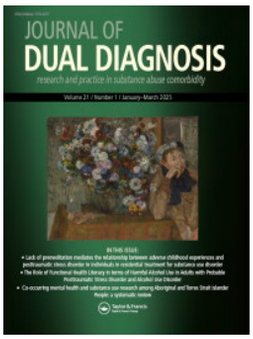

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Journal of Dual Diagnosis
research and practice in substance abuse comorbidity

ISSN: (Print) (Online) Journal homepage: www.tandfonline.com/journals/wjdd20

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To cite this article: Erica Eaton, Christy Capone, Shannon Reese, M. Tracie Shea, J. Greg Serpa & Christopher Germer (01 Apr 2025): Mindful Self-Compassion for Veterans with Morally Injurious Experiences and Co-Occurring Posttraumatic Stress Disorder and Substance Use Disorder: A Feasibility Study, Journal of Dual Diagnosis, DOI: 10.1080/15504263.2025.2474953

To link to this article: https://doi.org/10.1080/15504263.2025.2474953

JOURNAL OF DUAL DIAGNOSIS
https://doi.org/10.1080/15504263.2025.2474953

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Mindful Self-Compassion for Veterans with Morally Injurious Experiences and Co-Occurring Posttraumatic Stress Disorder and Substance Use Disorder: A Feasibility Study

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ABSTRACT

Objective: This study evaluates the feasibility and acceptability of delivering Mindful Self-Compassion (MSC) to veterans with moral injury and co-occurring PTSD and substance use disorder (PTSD-SUD). **Methods**: Veterans (N = 26; M age = 50.92; 100% male) were recruited for an 8-week MSC group. Participants completed measures of self-compassion, guilt, shame, PTSD, and substance use outcomes at baseline, post-treatment, and one-month post-treatment. **Results**: The recruitment target was easily met, and dropout rates were low (30.8%) for a comorbid veteran sample. Participants reported satisfaction with the intervention. Clinically meaningful change was examined for self-compassion, trauma-related symptoms, and substance use. A clinically meaningful increase for self-compassion and clinically meaningful decreases in PTSD symptoms, guilt, shame, and number of drinking days were observed. **Conclusions**: The open-label design and small sample size preclude conclusions regarding efficacy. However, these preliminary findings are encouraging and suggest further investigation of MSC as a compliment to existing trauma-related therapies (NCT03681288).

KEYWORDS
Mindfulness; self-compassion; moral injury; shame; veterans

Combat troops face many moral and ethical challenges due to the nature of warzone stressors (Litz et al., 2009; Sher et al., 2012). These events may result in moral injury associated with intense feelings of guilt and shame which are highly distressing and challenging to treat (Battles et al., 2018; Bryan et al., 2014; Bryan, Morrow, et al., 2013; Bryan, Ray-Sannerud, et al., 2013; Cameron et al., 2021). Among Veterans experiencing moral injury, studies have consistently shown associations with adverse mental health outcomes including increased PTSD symptoms (Bryan et al., 2016; Koenig et al., 2019), suicidal ideation (Hamrick et al., 2020), and alcohol misuse (Davies et al., 2019). Therefore, this cluster of symptomatology (PTSD, SUD, and moral injury) warrants the field's attention.

Despite evidence-based treatments for PTSD, residual symptoms of trauma-related guilt and shame may persist post treatment and some individuals may need additional or specialized treatment to address these symptoms (Larsen et al., 2019; Owens et al., 2008). Consequently, trauma-related guilt and shame, stemming from morally injurious events, may continue to burden veterans who struggle with co-occurring PTSD and substance use disorder (PTSD-SUD), preventing them from being able to fully recover (Kubany & Watson, 2003). In response to the limitations of the current treatment options, alternative approaches have emerged targeting guilt and shame among the Veteran population including adaptive disclosure (Litz et al., 2009), acceptance and commitment therapy (Walser et al., 2024), and the impact of killing protocol (Maguen et al., 2017). Notably, each of these interventions share a focus of targeting guilt and shame via compassion.

Compassion has been linked to reduced features of moral injury, including shame, self-criticism, and alcohol use (Irons & Lad, 2017; Phelps et al., 2018; Zhang et al., 2019), and therefore compassion-based interventions have been supported in the literature for the treatment of moral injury among Veterans (Farnsworth et al., 2014; Williamson et al., 2019).

Preliminary studies with veterans suggest that self-compassion is a modifiable and teachable trait

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(Eaton et al., 2020; Serpa et al., 2021), and a recent review revealed its associations with reduced trauma-related guilt and PTSD symptoms (Steen et al., 2021). Notably, evidence also points to lower levels of self-compassion among those with alcohol use disorders than the general population (Brooks et al., 2012), suggesting that increasing self-compassion may aid in reducing reliance on substances to mitigate negative affect and psychiatric symptoms. Further, self-compassion has been associated with reduced experiential avoidance among veterans (Vujanovic et al., 2011), a mechanism associated with the maintenance of PTSD-SUD symptoms (Foa et al., 1989; Held et al., 2011; Tangney et al., 2007) as well as shame (Kubany & Watson, 2003).

A group approach is particularly well-suited to address self-conscious emotions, such as guilt and shame, and yet there is little research examining a group approach to address moral injury, particularly among veterans with comorbid PTSD-SUD. Litz and Carney (2018) conceptualize war-related traumas as being defined in relationship to others and suggest that the social disconnection associated with combat experiences can be repaired via methods that reduce isolation and facilitate compassionate connection, such as with a group approach.

Taken together, these studies provide preliminary support that self-compassion has relevance for understanding moral injury and associated guilt and shame, as well as the development and maintenance of PTSD-SUD among veterans. Mindful Self-Compassion (MSC) is a promising group approach to target moral emotions that has the potential to bolster treatment outcomes, adding to existing options for practitioners to more effectively help their patients, particularly those with a complex clinical presentation.

Building on this preliminary work, we undertook an open feasibility trial of MSC for veterans who have experienced a morally injurious event and have a diagnosis of co-occurring PTSD-SUD to assess the feasibility of recruitment, acceptability of MSC as an intervention, and to gather preliminary evidence regarding improvements in self-compassion and trauma-related symptoms. To our knowledge, this is the first study to examine MSC among a comorbid sample of veterans.

Methods

This project utilized an open feasibility trial design. Trained MSC Certified Teachers delivered an 8-week MSC course as an adjunct to usual care. Self-compassion, trauma-related symptoms, substance use, and quality of life were assessed at three timepoints – baseline, post-treatment, and one-month follow-up. The study was approved by the institutional review board and research and development committees of the VA hospital where the project took place.

Participants

Recruitment took place over an 18-month period (July 2019 to December 2020) via self-referral or referrals by clinical providers (See Figure 1 for participant flow) from specialty PTSD, Substance Use, and Readjustment Clinics at a VA Medical Center in the Northeastern United States. Study flyers were posted on the VA Medical Center's Facebook page and X account as well as sent out electronically via MyHealthEVet (the VA's encrypted electronic health communication platform) to local VA-enrolled veterans.

Eligibility criteria included: (1) moral injury as captured by at least one "slightly agree" (≥4) response on the Moral Injury Events Scale; (2) current diagnosis of PTSD (within the last 30 days) confirmed by the Clinician Administered PTSD Scale (CAPS-5); (3) diagnosis of a substance use disorder within the last year confirmed by the Structured Clinical Interview for DSM-5 Section E (SCID-E); and (4) willing and able to provide informed consent. Exclusion criteria were assessed via medical chart review and were limited to (1) individuals with active psychotic symptoms, (2) patients with a psychiatric hospitalization or a suicide attempt within the past month; (3) currently receiving trauma-focused treatment (e.g., Prolonged Exposure, Cognitive Processing Therapy); and (4) individuals with life-threatening or unstable medical illness.

Procedure

Potential participants were invited in for a baseline appointment which included a complete discussion of the study and procurement of written informed consent. After the baseline assessment, eligible participants were invited to enroll in an 8-week MSC course, including a two-hour retreat between sessions five and six. All participants continued their usual mental health care during the study (PTSD or SUD skills groups, individual psychotherapy, medication management), without intervention from the study team. Participants completed follow-up assessments immediately post-intervention and at one-month post MSC.

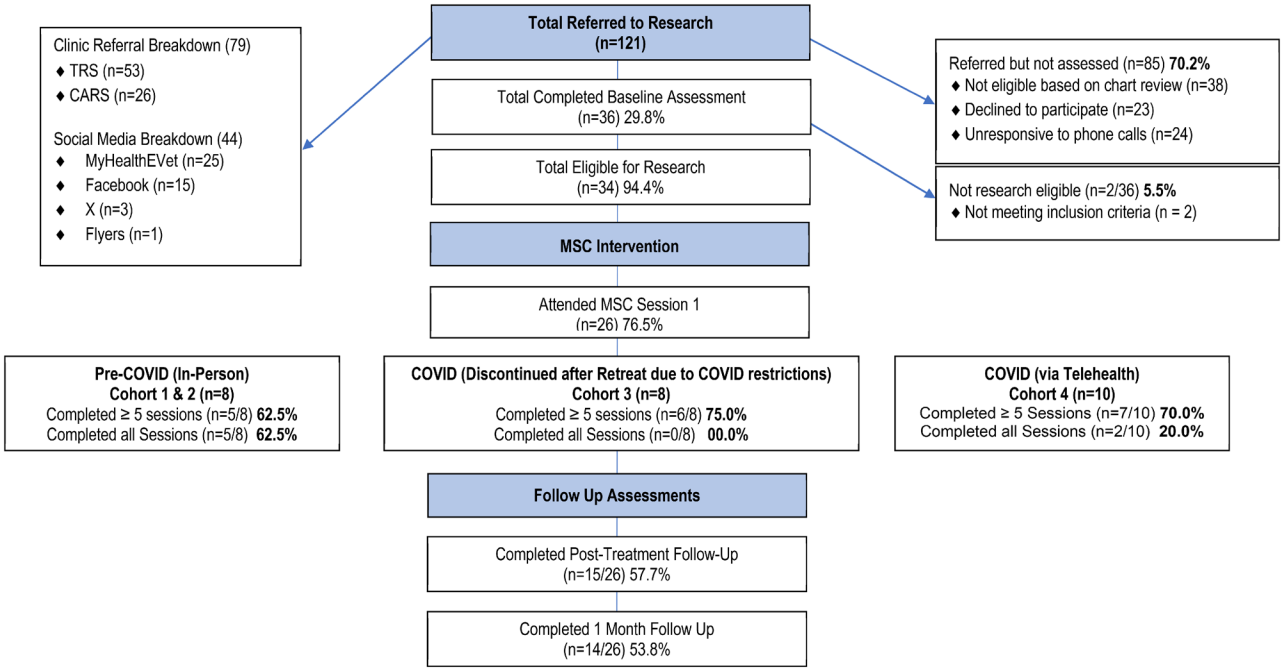

Figure 1. Consort diagram.
Note. TRS = Trauma Recovery Service; CARS = Collaborative Addiction Recovery Services; MSC = Mindful Self-Compassion

Participants received $50 in compensation for each assessment completed (with a potential total of $150 for study participation).

MSC was delivered in-person for Cohorts 1–3 and via telehealth on the video platform Zoom for Healthcare for Cohort 4 during the COVID-19 pandemic. Cohorts 1–2 experienced all sessions of MSC in-person, including the retreat. The Center for Disease Control and Prevention guidelines to disband meeting face-to-face for group sessions occurred during the third cohort and therefore this cohort only completed sessions 1–5 and the in-person retreat and then was discontinued (sessions 7 and 8 were not administered). During the time of the COVID-19 pandemic, Cohort 4 attended all sessions of MSC via telehealth, and did not experience the retreat due to feasibility concerns via telehealth. Cohort 4 also did not have small group discussions due to lack of the break-out rooms function on Zoom for Healthcare (in accordance with a HIPAA-compliant platform).

Intervention: Mindful self-compassion

The Mindful Self-Compassion (MSC) training program, developed by Germer and Neff (2019), is designed to help participants develop self-compassion and mindfulness skills. The program accomplishes this by highlighting the three interacting components of self-compassion: (1) self-kindness versus self-judgment, (2) a sense of common humanity versus isolation, and (3) mindfulness versus over-identification when confronting painful thoughts and emotions.

MSC utilizes a combination of formal (sitting meditation) and informal (during daily life) mindfulness and self-compassion practices, in addition to experiential exercises, didactics, and discussion periods in each session that are designed to help participants learn how to be kinder to themselves (Germer & Neff, 2013; Neff & Germer, 2013). The retreat session allows the opportunity for participants to deepen their understanding and practice of self-compassion and mindfulness by engaging in extended periods of guided and unguided meditation, silent reflection, and various self-compassion exercises while in a focused and supportive setting. The exercises and practices in the program provide participants with a range of ways to increase self-compassion. The ultimate goal of these experiences in the MSC program is to be in the presence of personal suffering with a sense of safety so that the pain is felt, and the process of healing can begin.

Trained MSC facilitators, having completed the MSC Teacher Program, followed the updated 2019 MSC Teacher Guide (Germer & Neff, 2019). Fidelity was maintained through clinical supervision by a MSC Certified Teacher and National Mindfulness Consultant for the Department of Veteran Affairs with expertise teaching the interventions to veterans via audio

recordings of the group sessions. All study audio sessions were reviewed for Cohort 1, and audio review was completed on an as needed basis thereafter based on therapist needs and supervisor discretion. The use of trained MSC facilitators, biweekly supervision, and review of audio recordings ensured the program contained at least 85% of the content in the Teacher Guide as recommended.

In order to meet population needs, the following minimal modifications were made: (1) acknowledging military culture, (2) using veteran-centric language, and (3) using examples consistent with military culture and experiences. For this study, we also adapted the standard MSC structure to meet the needs of the population and the frequently changing demands of engaging in mental health care amidst the COVID-19 pandemic. Each session was 2 hours long (reduced from 2.5), with a two-hour retreat between sessions 5 and 6 for Cohorts 1–3 (reduced from 4 hours) and delivered in a group format by two certified MSC Teachers. A priori, we considered those who attended at least five out of the eight planned group sessions as treatment completers.

Measures

Baseline assessment only

Screening and control measures. Basic demographic information (e.g., age, gender, race/ethnicity), as well as military service information (e.g., branch of service, rank, number of deployments), was collected at the baseline assessment. The number and type of lifetime traumatic events was assessed by the Life Events Checklist (Blake et al., 1995) to describe the study population and establish one or more Criterion A events for PTSD diagnosis.

Structured Clinical Interview Patient Edition, Section E (SCID-I/P). The SCID-I/P (First et al., 2016) was administered at baseline to assess for the presence of substance use disorders (in the past year) based on DSM-5 criteria. Diagnostic information from the SCID-I/P was used to assess eligibility criteria as well as for descriptive purposes.

Moral Injury Events Scale (MIES). The MIES (Nash et al., 2013) is a 9-item scale measuring exposure to events in a military context with the potential to contradict deeply held moral beliefs and yields three subscales: (1) perceived transgressions committed by self (e.g., "I violated my own morals by failing to do something that I felt I should have done"), (2) others (e.g., "I saw things that were morally wrong"), and (3) perceived betrayals (e.g., "I feel betrayed by fellow service members who I once trusted"). Participants rate their agreement/disagreement with each situation (1 = strongly disagree to 6 = strongly agree). For this study, the MIES was used to assess if participants had experienced a morally injurious event as captured by at least one "slightly agree" (≥4) on the 9 items. The mean total score was also used for descriptive purposes. For the present sample, the McDonald's Omega was 0.79.

All assessment timepoints

Feasibility. Data regarding rates of recruitment, enrollment in the study, retention, drop out, and attendance at study sessions were used as measures of feasibility.

Self-Compassion Scale (SCS). The SCS (Neff, 2003) is a 26-item scale that assesses the positive and negative aspects of the three main components of self-compassion: Self-Kindness/Self-Judgment; Common Humanity/Isolation; and Mindfulness/Over-Identification. Responses are provided on a 5-point scale, from 1 (almost never) to 5 (almost always). Total self-compassion scores were calculated by reverse-scoring the negative subscale items (self-judgment, isolation, and overidentification) and then computing a total mean, with higher scores reflecting higher levels of self-compassion. As a guide, average SCS scores are around 3.0 on the 1–5 Likert scale with 1–2.49 indicating low self-compassion, 2.5–3.5 indicating moderate levels, and 3.51–5.0 indicating high self-compassion (Neff, 2003). In the current study, the McDonald's Omega was 0.89.

Trauma-Related Guilt Inventory (TRGI). The TRGI (Kubany et al., 1996) is a 32-item self-report measure assessing traumatic guilt related to an index event and includes three subscales: Global Guilt, Distress, and Guilt Cognitions. In the current study, the McDonald's Omega was 0.77 for global guilt, 0.90 for guilt cognitions, and 0.93 for distress.

Trauma Related Shame Inventory (TRSI). The TRSI (Øktedalen et al., 2014) is a 24-item self-report measure that assesses internalized and externalized shame within the context of trauma. Respondents are asked to rate experiences of trauma-related shame during the past 7 days using a 4-point Likert scale (0 = not at all correct about me; 3 = completely correct about me). The total TRSI score is formed by summing

responses, with scores ranging between 0 and 72 (higher scores indicate greater symptomatology). In the current study, the McDonald's Omega was 0.98.

Clinician Administered PTSD Scale for DSM-5 (CAPS-5). The CAPS-5 (Weathers et al., 2013) is a semi-structured diagnostic interview and is widely regarded as the "gold standard" for determining a PTSD diagnosis and symptom severity. The CAPS-5 yields a total severity score (range 0–40) and a PTSD diagnosis (present/absent). In the present study, CAPS-5 ratings were based on current symptoms (past 30 days). In our sample, the McDonald's Omega was 0.73.

PTSD Checklist for DSM-5 (PCL-5). The PCL-5 (Weathers et al., 2013) is a 20-item self-report measure of DSM-5 symptoms of PTSD on a 5-point scale, from 0 (not at all) to 4 (extremely). The PCL-5 yields a total symptom severity score (range 0–80). In the present study, the McDonald's omega was 0.94.

Timeline followback. TLFB (Sobell & Sobell, 2007) interview gathers information about drug (e.g., non-prescribed medications, overuse of prescribed medications, benzodiazepines, cocaine, opiates, heroin) and alcohol use over the past 90 days (at baseline). The TLFB was completed at baseline, post-intervention, and one-month follow up, yielding a continuous record across all phases of study participation. Data from the TLFB were used to calculate days used alcohol, average number of drinks consumed per occasion, and days used any drug.

Post-treatment follow-up assessment only

Acceptability. The Client Satisfaction Questionnaire (CSQ; Larsen et al., 1979) is an eight-item questionnaire assessing general satisfaction and acceptability of treatment. Participants are asked to rate satisfaction on a 4-point scale, with a possible range of 8–32, with higher scores indicating greater satisfaction. We also included a study-specific qualitative feedback measure consisting of seven open-ended questions regarding participants' experiences in the study. Sample items include, "What did you find most helpful about the MSC program?" and "What made it difficult to attend the MSC program?"

Data analyses

Our analytical approach focused primarily on evaluating the feasibility and acceptability of MSC for veterans with PTSD-SUD and moral injury as determined by: (1) whether recruitment met proposed targets within the timeframe ($N = 24$ participants in approximately 12 months); (2) rates of session attendance (expected retention rate of a least 70%); (3) dropout; (4) completion of assessments (completion of a minimum of 75% of post-treatment and follow-up assessments); and (5) participant satisfaction ratings and qualitative feedback regarding study participation (>24 of possible 32 points, mostly-to-very satisfied). We considered those who attended 5 out of 8 planned group sessions as treatment completers.

Fourteen participants attended 5 or more sessions and had complete baseline and at least one post-treatment assessment timepoint allowing for examination of clinically meaningful change. We examined PTSD symptoms, self-compassion, trauma-related guilt, trauma-related shame, quality of life, average number of drinks consumed per occasion, and days using drugs (past 90 days). Given the disruption caused by COVID-19 and the subsequent differences in delivery of the intervention and structure (in-person vs. telehealth), we elected to present and examine clinically meaningful change per group (e.g., Cohorts 1 & 2, Cohort 3, and Cohort 4; See Table 1). Consistent with behavioral therapy research, we defined clinically meaningful change as a reduction or increase in scores by at least one standard error of measurement (SEM; Eisen et al., 2007). The SEM was calculated for each measure using the standard deviation of the group sample at baseline multiplied by the square root of one minus the reliability coefficient.

Results

Participants

Overall, 76.5% ($n = 26$; M age = 50.92; 100% male) of eligible participants who completed the baseline assessment enrolled in MSC by attending the first session (See Figure 1 for the Consort Diagram). Basic characteristics of the 26 participants are summarized in Table 2. Unfortunately, little information was available about the individuals who did not attend any sessions, as most failed to respond to our efforts to contact them. Of those who enrolled in MSC, 18 (69.2%) attended the necessary 5 of 8 sessions in order to be considered a completer. Four participants discontinued MSC after the first session due to: schedule change (1), not wanting to participate in a group format (1), length of the group (1), and unknown reason (1). In addition, one participant discontinued

Table 1. Completers with Pre- and Post-treatment Data (≥5 Sessions; $n = 14$).

	Cohort 1 & 2 ($n = 4$)			Cohort 3 ($n = 5$)			Cohort 4 ($n = 5$)		
	Baseline	Post-Tx	One Mo FU	Baseline	Post-Tx	One Mo FU	Baseline	Post-Tx	One Mo FU
Outcome	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)
CAPS-5	47.75 (7.09)	46.25 (6.55)	41.33 (12.66)	43.40 (6.11)	36.00 (9.72)	30.20 (12.46)	37.40 (7.89)	29.60 (20.31)	32.20 (24.82)
PCL	66.67 (4.04)	60.5 (0.71)	58.33 (9.29)	52.60 (24.06)	47.20 (15.40)	42.80 (21.02)	56.60 (11.15)	46.40 (18.28)	43.60 (21.51)
SCS	2.14 (1.11)	2.24 (0.70)	2.98 (0.11)	1.90 (0.41)	2.39 (0.34)	3.35 (0.23)	2.09 (0.51)	2.73 (0.93)	3.18 (0.40)
TRGI									
Global	1.81 (0.83)	1.38 (0.53)	1.5 (0.66)	1.75 (0.50)	1.90 (0.55)	2.05 (0.41)	1.50 (0.25)	1.90 (0.68)	2.15 (0.89)
Distress	3.58 (0.83)	3.5 (0.24)	3.33 (0.58)	3.00 (1.50)	2.73 (1.07)	2.63 (1.32)	2.96 (0.42)	2.80 (0.79)	2.43 (1.11)
Cognitions	1.98 (1.52)	3.0 (.40)	2.78 (0.52)	2.14 (0.44)	1.68 (0.56)	1.35 (0.45)	1.58 (0.55)	1.02 (0.53)	0.85 (0.61)
TRSI	36.75 (30.57)	50.5 (13.44)	40.00 (20.95)	37.00 (15.48)	20.40 (9.61)	16.60 (7.27)	20.25 (5.56)	21.40 (7.27)	20.00 (10.98)
Q-LES-Q-SF	36.67 (4.16)	34.5 (0.71)	38.33 (2.31)	34.60 (6.88)	42.00 (6.67)	38.80 (7.85)	35.40 (7.96)	35.60 (8.26)	37.60 (9.29)
Days used Alc	35.5 (40.58)	14.25 (24.66)	23.25 (43.23)	44.50 (50.23)	22.00 (44.00)	25.5 (41.49)	78.67 (9.24)	58 (50.24)	35.00 (38.35)
Avg drinks/ occasion	9.07 (7.98)	3.21 (5.00)	1.72 (1.22)	8.52 (10.32)	1.41 (1.70)	2.50 (2.49)	10.26 (1.24)	3.47 (4.90)	1.28 (1.80)
Days used drugs	65.33 (42.72)	29.00 (50.23)	0.00 (0.00)	61.33 (46.19)	58.00 (50.23)	58.67 (50.81)	61.50 (24.75)	71.00 (22.63)	38.00 (39.64)

Note. CAPS-5 = Clinician Administered PTSD Scale-5 Total Severity Score; SCS = Self-Compassion Scale Total Score; TRGI = Trauma Related Guilt Inventory; TRSI = Trauma Related Shame Inventory Total Score; Avg Drinks/Occasion = Average number of drinks per drinking occasion; Q-LES-Q-SF = Quality of Life Enjoyment & Satisfaction Total Score.

after the second session (unknown reason). Of the remaining three non-completers, two discontinued after attending three sessions (one due to incarceration and the other reason unknown) and one after four sessions (unknown reason). Four of the participants who completed treatment did not complete the post-treatment assessment. We attempted to reach all participants to ascertain their reasons for not completing the study. Comparisons between treatment completers and noncompleters on demographic variables (age, number of deployments) and baseline assessment scores yielded no significant differences.

Feasibility

Based on the indices that we set a priori, feasibility was partially demonstrated in this study. Recruitment took place over an 18-month period, inclusive of a 6-month pause due to the need to switch to a telehealth modality for COVID-19 safety precautions, and the recruitment target ($N = 24$) was easily met. Participants attended an average of 5.35 sessions and dropout from therapy was relatively low (30.8%) for a comorbid veteran sample, although our expected retention rate of 70% was just missed. Of note, the telehealth modality (Cohort 4) appeared to be popular as recruitment was more easeful in comparison with the in-person cohorts, an indication that the telehealth modality was appealing among this sample. With regard to assessments, our goal for end of treatment and one-month follow-up completion rates was 75%. We surpassed this mark for the post-treatment ($n = 15$; 83.3%) and one-month follow-up ($n = 14$; 77.8%) assessment among those who completed the intervention. However, we fell short for overall rates for completion of both post-treatment assessments for all enrolled participants (completers and non-completers; $n = 26$); completion rates were 57.7% and 53.8% respectively. Unfortunately, we have little information available regarding individuals who did not attend either timepoint, as most did not respond to our efforts to contact them.

Safety

There were four serious adverse events (SAEs) which took place during the follow-up period and were deemed unrelated to the study: hospitalization for detoxification (1), medical hospitalization (1), and death related to medical complications (2). There was one unrelated adverse event: incarceration (1).

Acceptability

On the Client Satisfaction Questionnaire ($n = 12$), each item was scored on a scale of 1–4, and a total average was calculated with higher values indicating greater satisfaction. Based on the indices we set a priori, our acceptability target was met. The average rating on a scale of 8–32 was 27.1 (4.25), indicating that participants were mostly to very satisfied with the treatment they received. During the trial, we added a measure to obtain additional qualitative feedback from participants regarding their experiences with study participation ($n = 7$). Comments included, "I used to wake up each morning and look at myself in the mirror and say, "I hate you" and "you are a bad person." I find myself doing this substantially less" and "I still practice formal mindfulness every day and I have incorporated self-compassion into my daily life, like when I am

Table 2. Sample Characteristics ($n = 26$).

Variable	N or Mean (SD)	%
Male	26	100
Age	50.92 (15.59)	
White	26	100
Hispanic or Latino	0	0
Living situation		
Homeless/staying with family/friends	1	3.8
Own	17	65.4
Rent	8	30.8
Relationship status		
Single	5	19.2
Married or in a committed relationship (living together)	15	57.7
Separated	1	3.9
Divorced	5	19.2
Highest level of education		
High school grad/general education development	6	23.1
Some college/technical school	13	50.0
College grad	2	7.7
Post-graduate/professional degree	5	19.2
Employment		
Unemployed	6	23.1
Unemployed due to disability	4	15.4
Employed, part-time	2	7.7
Employed, full-time	6	23.1
Retired	6	23.1
Other	2	7.7
War period		
Vietnam	7	26.9
Post-Vietnam	2	7.7
Gulf	4	15.4
OIF/OEF/OND	15	57.7
Gulf and OIF/OEF/OND	2	7.7
Trauma type for lifetime exposure		
Fire or explosion	3	11.5
Exposure to toxic substance	1	3.8
Assault with a weapon	2	7.7
Sexual assault	2	7.7
Combat or exposure to warzone	4	15.4
Life-threatening illness or injury	2	7.7
Severe human suffering	1	3.8
Sudden violent death	6	23.1
Serious injury, harm, or death you caused to someone else	4	15.4
Other	1	3.8
CAPS-5 Severity Score	41.33 (8.98)	
PCL-5 total	57.67 (17.01)	
Self-Compassion Total Score (SCS)	2.27 (0.64)	
Trauma-Related Guilt Inventory (TRGI)		
Global guilt	1.83 (0.61)	
Distress	3.05 (0.93)	
Guilt cognitions	1.58 (0.84)	
Trauma Related Shame Inventory (TRSI)	26.84 (20.09)	
MIES*	4.21 (11.22)	
Quality of Life Enjoyment and Satisfaction Questionnaire (Q-LES-Q-SF)	38.27 (9.13)	
Alcohol use disorder (past year)	18	69.2
Substance use disorder (past year)	14	53.8
Both alcohol use disorder and substance use disorder (past year)	6	23.1
Days used alcohol (past 90 days; n = 17)	56.94 (39.26)	
Days used drugs (past 90 days; n = 13)	70.77 (27.67)	

Note. OIF/OEF/OND = Operation Iraqi Freedom/Operation Enduring Freedom/Operation New Dawn; CAPS-5 = Clinician Administered Posttraumatic Stress Disorder Scale; PCL-5 = Posttraumatic Stress Disorder Checklist; MIES = Moral Injury Events Scale.

*Number represents total mean score for the MIES. All 26 participants (100%) identified at least one morally injurious event as "strongly agree" in order to be eligible for the study.

driving." Additionally, one veteran disclosed his trauma for the first time in individual treatment after feeling supported, safe, and inspired by others in the MSC group – "It made me realize that I can talk about what happened to me too." Several participant responses also noted the positive social support and aspects of common humanity (e.g., "Nice to be in group of veterans who were going through same things, accepted one another and trying to get better.").

Clinically meaningful change

We examined clinically meaningful change on a number of outcomes for treatment completers (attending

Table 3. Pre- and Post-treatment Change.

Pt. #	Pre/Post Change CAPS	CMC (Y/N)	Pre/Post Change SCS	CMC (Y/N)	Pre/Post Change TRGI-Global	CMC (Y/N)	Pre/Post Change TRGI-Distress	CMC (Y/N)	Pre/Post Change TRGI-Cognitions	CMC (Y/N)	Pre/Post Change TRSI	CMC (Y/N)	Pre/Post Change Avg Drinks	CMC (Y/N)	Pre/Post Change Q-LES-Q-SF	CMC (Y/N)
1	+0	N	+1.73	Y	0	N	−0.33	Y	−0.14	N	−8	Y	0.00	N	−3	N
2	+2	N	+1.88	Y	0	N	−0.33	Y	−0.43	N	−14	Y	−13.28	Y	−1	N
3	−24	Y	+0.26	Y	0	N	+0.33	Y	+1.4	Y	−2	N	−12.22	Y	+9	Y
4	−1	N	−0.49	Y	0	N	0	N	−0.14	N	−1	N	0.00	N	+1	N
5	−1	N	+1.21	Y	0	N	−0.50	Y	−1.43	Y	−36	Y	0.00	N	−8	Y
6	−18	Y	+1.06	Y	+0.75	Y	−0.17	N	0.00	N	−22	Y	0.00	N	+3	N
7	−18	Y	+1.08	Y	−0.25	N	0.00	N	−0.48	N	+3	N	−17.46	Y	+9	Y
8	−2	N	+1.71	Y	+1	Y	−0.50	Y	−1.33	Y	−11	Y	0.00	N	+10	Y
9	−27	Y	+2.20	Y	+0.25	N	−0.67	Y	−0.71	Y	−36	Y	−0.61	N	+7	Y
10	15	Y	+2.60	Y	−0.25	N	0	N	+0.10	N	+8	Y	0.00	N	+5	Y
11	8	Y	+0.63	Y	0	N	−0.5	Y	−0.62	Y	+6	Y	−13.28	Y	+1	N
12	−17	Y	+0.86	Y	0	N	−1.5	Y	−1.93	Y	−21	Y	−6.84	Y	+8	Y
13	−34	Y	+0.41	Y	+1.25	Y	−1.33	Y	−1.71	Y	−5	Y	−11.14	Y	+1	N
14	2	N	+0.95	Y	+1	Y	−0.5	Y	+0.52	Y	+4	N	0.00	N	−2	N

Note. Pre/post change directionality is identified by +/-. The hypothesized direction for CAPS-5, TRGI, TRSI, Avg Drinks was a reduction in score (-), while the hypothesized direction for the SCS and Q-LES-Q-SF was an increase in scores (+). CMC reflects a decrease of at least 1 standard error of measurement in CAPS-5, TRSGI, TRSI, and Avg Drinks, and an increase of at least 1 standard error of measurement on the SCS and Q-LES-Q-SF. CMC indicates clinically meaningful change; CAPS-5 = Clinician Administered PTSD Scale-5 Total Severity Score; SCS = Self-Compassion Scale Total Score; TRGI = Trauma Related Guilt Inventory; TRSI = Trauma Related Shame Inventory Total Score; Avg Drinks = Average number of drinks per drinking occasion; Q-LES-Q-SF = Quality of Life Enjoyment & Satisfaction Total Score.

≥5 sessions) with complete pre- and post-treatment data ($n = 14$; See Table 1). We examined CAPS-5 total severity scores, SCS total score, TRGI subscales: global guilt, guilt related distress, and guilt cognitions, TRSI total score, average number of drinks consumed per drinking occasion, and the Q-LES-Q-SF total scores individually (Table 3). Thirteen participants exhibited a meaningful increase in self-compassion along with 6 participants showing a meaningful increase in quality-of-life enjoyment and satisfaction. Six showed a meaningful decrease in PTSD on the CAPS-5. Participants also showed a meaningful decrease in distress related to guilt (n = 9), guilt cognitions (n = 6) and shame (n = 8), however an increase in global guilt was found for 4 participants. We also observed a clinically meaningful reduction in average number of drinks consumed per occasion for 6 participants. No meaningful change was found for days using other substances. All but one of the group members showed a clinically significant improvement in self-compassion; this group member also did not show any improvement in trauma-related symptoms including guilt and shame or quality of life.

Discussion

The goal of this study was to evaluate the feasibility and acceptability of delivering MSC to military veterans with co-occurring PTSD-SUD and moral injury. We also examined clinically meaningful change in self-compassion and mental health symptoms related to trauma. We hypothesized that this group approach would be feasible and acceptable to veterans, and that participants would endorse enhanced self-compassion, reduced posttraumatic guilt and shame, reduced symptoms of PTSD, reduced average number of drinks consumed per occasion, reduced days using substances, and improved quality of life.

Due to the disruption caused by COVID-19, the four group cohorts experienced different delivery modalities (in-person vs. telehealth) and structure, and therefore we were unable to aggregate data across the four groups. Despite this challenge, we found the MSC program to be mostly feasible to deliver both via in-person and telehealth in that we easily met our recruitment goals and were able to engage and retain a sample of veterans with comorbid PTSD-SUD in the protocol. The intervention completion rate in the present study (69.2%) is on the higher end of other PTSD-SUD programs, which have completion rates ranging from 50% to 70% (Roberts et al., 2015). This is notable given the well-documented challenges in engaging veterans with complex clinical presentations in mental health treatment and is consistent with the Whole Health goals of patient-centered interventions (Kligler et al., 2022). Indeed, our safety data including the SAEs and AEs (deemed unrelated to the study) experienced by veterans during the course of the project point to the diagnostic complexity and impaired health in this population. While the small sample size limits our ability to make any determination of significant differences across the in-person and telehealth cohorts, anecdotally the ease of recruitment for the telehealth sample was notable and retention was comparable to the in-person cohorts. Based on quantitative and qualitative data, the program was also acceptable to veterans.

Also consistent with our hypotheses, we observed clinically meaningful increases at the individual level in self-compassion, as well as reductions in PTSD symptoms, guilt-related cognitions and distress, trauma-related shame, and average number of drinks per occasion. We did not observe improvements in global guilt or days using drugs in contrast to our hypotheses. In fact, a clinically meaningful increase was observed in global guilt despite the decrease in guilt-related distress and cognitions. One potential explanation for this finding may be that, given the nature of the MSC program to enhance mindful awareness of emotions, participants were overall more aware of this distressing emotion. Veterans with co-occurring PTSD-SUD often utilize substances to avoid painful emotions such as guilt. Therefore, in reducing substances and enhancing mindful awareness, guilt may indeed intensify or increase prior to healing. Despite the increase in global guilt, the decrease in guilt-related distress and cognitions may be an indication of the participants' ability to hold their guilt with enhanced self-compassion.

To our knowledge, this is the first study of its kind, as MSC has not been studied in veterans with comorbid PTSD-SUD previously. The demonstration of feasibility and acceptability is encouraging as there is currently no gold standard treatment for comorbid PTSD-SUD (Roberts et al., 2022).

Limitations and future research

The findings from this study should be considered in light of its strengths and limitations. The longitudinal design, use of clinician-administered diagnostic interviews, and inclusion of veterans with complex clinical presentations which yields a more representative sample of patients with co-occurring PTSD-SUD than is often included in clinical research studies, may be considered strengths.

On the other hand, the feasibility nature of this research did not permit us to compare MSC with a waitlist condition or other comparison groups. We were therefore not able to determine whether our results were due to participation in MSC or a function of participating in treatment as usual. Future research should compare MSC with a control and an active comparison group. Further, our small sample size, while appropriate for this stage of research, precludes conclusions regarding efficacy and the non-completion rate for follow-ups was unexpected though occurred during the midst of the COVID-19 pandemic. Additionally, our evaluation was limited to program completers. This may inflate the program's effectiveness as those who benefit from the intervention are more likely to continue and complete it than those who drop out. Our sample consisted solely of white male veterans; thus, these results may not generalize to more diverse samples or those with other types of traumatic exposure. Future research with MSC should include more diverse samples to examine cultural and gender differences in treatment engagement and tolerability of MSC. Finally, there are concerns regarding the use of the MIES in terms of conflation of potentially morally injurious events with distress related to those events. At the time that the study was conceived, there was no gold standard measure for assessing the distress associated with moral injury. Future research would do well to elect a measure of distress related to moral injury, such as the Expressions of Moral Injury Scale-Military Version (EMIS-M; (Currier et al., 2018)).

Findings from this feasibility study will inform future research with larger samples and fully powered designs in order to further examine the efficacy of MSC with veterans. While these preliminary findings are encouraging, it is unlikely that MSC will be a standalone treatment for PTSD (or PTSD-SUD), as the co-occurrence of these disorders requires a multi-pronged approached to treatment. Incomplete response to existing therapies (Steenkamp et al., 2020) and low rates of engagement in trauma-focused treatment (Haller et al., 2016; Schottenbauer et al., 2008) among the veteran population can be a barrier to healing. Recent findings support that self-compassion can facilitate recovery by serving as a protective factor against self-stigma and service disengagement (Chan et al., 2023). Therefore, clinicians may do well to incorporate training in self-compassion within their individual and group sessions to serve as a powerful resource for veterans engaged in PTSD-SUD treatment.

As VA psychologists who wear both clinical and research hats, we are interested in the question of optimal sequencing of mindfulness-based interventions, including MSC, and evidence-based psychotherapies for Veterans with PTSD-SUD and moral injury. This question has not yet been examined in the literature. As such, an important future direction is to evaluate MSC in combination with other trauma-related therapies, particularly those targeting guilt and moral injury (e.g., Impact of Killing (Maguen et al., 2017) and Trauma Informed Guilt Reduction (Capone et al., 2021; Norman et al., 2022).

This initial feasibility study demonstrates the promise of MSC as a novel approach for enhancing self-compassion and reducing trauma-related symptoms, particularly shame and guilt, in veterans with

co-occurring PTSD-SUD and moral injury. These findings will inform future work in establishing the efficacy and effectiveness of MSC as an adjunct treatment approach for veterans.

Acknowledgments

These data were presented as part of a Symposium, *Innovations in PTSD Treatment for Military Personnel and Veterans,* at the 39th annual convention (2023) of the International Society of Traumatic Stress Studies, Los Angeles, CA.

Disclosure statement

C.G. is a co-developer of the Mindful Self-Compassion program, and he receives royalties from books and stipends from workshops on mindfulness and self-compassion. All other authors declare that they have no conflicts of interest.

Funding

This research was funded by the Providence VA Medical Center Rehabilitation Research and Development Service (RR&D); SPiRE Award Program (PI: Eaton). The views expressed in this article are those of the authors and do not necessarily represent the views of the United States government or the Department of Veterans Affairs. The trial was registered with clinicaltrials.gov: NCT03681288.

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