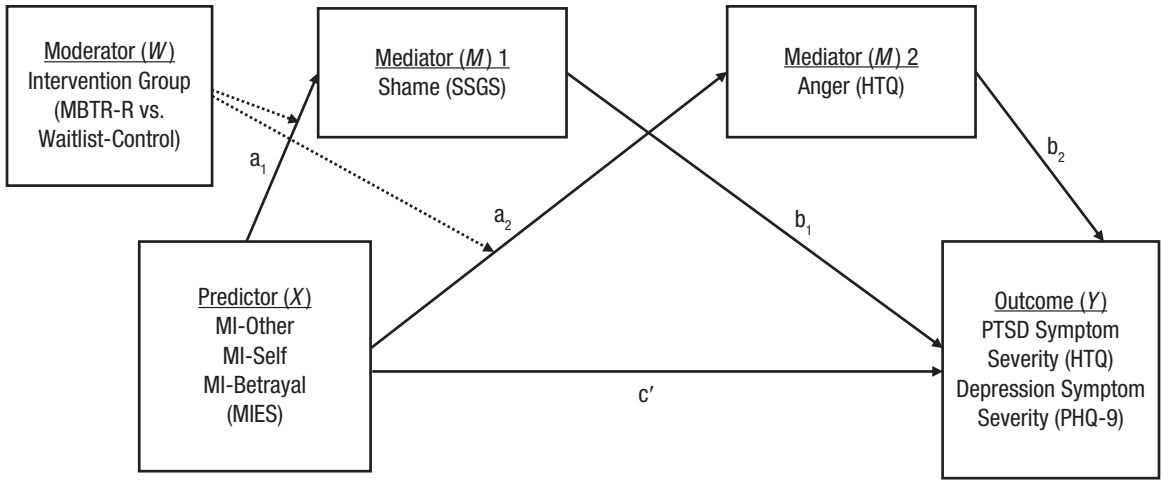

Fig. 2. Moderated parallel mediation: effect of MBTR-R on mediating pathway between moral injury, shame and anger, and trauma recovery at postintervention. Intervention group (MBTR-R vs. wait-list control) was entered as a moderator to estimate the difference between the conditional indirect effects of shame and anger as parallel mediators between MI-self (Models 1 and 2) and MI-betrayal (Models 3 and 4) on PTSD-symptom severity (Models 1 and 3) and depression-symptom severity (Models 2 and 4). MBTR-R = mindfulness-based trauma recovery for refugees; MIES = Moral Injury Event Scale; SSGS = State Shame and Guilt Scale; HTQ = Harvard Trauma Questionnaire; PHQ-9 = Brief Patient Health Questionnaire; PTSD = posttraumatic stress disorder.

In contrast, neither shame nor anger mediated expected associations between MI-other and PTSD (Model 1) or with depression-symptom severity (Model 2). In contrast to observed direct effects for MI-self and MI-betrayal, no direct effect was observed between MI-other and either PTSD or depression-symptom-severity outcomes.

Moderated parallel-mediation models. See Table 3 for the index of moderated mediation (i.e., difference between conditional indirect effects) and confidence intervals and the indirect mediating effects and confidence intervals by intervention group at postintervention for each of the four accelerated, bootstrapped, moderated, parallel-mediation models. As expected, MBTR-R significantly moderated the mediating effect of MI-betrayal on anger for PTSD (Model 3) and depression (Model 4). Consistent with prediction, at postintervention, mediation effects remained significant among the wait-list control but were no longer significant among the MBTR-R group.

However, and inconsistent with prediction, MBTR-R did not moderate the mediating pathways between MI-self, anger and shame, and either PTSD (Model 1) or depression-symptom severity (Model 2) or the mediating pathway between MI-betrayal, shame, and either PTSD (Model 3) or depression (Model 4). Note that the null moderation effects may need to be interpreted cautiously because the significant mediation effects observed at preintervention were null in both groups at postintervention, limiting the capacity to provide a strong test of moderated mediation.

Discussion

We aimed, first, to map affective mechanisms through which common forms of MI may contribute to common trauma- and stress-related mental-health outcomes among asylum seekers. Second, we sought to begin to explore whether mindfulness- and compassion-based training tailored to FDP may help buffer these MI-related affective-risk pathways. Study aims were tested in a secondary analysis of a randomized waitlist-controlled trial of a 9-week MBTR-R program among 158 East African, unrecognized asylum seekers residing in an urban postdisplacement setting in Israel (Aizik-Reebs et al., 2021).

Affective-risk pathways from moral injury to trauma recovery postdisplacement

First, as expected, we found differential associations between forms of MI, shame and anger, and trauma- and stress-related mental-health outcomes after displacement. For PTSD- and depression-symptom-severity outcomes, elevated shame and anger both independently mediated the direct effects of MI related to moral transgressions that an asylum seeker committed (MI-self) and MI related to betrayal following moral transgressions by trusted others toward the asylum seeker (MI-betrayal). In contrast, MI related to witnessing moral transgressions committed by others (MI-other) was not directly related or indirectly related via either

Table 2. Parallel-Mediation Models: Summary of Indirect Mediating Effects of Shame and Anger at Preintervention

	PTSD (*Y*)							
	Shame (*M1*)				Anger (*M2*)			
	Indirect effect	Bootstrapped *SE*	LLCI	ULCI	Indirect effect	Bootstrapped *SE*	LLCI	ULCI
Model 1: MI-other (*X*)	−.0071	.0162	−0.0399	0.0240	−.0084	.0149	−0.0382	0.0202
Model 3: MI-self (*X*)	.0502[a]	.0197	0.0127	0.0907	.0334[a]	.0170	0.0018	0.0689
Model 5: MI-betrayal (*X*)	.0638[a]	.0160	0.0328	0.0951	.0568[a]	.0140	0.0302	0.0853
	Depression (*Y*)							
	Shame (*M1*)				Anger (*M2*)			
	Indirect effect	Bootstrapped *SE*	LLCI	ULCI	Indirect effect	Bootstrapped *SE*	LLCI	ULCI
Model 2: MI-other (*X*)	−.0706	.1716	−0.4427	0.2551	−.0425	.0791	−0.2067	0.1078
Model 3: MI-self (*X*)	.5261[a]	.2138	0.1319	0.9638	.1723[a]	.0956	0.0008	0.3728
Model 6: MI-betrayal (*X*)	.6836[a]	.1777	0.3553	1.0523	.2925[a]	.1051	0.1110	0.5171

Note: PTSD = posttraumatic stress disorder; *Y*=outcome; *M*=mediator; MI=moral injury; *X*=predictor; LLCI=bootstrapped lower limit 95% confidence interval; ULCI=Bootstrapped upper limit 95% confidence interval. [a]Significant indirect effect of mediation.

elevated shame or anger to either PTSD- or depression-symptom severity.

Observed findings were broadly consistent with extant studies among trauma-affected populations and initial studies among FDP (Griffin et al., 2019; Hynie, 2017; McEwen et al., 2021; Schweitzer et al., 2006; Williamson et al., 2021) and theory arguing that MI is a clinically significant syndrome with implications for PTSD and depression symptoms after displacement (Jinkerson, 2016; Litz et al., 2022). We did not, however, find evidence linking MI-other to either negatively valenced emotion or mental-health outcomes as observed in previous studies among other FDP communities (Hoffman et al., 2018, 2019; Hoffman & Nickerson, 2022; Nickerson et al., 2015, 2020). Future studies, and perhaps reanalysis of published studies, could examine whether observed effects of MI-other in trauma recovery may be, in part, accounted for by MI-betrayal. Finally, the observed role of shame in mediating both MI-self and MI-betrayal in PTSD and depression symptoms is consistent with theory that among traditional and collectivist cultures, shame may be tied to fear that one's inadequacies will result in the loss of union with or expulsion from the group (Creighton, 1990).

Mindfulness and compassion mitigate affective-risk pathways from moral injury to trauma recovery postdisplacement

We found that mindfulness- and compassion-based training tailored to FDP may help therapeutically mitigate some of the observed MI-related affective-risk pathways in trauma recovery. Specifically, MBTR-R buffered the mediating pathway observed between moral transgressions committed by trusted others toward the asylum seeker (MI-betrayal) and anger in relation to PTSD- and depression-symptom-severity outcomes. Yet MBTR-R did not moderate risk pathways mediated by shame, nor did MBTR-R moderate the mediating pathway linking moral transgressions committed by the asylum seekers themselves (MI-self) and either anger or shame. However, the latter null moderated mediation effects must be interpreted cautiously because the postintervention mediation pathways were null in both groups. We speculate that although the preintervention tests of parallel mediation, testing Aim 1 in the total-sample prerandomization, demonstrated a robust unified pattern of mediation, the exploratory postintervention tests of moderated parallel mediation were underpowered to detect effects by group. More conceptually, future research could also examine whether the effects of MI on affective mechanisms are dynamic over time such that the magnitude of these effects are meaningfully contextually and temporally variable (Davidson, 1998; Kuppens et al., 2010; Sheikh, 2014), leading to possible temporal instability in the magnitude of MI-related affective pathways. Future research could further examine the robustness and temporal and contextual stability of the observed affective mechanisms related to MI-self and MI-betrayal for trauma-recovery outcomes among FDP.

Findings are consistent with initial investigations of interventions using mindfulness- and compassion-based training to therapeutically target or buffer the effects of MI (Davies et al., 2019; Gray et al., 2021; Kelley et al., 2019; Litz & Carney, 2018; Litz et al., 2021; Walser &

Table 3. Moderated Parallel-Mediation Models: Summary of Moderated Mediation Effect of Intervention Group or Difference Between Conditional Indirect Mediating Effects of Shame and Anger at Postintervention

		PTSD (*Y*)							
		Shame (*M1*)				Anger (*M2*)			
		Moderated mediation effect and indirect effect by group	Bootstrapped *SE*	LLCI	ULCI	Moderated mediation effect and indirect effect by group	Bootstrapped *SE*	LLCI	ULCI
Model 1: MI-self (*X*)	Intervention (*W*)	*−.0017*	.0393	−0.0775	0.0788	−.0608	.0427	−0.1428	0.0260
	MBTR-R	.0166	.0221	−0.0254	0.0614	−.0146	.0233	−0.0597	0.0321
	Control	.0183	.0323	−0.0486	0.0785	.0462	.0355	−0.0266	0.1152
Model 3: MI-betrayal (*X*)	Intervention (*W*)	*−.0271*	.0323	−0.0929	0.0356	−.0761[a]	.0331	−0.1439	−0.0145
	MBTR-R	.0189	.0194	−0.0192	0.0567	.0063	.0195	−0.0333	0.0445
	Control	.0461	.0252	−0.0030	0.0971	.0824[b]	.0257	0.0335	0.1137
		Depression (*Y*)							
		Shame (*M1*)				Anger (*M2*)			
		Moderated mediation effect and indirect effect by group	Bootstrapped *SE*	LLCI	ULCI	Moderated mediation effect and indirect effect by group	Bootstrapped *SE*	LLCI	ULCI
Model 2: MI-self (*X*)	Intervention (*W*)	*−.0233*	.5346	−1.0578	1.0757	−.3049	.2385	−0.8214	0.1277
	MBTR-R	.2283	.3072	−0.3586	0.8672	−.0731	.1255	−0.3275	0.1822
	Control	.2516	.4413	−0.6459	1.1185	.2319	.2015	−0.1317	0.6717
Model 4: MI-betrayal (*X*)	Intervention (*W*)	−.3731	.4378	−1.2679	0.4664	−.3635[a]	.1951	−0.7978	−0.0471
	MBTR-R	.2603	.2685	−0.2677	0.7886	.0301	.1007	−0.1554	0.2542
	Control	.6333	.3492	−0.0293	1.3463	.3936[b]	.1796	0.1029	0.7976

Note: *PTSD*=posttraumatic stress disorder; *Y*=outcome; *M*=mediator; MI=moral injury; *X*=predictor; LLCI=bootstrapped lower limit 95% confidence interval; ULCI=bootstrapped upper limit 95% confidence interval; MBTR-R=mindfulness-based trauma recovery for refugees group; control=matched-control group. [a]Significant moderated mediation (difference between conditional indirect effects) of intervention group. [b]Significant indirect mediation effect by intervention group.

Wharton, 2021). There are, however, a very limited number of prior investigations and no published study to date, to the best of our knowledge, among FDP (Griffin et al., 2019; Williamson et al., 2021). Thus, these novel but preliminary findings require replication and extension among other FDP communities.

Limitations and future directions

The present study is limited in several ways that may inform interpretation of reported findings and future research. First, although selected Eritrean asylum seekers constitute a large group of FDP worldwide and their stressful, uncertain, and insecure urban postdisplacement setting represents a common and fast-growing context for FDP (UNHCR, 2024), observed findings may not generalize to other displaced survivor communities. Second, although the MIES has been widely studied and its use in this study facilitates comparison with previous studies of MI among a variety of populations and FDP, the MIES was not designed to distinguish between the experience of a potentially morally injurious event(s) and the psychological distress or injury that might emerge from experiencing the event(s) (Hoffman et al., 2018; Jinkerson, 2016; Litz et al., 2022; McEwen et al., 2021). This measurement approach has significant implications for what can and cannot be deduced, with confidence, from findings based on the MIES (Houle et al., 2024). Yet to permit meaningful comparison of the present findings with those in most previous studies, this methodological compromise was important. Moreover, note that initial psychometric work examining associations between MIES scores and scores from measures that distinguish morally injurious events from the putative distress and symptom outcomes of those events are very strongly correlated (e.g., $r \approx .7$; Norman et al., 2024). Likewise, to move beyond the limitations of the MIES and self-report more broadly, structured interviews and behavioral assessments may be important methods to advance study of MI broadly and its role in trauma recovery among FDP specifically (Aizik-Reebs et al., 2022; Amir et al., 2024). Relatedly, anger was measured by a single item from the HTQ. Although this was done to limit burden on participants and because we have not found incremental utility of longer-form measures of anger (cf. shame) beyond this single-item in HTQ among asylum seekers, future study should explore more psychometrically robust approaches to measure and quantify anger. Third, mediation was tested cross-sectionally using preintervention data, limiting any capacity to reach temporal or causal conclusions. Nevertheless, such study is needed and important before longitudinal study and optimally, intensive repeated measurement, permitting examination of functional interrelations, over time, between MI, risk mechanisms, and trauma-recovery processes and symptoms. For example, it may be important to examine whether shame and anger may not only emerge from forms of MI but also function to maintain MI over time, further contributing to delayed recovery from MI and trauma.

In summary, findings provide novel insight into MI-related affective mechanisms in trauma- and stress-related recovery among asylum seekers. Likewise, findings also provide novel, albeit preliminary, evidence that mindfulness- and compassion-based training tailored to FDP may help to promote trauma recovery, in part, through mitigating maladaptive anger following MI-betrayal. We hope that findings contribute to field-wide efforts to advance intervention science dedicated to the mental health of FDP and the potential role of mindfulness- and compassion-based and related intervention programs in collective efforts to empower and help care for FDP.

Appendix 1. Adapted Moral Injury Event Scale

1. I saw things that were morally wrong.
2. I am troubled by having witnessed others' immoral acts.
3. I acted in ways that violated my own moral code or values.
4. I am troubled by having acted in ways that violated my own morals or values.
5. I violated my own morals by failing to do something that I felt I should have done.
6. I am troubled because I violated my morals by failing to do something that I felt I should have done.
7. I feel betrayed by people who I once trusted.
8. I feel betrayed by fellow Eritreans who I once trusted.[a]
9. I feel betrayed by others outside of my Eritrean community who I once trusted.[a]

[a]Item was revised and adapted to the study sample of Eritrean asylum seekers.

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The author(s) declared that there were no conflicts of interest with respect to the authorship or the publication of this article.

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