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Mindful Self-Compassion (MSC) with Veterans: a Program Evaluation

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Abstract

Objectives This pilot study explores the impact of Mindful Self-Compassion (MSC) in veterans. Self-compassion, the capacity to hold one's suffering with kindness and a wish to alleviate it, is associated with improvements in well-being. Veterans have more medical conditions than non-veterans and higher prevalence rates of severe pain. Acceptability of the intervention with veterans is assessed along with the impact of MSC on the physical, mental, and social health of the participants.

Methods A racially diverse, predominantly male group of veterans ($n = 80$) were assessed pre- and post-MSC group with the Patient-Reported Outcomes Measurement Information System (PROMIS) to evaluate physical, mental, and social health. Measures of self-compassion, happiness, self-report medication usage, and a global assessment of improvement measure were also included. Qualitative responses to the MSC program were also solicited and reviewed.

Results Engagement with MSC was high (74% completion rate) and 96% of treatment completers rated their participation in the intervention as positive. Completers demonstrated small to medium effect size increases in self-compassion, happiness, and social role satisfaction, 95% CIs (−6.13, −2.65), (−2.62, −1.06), and (−4.28, −1.05), and decreases in depression, anxiety, fatigue, and pain interference, 95% CIs (0.44, 4.13), (0.57, 4.84), (0.43, 3.71), and (0.13, 2.70). In exploratory analyses related to pain, veterans taking pain medication reported a significant decrease in use ($\chi^2(2, N = 47) = 24.30$, $p < .001$).

Conclusions These results are suggestive of the positive effects of the MSC intervention to veterans, but await a randomized controlled trial to establish its effectiveness in this population.

Keywords Compassion · Mindfulness · Pain management · Self-compassion · Veterans

Scientific interest into compassion has proliferated in the past two decades along with the development of compassion-based interventions (Kirby et al. 2017). Interest in the use of compassion and mindfulness-based interventions in the Veterans Health Administration (VHA), the nation's largest healthcare system, has reflected this growth. In a large national survey of utilization and acceptability of Complementary and Integrative Health (CIH) interventions in VHA, mindfulness was one of the most widely used approaches with high effectiveness ratings from veterans (Goldberg et al. 2019). Yet, in this national survey, a majority of veterans (78%) were accessing mindfulness training outside of VHA. While mindfulness- and compassion-based interventions are closely related, they are not synonymous; at this time, there is no specific data about the utilization and acceptability of compassion practices in veterans. A growing body of research suggests differential effects of specific contemplative practices on attentional, cognitive, and socio-affective qualities in that some practices aim to explicitly enhance attention aspects while others explicitly target other components such as socio-affective (Hildebrandt et al. 2017). Closely related yet still distinct, mindfulness and compassion are complementary practices that can mutually enhance one another (Germer and Barnhofer 2017). These granular distinctions between various practices, essential to understand for the advancement of science, are less urgent currently in clinical settings where all of these interventions are more novel, and key foundational questions about possible benefits to the mental, physical, and social health of veterans have yet to be answered.

As a population, veterans have a poorer health status and a greater number of medical conditions than the general population (Eibner et al. 2016) and, since the current conflicts in Iraq and Afghanistan have begun, mental health diagnoses have increased substantially (Seal et al. 2009). Furthermore,

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veterans are more likely to have experienced recent physical pain than non-veterans and have significantly higher prevalence rates of severe pain than similar-aged non-veterans (Nahin 2017). The impact of contemplative practices, such as compassion-based interventions, in veteran populations may therefore be generalizable to other clinical populations with similarly complex health status.

There is little published research to date on compassion as it relates to veterans. In Iraq and Afghanistan war veterans, self-compassion was negatively associated with PTSD symptom severity and functional disability even after accounting for the strong relationship between PTSD and functional impairment (Dahm et al. 2015). A meta-analysis of 14 correlational studies in non-veterans demonstrated a significant, inverse relationship between compassion and psychopathology (MacBeth and Gumley 2012), suggesting that compassion is an important variable in understanding mental health.

Compassion-based interventional studies with veterans have also been very limited. A small study with homeless veterans found improvements in trauma-related guilt after completion of a self-directed self-compassion workbook (Held and Owens 2015). And in a small random controlled trial with 14 veterans in the compassion intervention arm receiving Cognitively-Based Compassion Training, participants had greater reduction in PTSD symptom severity compared with a relaxation-based active control (Lang et al. 2019). This preliminary work with veterans to date has focused on trauma, an important diagnostic concern with rates that vary widely from 5% of all veterans (Eibner et al. 2016) to 13.5% of veterans from Iraq and Afghanistan (Eber et al. 2013). How compassion training can benefit the larger health and well-being concerns of veterans is not known. More generally, mindfulness-based interventions with veterans have shown significant improvements in quality of life (Kearney et al. 2013) and depression, anxiety, and suicidal ideation (Serpa et al. 2014).

Previous studies of self-compassion in non-veteran populations have demonstrated improvements in both clinical and non-clinical samples. Past studies however have engaged primarily female samples with higher socioeconomic status and education levels, lower prevalence of psychopathology, and lower prevalence of chronic pain compared with that of veteran samples (Friis et al. 2016; Neff and Germer 2013). A recent meta-analysis of 27 self-compassion interventions reported significant improvements in 11 diverse psychosocial outcomes compared with that of controls (Ferrari et al. 2019). Of the 1480 participants in the meta-analysis, most were women in their thirties (76.7%) which may limit generalizability to a veteran population. Given the higher prevalence of psychopathology, pain and chronic health conditions in veterans, and given the differences in age and sex with most previously studied populations, it is important to understand if the cultivation of self-compassion through MSC is an acceptable and helpful intervention for veteran well-being.

This pilot project reports the use of Mindful Self-Compassion (MSC; Germer and Neff 2013) in a veteran population. The aims of this study are to (1) report the qualitative comments and dropout rates to determine if MSC appears to be an acceptable group intervention for veterans, (2) explore the impact of MSC on the physical, mental, and social health of veterans, (3) explore if prior completion of Mindfulness-Based Stress Reduction (MBSR; Kabat-Zinn 2003) improves MSC outcomes, and (4) explore if the intervention supports ongoing VA efforts to provide non-pharmacological treatments for pain management.

Methods

Participants

This study utilized routine, prospectively collected clinical data from the Greater Los Angeles Veterans Affairs Healthcare System. This multi-site, urban healthcare system provides comprehensive primary and specialty care services to more than 100,000 enrolled veteran patients. Situated within the facility's Center for Integrative Health, MSC groups draw participants from across the broad population at this VA.

Data specifically come from 12 MSC groups, conducted between January 2015 and January 2019. As a program evaluation, no power analysis was used to determine the needed sample size. Veterans learned about the intervention through clinicians, other veterans, or integrative health literature or they enrolled after completing MBSR. Following referral, facilitators conducted a brief medical record review to determine clinical appropriateness. Consistent with the intention to provide a transdiagnostic intervention, exclusion criteria were limited to advanced dementia and known threats to group safety. For the present study, no veterans were excluded from the group. Each group included veterans with chronic medical conditions, mental health concerns, and motivation to support overall wellness. Facilitators enrolled up to 20 veterans per group: Nine groups were open to all genders, and three were limited to veterans who identify as women. At least two facilitators led each group. Facilitators included clinicians trained in MSC through the University of California San Diego Center for Mindfulness and postgraduate trainees in varied mental health disciplines. The Institutional Review Board of the VA healthcare system granted an exemption to the study and determined it to be a quality improvement effort, and no compensation was offered to the study participants.

Participant demographics of treatment completers are presented in Table 1. The sample was predominantly male, and 46% identified as non-Caucasian. The sample was nearly evenly divided between MBSR graduates ($n = 42$, 52.5%) and those with no previous MBSR exposure ($n = 38$, 47.5%). Non-completers ($n = 33$, 26%) are defined as those

Table 1 Descriptive statistics of the sample

Variable	*n* (%)
Gender	
Male	57 (71.3%)
Female	23 (28.8%)
Age	*M* = 56.7, SD = 15.1
Ethnicity	
Caucasian	43 (53.7%)
Hispanic/Latino	10 (12.5%)
African American	22 (27.5%)
Other	5 (6.2%)
Session attendance	*M* = 7.8, SD = 0.9
MBSR	
Yes	42 (52.5%)
No	38 (47.5%)

n = 80

who completed fewer than 6 of the 9 group sessions. Six of nine classes, or two-thirds of the intervention, was the a priori definition of a completer and consistent with other mindfulness-based studies with veterans (Serpa et al. 2014). Treatment non-completers were significantly less likely to be MBSR graduates (27%), were predominantly male (97%), and were younger ($M = 50.2$, SD = 12.38). Treatment non-completers also had higher depression scores at baseline compared with treatment completers ($T = 61.8$, SD = 9.5 vs. $T = 57.6$, SD = 8.9). No other significant differences between completers and non-completers were observed across demographic or baseline measures.

Procedure

MSC is a resource-building intervention, rather than formal psychotherapy (Germer and Neff 2013). Conceptually, it teaches three elements that characterize self-compassion: (1) self-compassion, or being kind towards oneself in times of suffering; (2) common humanity, or recognizing challenge and imperfection as part of the shared human experience, and (3) mindfulness, or cultivating a balanced awareness that does not ignore or over-identify with imperfection, challenge, and suffering (Neff 2003). The structure of MSC mirrors MBSR, including eight weekly sessions, a retreat and daily practices. To ensure fidelity, facilitators followed the original (Germer et al. 2015) and updated (Germer and Neff 2017) MSC Teacher Guides. At the end of each class, facilitators reviewed course content to ensure the program contained at least 85% of the content in the Teacher Guide as recommended. Minimal modifications were introduced to meet population needs; these primarily focused on acknowledging military culture, employing a "common veteran experience" framework across all eras of military service, and using veteran-centric language. Participants met weekly for eight 2-h sessions and one 4-h meditation retreat. Weekly sessions included guided mindfulness or self-compassion meditations, self-compassion exercises, small group practices, discussions, and didactic content. Facilitators encouraged participants to practice outside sessions using written materials and audio recordings although no data is available to track between session engagement.

Measures

Participants received a 50-item written questionnaire at the first and final sessions. The questionnaire included three standardized measures: Patient-Reported Outcomes Measurement Information System 29-Item Profile Measure (PROMIS-29 Profile v2.0), Self-Compassion Scale - Short Form, and the General Happiness Scale. The post-intervention survey also included a Global Assessment of Improvement measure. One question each also elicited changes in pain medication use and changes in psychiatric medication use. Additionally, the post-intervention questionnaire invited narrative comments about experiences with the intervention. Basic demographic information, history of MBSR exposure, and number of sessions attended were collected as a routine part of care.

PROMIS

The PROMIS measures health-related quality of life across physical, emotional, and social domains (Cella et al. 2010). The PROMIS-29 is a validated adaptation tested in diverse clinical populations (e.g., persons with irritable bowel syndrome (IsHak et al. 2017), rheumatologic conditions, and fibromyalgia (Katz et al. 2016) and HIV (Schnall et al. 2017)). This version includes four items from each of the seven PROMIS domains: physical functioning, anxiety, depression, fatigue, sleep disturbance, ability to participate in social roles and activities and pain interference (Rose et al. 2018), the last of which includes the extent to which pain hinders engagement with the physical, emotional, social, and recreational activities of life (Amtmann et al. 2010). Each item asks participants to consider a question or statement about potential experiences over the past 7 days and to select one of five graded responses that best match their experience. For example, one item states: "In the past 7 days, my worries overwhelmed me." Participants select among five response options: "never (1), rarely (2), sometimes (3), often (4), or always (5)." A Scoring Manual was used to calculate a *T* score for each domain. Higher *T* scores suggest more of the concept described and may be either desirable (e.g., physical functioning) or undesirable (e.g., pain interference). A final question measures pain

intensity over the past 7 days on a 0–10 scale. Internal reliability of the measure for this sample was high (α = .85).

Self-Compassion Scale

The Self-Compassion Scale-Short Form (SCS-SF) assesses trait-level self-compassion (Kemppainen et al. 2013; Neff 2016; Raes et al. 2011). Previous MSC intervention studies indicate that this measure is responsive to treatment-related changes in self-compassion (Friis et al. 2016). The SCS-SF includes 12 items organized into six subscales: self-kindness, self-judgment, common humanity, isolation, mindfulness, and over-identification. Items measure the presence of compassionate and absence of uncompassionate responses for the three domains of self-compassion (Neff 2016). For each item, participants consider a statement (e.g., "When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people") and select one of five graded responses that best represents their experience (i.e., "almost never" to "almost always"). A total mean score, calculated after reverse scoring negative items, was used to represent self-compassion overall, consistent with recommendations for the SCS-SF (Neff et al. 2017; Raes et al. 2011). Internal reliability of the measure for this sample was high (α = .87).

Subjective Happiness Scale

The Subjective Happiness Scale (SHS) is a validated four-item scale that measures global subjective happiness (Lyubomirsky and Lepper 1999). One item each asks participants to characterize their absolute happiness, happiness relative to peers, extent to which a description of a happy person describes them, and extent to which a description of an unhappy person describes them. Items present a stem (e.g., "In general, I consider myself") and item-specific answer choices with a 1–7 Likert-type scale (i.e., "not a very happy person" to "a very happy person"). A mean score was calculated for the four items after reverse coding the fourth item (extent to which the description of an unhappy person describes them). Internal reliability of the scale for this sample was high (α = .88).

Global Assessment of Improvement

Two, single-item, global assessment of improvement (GAI) questions were asked at the conclusion of treatment to capture perceived benefits of the intervention: "Do you believe the MSC training and practice improved your symptoms?" and "Do you believe the MSC training and practice affected your overall well-being?" Responses were made on a 21-point scale from *made it much worse* (− 10), to *no effect* (0) to *made it much better* (+10). Participants' perceptions of improvement are assumed to integrate their experiences into a global subjective score of the impact on their symptoms and their overall well-being. Not previously used or validated in studies of contemplative interventions, the GAI scale is more often used to assess participant subjective improvement in medication trials (Pleil et al. 2005; Schnitzer et al. 2019). It was included here to capture the participants' subjective response to the intervention on symptoms and overall well-being in this heterogeneous population.

Data Analysis

Examination of histograms was conducted to ensure that mean differences were relatively normally distributed across all outcomes. Group dropout rates were determined by tracking the numbers of veterans enrolled in the class and calculating percentages of non-completers. Among 93 veterans who completed either the initial or final questionnaire, we focus analyses on 80 participants who completed both questionnaires and the intervention. Four participants completed the pre- and post-measure but did not attend the minimum number of sessions required to be exposed to two-thirds or more of the intervention and were therefore excluded from the analysis. Completion of the measures was not required to receive the intervention. Six veterans chose not to complete the pre-measure and three did not complete the post-measure. Data were entered and cleaned by study authors, who coded illegible or blank responses as missing values. Missing values were imputed using multiple imputation as it may be the least biased estimate (National Research Council 2010). Five iterations of imputation were completed, and final results were pooled across all imputations. Results presented here are from imputed analyses. Sensitivity analyses suggested these did not differ significantly from complete case analysis findings.

Paired samples *t* tests were conducted comparing participants' baseline scores with their self-reported scores after completing the intervention to explore the association between the MSC intervention and the outcomes. Effect size was calculated by using Rubin's rules (Rubin 1987). Cohen's *d* was computed for each imputation, and an overall mean was obtained across the five estimates.

Changes in scores also were compared by gender and MBSR participation to understand potential differences in intervention effects between men and women and MBSR graduates versus veterans without prior MBSR exposure, respectively. Chi-square analyses were performed on reports of changes in psychiatric and pain medications. Statistical significance was set at the conventional $p = 0.05$ level. All analyses were performed in IBM SPSS Statistics version 23 (2018).

Results

Acceptability of Mindful Self-Compassion

Sixty-eight of the 80 participants (81%) responded to the open-ended question: "Please share with us your experience of the MSC program." A qualitative review of the responses rated nearly all (96%) as positive with two as neutral/mixed (3%) and one as negative (1.5%). A sample of the qualitative responses is presented in Table 2.

For the question "Do you believe the MSC training and practice improved your symptoms?," the participants rated their global symptom improvement as moderate to high ($M = 7.13$, SEM = 097) where − 10 is "made it much worse," 0 is "no effect" and + 10 is "made it much better." None of the participants rated the intervention as making their symptoms worse; 1.25% of the sample rated the intervention as having no impact on their symptoms; 98.75% rated the intervention as having a positive impact on their symptoms. Likewise, the question "Do you believe the MSC training and practice affected your overall well-being?" was high ($M = 7.32$, SEM = 0.27). Similarly, not one participant in the sample indicated that the intervention made their overall well-being worse, 98.75% rated the intervention as having a positive impact on their symptoms, and 1.25% of the sample rated the intervention as having no impact on their overall well-being.

Table 2 Participant comments

Negative ($n = 1$, 1.5%)

- Sometimes group-based programs increase my anxiety so it is hard to be present or get much out of the group.

Neutral/mixed ($n = 2$, 3%)

- This is a wonderful class for my betterment. I do not feel like I was ready for this class. Perhaps down the road I will be more receptive.
- This is a great way to delve into emotional pain and I would love to see a continuation course. I have a hard time doing this on my own.

Positive ($n = 65$, 96%, sample)

- This class has changed my life forever. Everyone I come in contact with notices the peace, calm and compassion I share with the world.
- This class helped me to get back to myself; content, confident, and optimistic. I would like to see this class as part of the standard repertoire of classes offered by all Vas across the country.
- Great class! Practices created less pain, less tension, resulting in the need for reducing my anxiety medication.
- The MSC classes are helping me deal with my issues of PTSD and anger. I am doing a lot better in handling all my triggers. Thank you for the help.
- I cannot believe it took me so long to find this class. Everyone should have an introduction to MSC. The world could use a lot more love and kindness and with this class I'm able to offer that.
- I'm very surprised by this course. I have worked my recovery in AA for many years but this has really helped me by adding something different. I had no idea how harsh and nasty I am to myself. But I can do something about that now.
- This class confirmed I'm only human and not alone in many ways. It's given me tools to help get unstuck and move forward in challenging times.
- I got taken off my anti-depressant. Thanks MSC, you helped me!
- I think everybody needs to be exposed to this wisdom.

Intervention Outcomes

The self-reported baseline PROMIS domains in this clinical, transdiagnostic sample are reported in standardized, T scores that allows a comparison between this sample and the US general population (see Table 3). Following the guidelines for recommended cut-points to create discrete categories for patient-reported outcomes (Shi et al. 2019), the sample is in the average range for only one domain (sleep disturbance). Three domains (depression, social role functioning, and fatigue) indicate that the sample is in the mildly impaired range and the final three domains (anxiety, pain interference, and physical functioning) are in the moderately impaired range of functioning. To test MSC outcomes with veterans, paired samples t tests were conducted comparing participants' self-reported baseline scores with their scores after completing the intervention. There were significant differences in self-compassion, happiness, depression, anxiety, social role satisfaction, fatigue, and pain interference, such that self-compassion, happiness, and social role satisfaction increased while depression, anxiety, fatigue, and pain interference decreased. Effect sizes ranged from small- to medium-sized effects (see Table 3). No significant changes were noted on the single-item psychiatric medication question. As men outnumbered women in the sample by a factor of 2.5:1, independent sample t tests using Levene's test to account for possible heterogeneity of variances were conducted to determine whether baseline or change scores differed by gender. No significant differences between men and women were found.

Previous Mindfulness Exposure

Changes in outcome measures were not different based on previous participation in MBSR, although baseline differences in self-compassion were significant ($t(78) = -21.99$ $p < .05$) between those who had previously completed MBSR ($M = 35.02$, SEM = 1.51) and those who did not ($M = 30.86$, SEM = 1.42) indicating that MBSR graduates had higher levels of self-compassion prior to starting MSC. MBSR graduates ($M = 8.21$, SD = 0.7) also had a higher level of overall engagement with the treatment compared with non-MBSR graduates ($M = 7.4$, SD = 1.8) as measured by average session attendance, $t(63) = -3.56$, $p < .001$.

Table 3 Descriptive statistics and *t* test results for Self-Compassion, Happiness, and PROMIS Scales

Outcome	Pre-MSC Tx		Post-MSC Tx							
	M	SEM	M	SEM	*n*	95% CI for mean difference	*r*	*t*	df	*d*
Self-compassion	33.13	1.06	37.52	1.07	80	−6.13, −2.65	.66	−4.94***	79	−0.57
Happiness	16.41	0.60	18.25	0.60	80	−2.62, −1.06	.81	−4.64***	79	−0.55
Depression	57.48	1.02	55.19	1.15	80	0.44, 4.13	.64	2.42**	79	0.28
Anxiety	60.41	1.15	57.70	1.13	80	0.57, 4.84	.55	2.48*	79	0.28
Social role satisfaction	43.55	0.94	46.22	0.95	80	−4.28, −1.05	.62	−3.24***	79	−0.38
Fatigue	56.36	0.94	54.29	0.95	80	0.43, 3.71	.66	2.48**	79	0.28
Pain interference	60.37	0.92	58.94	0.91	80	0.13, 2.70	.75	2.17*	79	0.25
Physical fx	32.13	0.81	31.78	0.79	80	−0.52, 1.22	.84	0.78	79	0.08
Sleep disturb	53.51	0.38	52.63	0.53	80	−0.23, 2.00	.25	1.54	79	0.17

*$p < .05$

**$p < .01$

***$p < .001$

Impact on Pain The single-item pain intensity question did not significantly change from baseline ($M = 5.44$, SEM = 0.28) to post-intervention ($M = 5.15$, SEM = 0.28). For the pain medication usage question, veterans indicated not applicable/no response (44%), no change in pain medication (33%), take more pain medication (0%), or take less pain medication (23%). For veterans who endorsed taking pain medication, an exploratory one-sample chi-square test was conducted to assess whether participants' pain medication use stayed the same, increased, or decreased. The results were significant, ($\chi^2(2, N = 47) = 24.30$, $p < .001$).

Discussion

This study examined the impact of Mindful Self-Compassion in a heterogeneous group of veterans in the clinical setting where no participants were excluded from participation. The predominately male, veteran sample expands upon the generalizability of the MSC intervention. The broad inclusion criteria and racially and diagnostically heterogeneous sample support the feasibility and generalizability of the intervention. MSC was acceptable to the participants; the qualitative comments are very positive with many of the participants' descriptions suggestive of life-changing events. The attrition rate of veterans who committed to attend the group was 26% and is similar to other VA group–based interventions (Espejo et al. 2016; LeBeau et al. 2018). When compared with the completers, the non-completers were more likely to be younger men who did not participate in a prior MBSR class. Non-completers scored significantly higher on depression but were not different on any other outcomes measures.

The seven domains of the PROMIS measure compare this sample with the US general population. As a measure of the clinical nature of the sample, compared with the US general population, this sample reflects mild levels of impairment for depression, social role functioning, and fatigue and moderate levels of impairment for anxiety, pain interference, and physical functioning. This is notable as MSC groups were recruited broadly from across the medical center and included veterans with a wide variety of presenting issues. This mild to moderate level of impairment across most domains in the present sample is consistent with health disparities found between veterans and the general population in prior research. Past research has indicated MSC is a useful intervention to support general well-being in healthy community populations.

As expected, completion of the MSC intervention was associated with statistically significant improvements in self-compassion, happiness, and social role satisfaction with significant decreases in depression, fatigue, and pain interference. The effect sizes for each measurement ranged from small (depression, fatigue, and pain interference) to medium (self-compassion, happiness, and social role satisfaction). The standardized measure outcomes and the GAI questions support the use of MSC with veterans. The subjective reports of improvements of both symptoms and well-being are positive, with no participant reporting a worsening of either symptoms or overall well-being. This indicates nearly all program completers found MSC to be beneficial. Notably, when participants were compared, no differences were found between male and female veterans. This suggests MSC may be equally beneficial for both men and women, although more research comparing outcomes by sex is needed.

As clinician researchers, we are interested in the question of optimal sequencing of mindfulness-based interventions

(MBI) for a clinical population, a question for which there are no published findings. Our a priori optimal sequence assumption was a three-step process starting with a brief exposure in primary care, then to MBSR to establish a regular mindfulness practice, and finally to MSC for more explicit training in compassion. The present study offered an opportunity to test this assumption as there were approximately equivalent numbers of participants with and without prior MBSR exposure. As would be expected, MBSR graduates had significantly higher levels of engagement with the MSC intervention compared with non-MBSR graduates as measured by average session attendance, but it is important to note that the mean difference was less than one session. MBSR graduates are a select group; they have already demonstrated the capacity and willingness to attend an intensive, 8-week program and have been supported to establish a regular mindfulness practice. It is likely the benefits of a regular mindfulness practice also better prepared them for the MSC program. They also had significantly higher baseline levels of self-compassion than participants with no prior MBSR exposure. Given no statistically significant difference on any of the post-intervention outcomes, however, our assumptions about optimal sequencing were not supported; prior exposure to MBSR does not appear to enhance the development of self-compassion or other measured outcomes. Prior MBSR exposure does, however, appear to enhance engagement. The guidance, therefore, about which MBI is "best" for optimal sequencing for clinical populations at this point might be the MBI that is most of interest to the participant or most accessible in terms of scheduling. This study was not designed to assess optimal sequencing of mindfulness- and compassion-based interventions. The field, however, seeks guidance about this important question as more contemplative interventions are used in various combinations in clinical settings.

Non-pharmacological approaches to pain management are of interest both inside the VA and in the healthcare system at large. This study neither recruited a pain sample nor was it designed specifically to assess pain outcomes, yet this exploratory analysis is meaningful if only suggestive. Mean scores of the single-item, pre-post-intervention pain measure were not significantly different. Although the pain intensity measure is unchanged, self-compassion increased; pain interference significantly decreased (small effect size); and a significant number of participants reported decreases in pain medication use. The overall findings, therefore, are consistent with self-compassion theory. Self-compassion is not intended to *make the pain go away*. Rather, one practices self-compassion *simply because pain is present in the moment.* Veterans taught to bring a sense of kindness and compassion to oneself, rather than harsh criticism, may experience the described benefits of mood improvement, social connection, and decreases in pain interference even in the presence of chronic pain that remains unchanged.

Limitations and Future Research

There are several limitations of this program evaluation. First, this was a quality improvement project and not a randomized control trial (RCT). Consistent with quality improvement practices, there was no random assignment to the intervention and no control group, which are needed to ensure non-intervention factors, such as clinician attention and the passage of time, do not contribute to the outcomes. Second, 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. Third, only two time points, immediately pre-intervention and post-intervention, were used for this evaluation. Ideally, veterans would be followed over time to see if the benefits of the program persisted 3- or 6 months post-intervention. Four, our single pain medication question "Related to your participation in the MSC program, have you noticed any changes in the amount of pain medication you are taking?" does not differentiate between over-the-counter analgesics and prescription narcotics. All reported reductions in pain medication usage are certainly meaningful, but future research should make the distinction between narcotics and other medications. Future studies may consider serum and/or urine quantitative assays in addition to self-report narcotic pain medication usage since simple chart reviews of prescriptions may not reflect actual use given high street value and drug diversion practices. Five, although patient-reported outcomes of symptoms and functioning in measures such as PROMIS are generally used to assess a broad range of disease outcomes, more specific measures (including those that measure PTSD symptoms) might better capture the specific diagnoses and treatment needs of veterans. Six, the exploratory analyses concerning pain medication and optimal sequencing of MBIs should be interpreted with caution as this study was not designed to address those specific concerns.

MSC research in veterans is ready to advance to a random controlled trial with an active intervention control group, such as a relaxation intervention. Future studies may consider specific populations, such as veterans with PTSD or chronic pain, although continued research into general clinical populations is relevant given the transdiagnostic approach to well-being in self-compassion theory.

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Authors' Contributions JGS designed and executed the study, delivered most cycles of the intervention, collaborated in the analyses, and was the primary author. CPB delivered several cycles of the intervention, collaborated in analyses, and collaborated in writing the manuscript. GNA managed the data set, co-delivered one cycle of the intervention, and collaborated on edits to the manuscript. JMP delivered several cycles of the intervention, conducted the data analysis, and contributed to writing the manuscript.

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Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflicts of interest.

Ethical Approval The study was approved by the IRB of Greater Los Angeles Healthcare System. As an approved quality improvement study, informed consent was waived. All procedures performed in studies involving human participants were in accordance with the ethical standards of the IRB and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

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