MBCT-S PROGRAM COMPLETION: WHAT BARRIERS STAND IN THE WAY FOR HIGH-RISK SUICIDAL VETERANS?

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Abstract

Suicide among U.S. Veterans is a critical public health problem. Strides in developing and disseminating evidence-based suicide prevention interventions have been made. Improving treatment engagement among individuals, including Veterans, at risk of suicide is critical in the fight against suicide. In a step towards mitigating treatment non-completion, the current program evaluation examined Veteran perceptions of barriers to completion of one such evidence-based intervention, Mindfulness-Based Cognitive Therapy to Prevent Suicide (MBCT-S). Specifically, the aim was to determine if Veteran endorsement of cultural or educational barriers at baseline was related to MBCT-S program completion. Baseline data was collected from 114 MBCT-S participants as part of a larger effectiveness trial of MBCT-S via telehealth for Veterans at risk of suicide. Five items measuring cultural and educational barriers were created by mindfulness experts on the MBCT-S program team based on a review of the current literature on barriers to Mindfulness-Based Intervention (MBI) completion. Independent measures t-tests and then a multivariate logistic regression were used to compare barrier endorsement between MBCT-S completers, i.e., those completing at least four of eight group sessions, and non-completers while controlling for depressive and hopelessness symptom severity, which are known barriers to treatment completion among suicidal individuals. There were no significant differences in endorsement of each of the five barrier items between those who completed the MBCT-S program and those who did not. Depressive and hopelessness symptom severity were also not different between program completers and non-completers. The logistic regression model was not significant, (χ^2 (9) = 14.23, p = .114). Notably, an association between African American race and MBCT-S program non-completion was observed. As such, more research is needed to understand what stands in the way of MBCT-S program completion.

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Views do not represent those of the VA or U.S. Government.

MBCT-S Program Completion: What Barriers Stand in the Way for High-Risk Suicidal Veterans?

Suicide among U.S. Veterans has been a critical public health problem for decades (Carroll et al., 2020). In 2021, on average, 17.5 Veterans died by suicide each day (U.S. Department of Veterans Affairs, 2023). This rate was 71.8% greater than the suicide rate among non-Veteran U.S. adults (U.S. Department of Veterans Affairs, 2023). Moreover, Veterans who use Veterans Health Administration (VHA) services are more likely than non-VHA users to engage in mental health treatment (Meffert et al., 2019), suggesting that suicide prevention efforts in the VHA can meaningfully improve suicide prevention for high suicide-risk Veterans. In fact, suicide is now the top clinical priority in the VHA (U.S. Department of Veterans Affairs, 2024b).

In response to the high rate of Veteran suicide, Suicide Prevention 2.0 (SP 2.0) is the latest suicide prevention initiative in the VHA. SP 2.0 aims to combine community and clinically-based suicide prevention programs to create a full public health model of suicide prevention for Veterans (Carroll et al., 2020). This initiative focuses on implementing evidence-based suicide prevention programs, such as Cognitive Behavioral Therapy for Suicide Prevention, broadly. Accordingly, a major focus of SP 2.0 is increasing telehealth services. In fact, all suicide prevention interventions offered through SP 2.0 are available virtually to Veterans (U.S. Department of Veterans Affairs, 2023). While SP 2.0 has meaningfully broadened suicide prevention among high suicide risk Veterans, further suicide prevention efforts remain necessary (U.S. Department of Veterans Affairs, 2023).

Mindfulness-Based Cognitive Therapy to Prevent Suicide

Mindfulness-Based Cognitive Therapy to Prevent Suicide (MBCT-S; (Latorre et al., 2021)) is an adaptation of Mindfulness-Based Cognitive Therapy (MBCT) (Segal et al., 2013), which is considered a Mindfulness-Based Intervention (MBI). MBIs integrate Eastern mindfulness practices and principles into psychotherapeutic treatment and were first introduced into Western medicine in the late 20th (Schmidt, 2016). One key adaptation of MBCT-S is the incorporation of the Safety Planning Intervention (SPI), a brief intervention used to create a personalized six-step plan to address suicidal crises (Stanley & Brown, 2012) into MBCT. At present, MBCT-S is not included as part of the SP 2.0 offerings, as the program focuses on more established and traditional interventions. MBCT-S is comprised of one individual session and eight group sessions. Sessions are focused on engaging suicidal Veterans in mindfulness practices, debriefing experiences during mindfulness practices, and relating insights gained in group sessions and mindfulness practice to suicide prevention (Kline et al., 2016).

Through a Randomized Control Trial (RCT), participation in MBCT-S was shown to reduce the number of suicide-related events and psychiatric hospitalizations among high suicide-risk Veterans in a 12-month follow-up compared to enhanced treatment of usual (eTAU), defined as VHA standard care for suicidal patients, which is enhanced with safety planning (Stanley & Brown, 2012) and includes increased follow-up to monitor suicide risk and facilitate engagement in mental health care (Interian et al., 2021). In an additional analysis of the RCT data focused on Veterans who misused opioids, opioid-misusing Veterans in MBCT-S, compared to eTAU, showed a reduced likelihood of suicide attempts, a decreased need for residential treatment and acute psychiatric hospitalizations, and moderate reductions in opioid misuse in a one-year follow-up (Chesin et al., 2023). Participation in MBCT-S has also been shown to improve attentional control, an objective marker of suicide attempt risk, in the MBCT-S RCT sample over

6 months compared to a control condition (Chesin et al., 2021). Further, in an uncontrolled pilot study, participation in MBCT-S was shown to reduce cognitive reactivity to hopelessness and suicidality and improve attentional control in suicidal outpatients (Chesin et al., 2016), which are theoretically-relevant treatment targets given an understanding of MBCT mechanisms and suicide-specific dysfunction (Keilp et al., 2008; Keilp et al., 2013; Malinowski, 2013). Promising efficacy for MBCT-S related to eTAU allowed for additional funding for wider dissemination of the program via telehealth and to include rural Veterans who report suicide ideation (SI) (Interian & Chesin, 2024). As such, MBCT-S is currently being delivered via telehealth to understand and address implementation difficulties and ultimately increase access to MBCT-S among rural, suicidal Veterans.

Barriers to MBI Treatment Completion

Although participation in MBCT-S shows promise for reducing suicide-related events (Interian et al., 2021) treatment non-completion rates are significant. In the MBCT-S RCT, 35.2% of participants dropped out of MBCT-S treatment before the fourth group session (Interian et al., 2021). Similarly, rates of MBCT non-completion in studies with suicidal, depressed, and bipolar patients tend to hover around 30% (Crane & Williams, 2010; Perich et al., 2013; Williams et al., 2006). In general, treatment attrition is a common issue in MBIs (Crane & Williams, 2010; Lam et al., 2022).

Current literature examining what stands in the way of MBI treatment completion suggests there are many different barriers to treatment completion (Compen et al., 2017; Marks et al., 2022; Martinez et al., 2015; Simpson et al., 2018; Toivonen et al., 2020). Some of these barriers include emotional, structural, physical, educational (e.g., mis- or limited understanding

of mindfulness and other MBI treatment concepts), and cultural challenges (e.g., differences between aspects of personal culture and attitudes cultivated in MBIs) (Crane & Williams, 2010).

Educational and cultural barriers were selected from these categories of barriers to be examined in the current study due to their relevance to the Veteran population. The use of MBIs to treat psychiatric conditions among Veterans is relatively new compared to the use of other Western-based psychiatric and medical treatments (Goldberg et al., 2020; Nehring & Frawley, 2020). Not only do principles of military culture differ significantly from Eastern traditions (Brintz et al., 2020), but a lack of understanding of mindfulness is common among the Veteran population (Herrmann et al., 2020). Thus, educational and cultural barriers may especially impact MBI treatment completion among Veterans.

Hermann et al (2020) surveyed Veterans in an outpatient waiting room to explore their understanding of mindfulness and ultimately enhance MBI treatment engagement. Their findings revealed that 43% of the 185 Veteran study participants did not know what mindfulness was. One of the most frequent statements when inquiring about interest in mindfulness included, “I don’t know what mindfulness is” (Herrmann et al., 2020). Additionally, Martinez et al (2015) found that difficulty understanding mindfulness concepts was considered a barrier to Mindfulness-Based Stress Reduction treatment completion among 68 Veteran participants. At least one participant stated, “I just don’t get it” before dropping out of the program (Martinez et al., 2015). Further, findings from the Marks et al. (2022) meta-analysis exploring barriers to MBCT engagement among adults with chronic conditions, found that adults with negative perceptions of the credibility and effectiveness of MBCT or who found MBCT concepts too difficult to comprehend were more likely to drop out of treatment.

Engagement in MBIs in the Veteran population is also undermined by the misalignment of military culture and the attitudes of MBIs (Brintz et al., 2020; Goldberg et al., 2020). For example, Soeters et al. (2006) identified five dimensions of military culture including power distance, individualism, masculinity, uncertainty avoidance, and long-term orientation. In contrast, MBIs, derived from Eastern cultures, promote acceptance, uncertainty tolerance, non-judging, and interconnectedness (Schmidt, 2016). Taken together, the misalignment of dimensions of military culture with the attitudes of MBIs may serve as a barrier to treatment completion. Although the fit of MBIs for Veterans has been questioned given this misalignment (Brintz et al., 2020; Goldberg et al., 2020), to our knowledge, no study has directly tested the impact of cultural barriers on MBI treatment completion among Veterans.

In addition to cultural and educational barriers to MBI engagement, psychiatric symptomology may also impact treatment completion among suicidal and Veteran patients. More severe baseline depressive symptomology among suicidal outpatients predicted psychotherapy treatment non-completion (Hom & Joiner, 2016). Moreover, depressed patients with higher levels of hopelessness have also been found to have decreased treatment engagement and poor outcomes in CBT (Whisman et al., 1995). Specific to Veterans, those with higher levels of baseline depression are more likely to prematurely discontinue individual psychotherapy (Amsalem et al., 2022). Higher levels of depression and hopelessness, which tend to be elevated in suicidal patients (Ribeiro et al., 2018; Rifai et al., 1994; Stanley et al., 2016), also portend mental health treatment dropout (Amsalem et al., 2022; Clark & Fawcett, 1992). As such, engaging suicidal patients with relatively high levels of depression and hopelessness in MBIs may be particularly challenging.

The Current Program Evaluation

The current program evaluation focused on examining cultural and educational barriers to MBCT-S program completion, defined as participation in four or more group MBCT-S sessions (Interian et al., 2021). Specifically, Veteran's baseline cultural perceptions and knowledge of mindfulness and safety planning were evaluated to assess these barriers.

Based on prior research acknowledging the misalignment between military culture and mindfulness practice (Brintz et al., 2020; Soeters, 2006) and findings that a lack of understanding of mindfulness can lead to MBI treatment non-completion (Crane & Kuyken, 2013; Herrmann et al., 2020; Marks et al., 2022), it was hypothesized that those who did not complete the MBCT-S program would more strongly endorse baseline educational and cultural barriers compared to those who completed the program. Further, prior research suggests that psychiatric outpatients who have higher baseline levels of hopelessness and depression are more likely not to complete psychosocial treatment (Clark & Fawcett, 1992; Hom & Joiner, 2016; Whisman et al., 1995). Thus, it was also hypothesized that baseline depressive and hopelessness symptom severity would be linked to program non-completion among MBCT-S participants. Finally, it was hypothesized that baseline endorsement of cultural and educational variables would be linked to MBCT-S completion status in a multivariate model controlling for depressive and hopelessness symptom severity.

Methods

Participants

Participants in this program evaluation were 114 Veterans in the ongoing MBCT-S program evaluation. All participants were Veterans who self-reported recent SI and were referred to and expressed initial interest in MBCT-S. All Veterans in this program evaluations were receiving services from the New Jersey VAMC, the New York VA, and The Houston VA.

Participants completed baseline surveys assessing depressive and hopelessness symptom severity, distress tolerance, and perceptions of mindfulness and safety planning between December 2020 and December 2023. Of the 114 participants, 82 (71.9%) were male. One hundred and seven Veterans (93.9%) endorsed clinically significant levels of depression, defined as a score of over 13 on the Beck Depression Inventory-II (BDI-II), and 75 (68.1%) Veterans endorsed moderate or severe levels of hopelessness, as indicated by a score of 8 or higher on the Beck Hopelessness Scale (BHS). The average BDI-II score among participants was 32.8 (*SD* = 12.5). The average BHS score among participants was 11.1 (*SD* = 5.5). Seventy-three (n = 73, 64 %) Veterans completed the program, e.g., attended four or more group sessions. Among those who did not complete the program (n = 41, 36%), 17 (41.5%) Veterans completed just the individual session, and 24 (58.5%) Veterans completed between one and three group sessions.

Measures

Cultural and Educational Barriers to MBCT-S. Five items measuring Veteran perceptions of mindfulness and SPI (Stanley & Brown, 2012) were included in the survey to address cultural and educational barriers to program completion. Educational and cultural barriers were selected by the MBCT-S program team based on perceptions of challenges to treatment completion by MBCT-S clinicians and literature on barriers to MBI treatment completion (Goldberg et al., 2020; Herrmann et al., 2020; Martinez et al., 2015). The program team then created five items assessing educational and cultural barriers that were agreed upon by program team members, which included mindfulness experts who underwent direct training by MBCT trainers and had served as MBCT-S clinicians in the RCT. Items used to assess educational barriers included, “I am not sure what mindfulness meditation is;” “I’m not sure what the Safety Plan is,” and “I don’t understand the concepts of this mindfulness meditation

program." Items addressing cultural barriers included, "Mindfulness meditation feels like a strange thing for me to do," and "Safety Planning feels like a strange thing for me to do". Participants rated their agreement with these statements on a five-point Likert scale. Response options ranged from "strongly disagree" to "strongly agree". Higher scores indicated greater endorsement of the item and thus greater endorsement of the barrier. Each item was rated and analyzed separately. No overall scores were calculated by educational and cultural barrier category.

Depression. To measure depressive symptom severity, the Beck Depression Inventory-II (BDI-II) (Beck et al., 1996) was used. The BDI-II is a 21-item self-report measure assessing a variety of depressive symptoms. Scores on the BDI-II range from 0-63, with higher scores indicating more severe, current depressive symptoms. When used with psychiatric patients, the measure has excellent internal consistency and good concurrent validity (Wang & Gorenstein, 2013). In the current program evaluation, Cronbach's alpha was .92, indicating excellent internal reliability.

Hopelessness. The Beck Hopelessness Scale (BHS) (Beck et al., 1974) is a 20-item, true or false, self-report measure used to assess pessimism about the future and feelings of hopelessness. Scores on the BHS range from 0-20 with higher scores indicating greater hopelessness and pessimism. In depressed and suicidal patients, the BHS demonstrates good reliability and convergent validity (Beck et al., 1974). In the current program evaluation, Cronbach's alpha was .90, indicating excellent internal reliability.

Additionally, demographic information was collected in the pretreatment survey. Treatment completion data was collected through a chart review.

Procedure

The program evaluation received a Quality Improvement and Quality Assurance (QI/QA) designation from the VHA Office of Rural Health. Three-hundred and forty-five Veterans referred to the MBCT-S program by VHA mental health providers were screened for treatment inclusion and exclusion criteria. Participants must have endorsed recent active or chronic SI to be eligible for the MBCT-S program. Exclusion criteria included: 1) cognitive impairment that would make participation/benefit of the MBCT-S program difficult; 2) current psychotic symptoms or diagnoses; 3) medical difficulties that would impair MBCT-S program participation; 4) a pattern of notable disruptive behavior. Two-hundred and fourteen Veterans were excluded based on these criteria. One hundred and thirty-one interested and eligible Veterans were scheduled for an intake with program staff. Immediately following the intake appointment, Veterans received the pre-program survey via Qualtrics to complete baseline symptom rating scales online, on their personal computer or mobile device, at their convenience before the MBCT-S program began. Seventeen participants were excluded from the analysis for failing to complete at least 75% of the BDI, BHS, or the barriers survey. Thus, the final sample included 114 Veterans, 73 MBCT-S program completers, and 41 MBCT-S program non-completers.

Statistical Analyses

Analyses were conducted using SPSS Version 29 at the VA New Jersey. Descriptive data were compared between MBCT-S program completers and non-completers using t-tests, and Chi-square tests, as appropriate. Endorsement of cultural and educational barriers between program completers and non-completers was compared using t-tests. Additionally, multivariate logistic regression was used to assess the impact of cultural and educational barriers on program completion while controlling for depressive and hopelessness symptom severity.

Results

Demographic and Clinical Characteristics of MBCT-S Participants

Demographic information for program completers and non-completers is presented in Table 1. A significant association between Veteran race and program completion was observed, (χ^2 (2) = 9.77, p = .008). Post-hoc comparisons of Veteran race and completer status revealed significantly higher rates of program non-completion among African American Veterans compared to White Veterans. There were no other baseline differences in demographic characteristics between MBCT-S program completers and non-completers. Baseline BDI and BHS scores did not differ between completers and non-completers. Specifically, (M = 32.8, SD = 12.5, t(112) = 0.29, p = .80); M = 11.13, SD = 5.5, t(111) = 0.29, p = .68, respectively).

Cultural and Educational Barriers to MBCT-S

Endorsement of barriers did not differ by completer status (Table 2). Across completer status, "I am not sure what mindfulness meditation is" and "Mindfulness meditation feels like a strange thing for me to do" were the most strongly endorsed barriers (M *agreement* = 2.94, SD = 1.37; M = 3.08, SD = 1.36, respectively). Veterans endorsed the remaining educational and cultural barriers, "I am not sure what Safety Planning is," "I do not understand the concepts of this mindfulness program," and "Safety Planning feels like a strange thing for me to do," with less agreement (M = 2.03, SD = 1.25; M = 2.77, SD = 1.21; M = 2.61, SD =1.35, respectively).

Correlates of MBCT-S Completer Status

The overall logistic regression model was not statistically significant, (χ^2 (9) = 14.23, p = .114), with Nagelkerke R^2 value of .162 (Table 3).

Discussion

It was hypothesized that those who did not complete the MBCT-S program would more strongly endorse baseline educational and cultural barriers compared to Veterans who completed the program. Contrary to this hypothesis, there was no difference in endorsement of these barriers between program completers and non-completers. It was also hypothesized that educational and cultural barriers would correlate with program non-completion while controlling for baseline depressive and hopelessness symptom severity. This was also not born out. In fact, the correlates we considered, including baseline educational and cultural barriers and depressive and hopelessness symptom severity, did not explain MBCT-S program completion. Of note, even though the multivariate model was not significant, Veteran race was correlated with MBCT-S program non-completion. Specifically, African American Veterans, as compared to White Veterans, had a lower odds of completing the program. In bivariate analysis, African American race was linked to MBCT-S program non-completion. Results do not support a relationship between baseline educational and cultural barriers and program non-completion. They do, however, suggest that race may be linked to engagement in the MBCT-S program.

Studying MBCT-S program completion status is important given the high rates of non-completion in MBCT-S as well as indications that those who complete benefit (Interian et al., 2021). In the first and only RCT of MBCT-S, 35.2% of Veterans did not complete MBCT-S treatment (Interian et al., 2021). A similar rate of program non-completion has, to date, been observed for the current program, which is an ongoing effectiveness trial that utilizes a telehealth modality.

The findings from the current program evaluation indicate that educational and cultural barriers, or a lack of understanding of mindfulness and misalignment between military culture

and mindfulness practices and principles, may not be reasons for MBCT-S program non-completion among Veterans. Several prior studies have found that an initial, insufficient understanding of mindfulness decreases MBI treatment engagement (Herrmann et al., 2020; Marks et al., 2022; Martinez et al., 2015; Simpson et al., 2018). Findings from these studies informed our hypothesis that educational barriers would matter to treatment completion. Our results may not align with these findings because of the level of baseline mindfulness knowledge that is provided in this program. In the MBCT-S program, Veterans are presented with a definition of mindfulness and are prompted to ask any questions they still have about mindfulness during intake (Interian et al., 2021). Veterans are also oriented to aspects of the MBCT-S program (e.g., present focus nature of the program, content of group sessions, etc.) throughout recruitment, intake and the first session. Additionally, as part of treatment refinement during the RCT, MBCT-S program providers now make a point to explain the specific role of mindfulness in working with SI. As such, the level of mindfulness education provided early during the MBCT-S program may be sufficient to overcome educational barriers to treatment.

To our knowledge, no prior research has examined the impact of the misalignment between military culture and mindfulness on MBI treatment completion. However, current literature questions the degree of MBI engagement among Veterans considering the conflict between salient aspects of military culture (e.g., masculinity, intolerance of uncertainty, individuality, long-term orientation) and mindfulness attitudes (e.g., uncertainty tolerance, acceptance, group orientation, present-focus) (Brintz et al., 2020; Goldberg et al., 2020). Not only is mindfulness continuing to become more common in mainstream media and Western culture, but there is a growing use of mindfulness for the treatment of psychiatric conditions among Veterans (Goldberg et al., 2020; Nehring & Frawley, 2020). For example, through the

VHA Whole Health Program, mindfulness apps, classes, and podcasts are available virtually to Veterans (U.S. Department of Veterans Affairs, 2020). Additionally, the VA Portland Mindfulness Institute offers a Whole Health program that offers several weekly MBIs and mindfulness training programs to Veterans and VHA staff to promote overall wellness (U.S. Department of Veterans Affairs, 2024a). As such, mindfulness may not be as novel to Veterans engaged with VHA as it was in the past. Accordingly, it's possible that Veterans in our program evaluation had prior exposure to mindfulness, and ultimately, the cultural incongruence between military culture and mindfulness had already been dismantled.

The impact of psychiatric symptomatology on mental health treatment engagement has been studied, with higher levels of depressive and hopelessness symptom severity related to psychosocial treatment non-completion among adults (Crane & Williams, 2010; Hom & Joiner, 2016; van Dijk et al., 2023; Westra et al., 2002). In our program evaluation, Veteran engagement in other mental health treatment may address the lack of association between psychiatric symptomatology and MBCT-S program completion. To participate in the MBCT-S program, the Veterans in the current program evaluation must have been receiving concurrent mental health treatment, either individual therapy or psychopharmacology. That is, the MBCT-S program was delivered as an adjunctive mental health treatment. Studies have shown that prior individual therapy predicts general group therapy continuation and more positive expectations about group treatment (MacNair & Corazzini, 1994; MacNair-Semands, 2002). Thus, a history of and current mental health treatment engagement among our program participants may have offset the usual impact of hopelessness and depressive symptom severity on psychosocial treatment non-completion.

While we did not see a link between educational and cultural barriers and MBCT-S program completion in the current study, many reasons for MBI dropout among a variety of populations have been observed across several studies. For example, studies have found practical barriers (e.g., family obligations, work commitments) and other intraindividual barriers (e.g., difficulty concentrating, a lack of motivation, a lack of time) are significant reasons for MBI treatment non-completion (Marks et al., 2022; Martinez et al., 2015; Toivonen et al., 2020). Taken together, current literature points to a variety of barriers that may impact treatment non-completion of MBIs. For MBCT-S, educational, cultural, and psychiatric symptoms do not appear to stand in the way of program completion.

As program evaluation findings suggest, Veteran race, specifically identification as African American, may be important to consider in MBCT-S program retention efforts. Bivariate results showed a significant association between African American race and MBCT-S program non-completion. Racial and ethnic minorities have been historically underrepresented in studies testing MBIs (Spears et al., 2017; Waldron et al., 2018). For example, one meta-analysis revealed that African Americans only accounted for 11% of participants across 45 studies testing MBIs (Waldron et al., 2018). The limited representation of African Americans in MBI research poses a considerable challenge in understanding why African American race is associated with program non-completion. In our program evaluation, only 23.7% of the sample reported African American race. As such, barriers to MBI treatment completion specific to African American individuals are not completely understood.

Clinical Implications

An understanding of salient barriers to MBCT-S program completion is critical considering the high rates of MBCT-S dropout among Veterans observed in this program

evaluation and the prior RCT (Interian et al., 2021). Veterans who completed the MBCT-S program demonstrated favorable outcomes, including reductions in suicide-related events and the incidence of psychiatric hospitalizations over 12-month follow-up (Interian et al., 2021). Therefore, identifying barriers to program completion when disseminating this MBCT-S program is necessary to reduce non-completion rates and ultimately provide benefits to the greatest number of high suicide-risk Veterans.

The association between African American race and MBCT-S program non-completion is an important consideration. It is unclear what stands in the way of MBCT-S program completion among Veterans identifying as African American. However, established barriers to general healthcare engagement in minority populations, such as mistrust of healthcare providers, racial/ethnic stereotyping by providers, and ineffective communication between patient and provider (Areán & Gallagher-Thompson, 1996; Myers, 2009; Scheppers et al., 2006) may in part explain this finding. Future tests including factors related to the minority experience would be needed to confirm that such barriers matter for MBCT-S or MBI completion.

Limitations

Several limitations should be acknowledged. There was no follow-up testing to see if barriers resolved at some point during the program. It is possible that cultural or educational barriers were addressed during initial sessions and thus program engagement was maintained. Additionally, “I am not sure what mindfulness meditation is” and “Mindfulness meditation feels like a strange thing for me to do” were the two most strongly endorsed items. There was no follow-up testing to see if despite endorsement of these barriers to some degree, they just did not concern Veterans enough to impact their program completion status.

Additionally, to detect significant differences between MBCT-S program completers and non-completers with 80% power, 67 participants in each group would have been required (Faul et al., 2007). As such, the current program evaluation was underpowered. The analysis proceeded because the observed effect sizes for each barrier were small (Cohen's d was equal to .05 - .30 for each barrier item), suggesting cultural and educational barriers are likely not a primary reason for MBCT-S program non-completion.

Items assessing educational and cultural barriers were created based on a review of the current literature of barriers to MBI treatment completion (Goldberg et al., 2020; Herrmann et al., 2020; Martinez et al., 2015) and perceptions of challenges to program completion by current MBCT-S program providers. The items were subsequently evaluated and approved by mindfulness experts on the MBCT-S program team, all of whom have undergone training from MBCT trainers. However, these items were not validated or otherwise tested for reliability or validity. Thus, it is possible that items lacked content validity, and there may be other items that could capture the construct of cultural or educational barriers more accurately. Lastly, participants were restricted to Veterans in the MBCT-S program, and therefore results may not be generalizable to other populations or other MBIs delivered to Veterans.

Future Directions

Considering the lack of program evaluation findings, exploring the impact of other types of barriers besides educational and cultural barriers, such as practical or interindividual challenges, on MBCT-S program completion may be warranted. Considering the underrepresentation of African American individuals in studies involving MBIs (Spears et al., 2017; Waldron et al., 2018), as well as findings in this program evaluation that show a link between African American race and program non-completion, exploring and addressing barriers

to maintaining African American Veterans in the MBCT-S program seems important. As we were underpowered to complete tests of the interaction between race and educational and cultural barriers, this is a direction for future study to specify barriers to MBCT-S program completion.

Conclusions

Endorsement of cultural and educational barriers was not significantly different between MBCT-S program completers and non-completers. Endorsement of these barriers also did not correlate with program completion in a multivariate model that also considered depressive and hopelessness symptom severity and race. Multiple other types of barriers to MBI completion have been identified (Compen et al., 2017; Marks et al., 2022; Martinez et al., 2015; Simpson et al., 2018; Toivonen et al., 2020) and thus what contributes to MBCT-S program non-completion should continue to be explored, particularly given program non-completion rates observed in the MBCT-S program as well as other MBIs (Crane & Williams, 2010; Goldberg et al., 2020; Interian et al., 2021; Williams et al., 2006). Notably, the association between Veterans identifying as African American and MBCT-S program non-completion indicates that understanding this potentially race-based phenomenon is an important area of future research.

Table 1

Demographic Characteristics of MBCT-S Program Completers and Non-Completers

Baseline characteristic	Completer (n = 73)		Non-Completer (n = 41)		Full sample	
	n	%	*n*	%	*n*	%
Age						
18-34	16	29.1	16	39	32	28.1
35-49	28	38.4	13	31.7	41	36
50-64	16	21.9	8	19.5	24	21.1
60 and over	13	17.8	4	9.8	17	14.9
Sex						
Female	16	21.9	16	39	32	28.1
Male	57	78.1	25	61	82	71.9
Race						
White	50	68.5	17	41.5	67	58.8
African American	11	15.1	16	39	27	23.7
Other	12	16.4	8	19.5	20	17.5
Ethnicity						
Hispanic	13	17.8	13	31.7	26	22.8
Non-Hispanic	60	82.2	28	68.3	88	77.2
Marital status						
Married/Living as married	29	39.7	16	39	45	39.4
Never married	13	17.8	11	26.8	24	21.1
Separated/divorced/widowed	31	42.5	14	34.1	45	39.5
Highest educational level						
High school or less	12	16.4	3	7.3	15	13.2
Some college	31	42.5	21	51.2	52	45.6
College degree or higher	30	41.1	17	41.5	47	41.2
Employment						
Employed	19	26	12	29.3	31	27.2
Unemployed	34	46.6	19	46.3	53	46.5
Retired	16	21.9	8	19.5	24	5.3
Other	4	5.5	2	4.9	6	21.1

Note. N = 114. A chi-square test of independence revealed a significant association between race and treatment completion status, (χ^2 (2) = 9.77, p = .008).

Table 2

Endorsement of Item Barriers between MBCT-S Program Completers and Non-Completers

Item	Completers		Non-completers		*t*(112)	*p*	Cohen's *d*
	M	*SD*	*M*	*SD*			
I'm not sure what mindfulness meditation is	3.00	1.41	2.83	1.28	0.69	.26	0.13
I'm not sure what Safety Planning is	0.25	0.24	0.23	0.23	0.42	.34	0.08
I do not understand the concepts of this mindfulness program	2.79	1.29	2.73	1.07	0.26	.39	0.05
Mindfulness meditation feels like a strange thing for me to do	3.18	1.39	2.90	1.28	1.04	.15	0.20
Safety Planning feels like a strange thing for me to do	2.75	1.42	2.34	1.19	1.57	.06	0.31

Note. Total $N = 114$. Responses to the item, "I do not understand the concepts of this mindfulness program", were not normal. T-tests were completed on the log transformed variable. Non-transformed means and standard deviations are reported for readability. Items were rated on a 5-point Likert scale, with higher scores indicating greater endorsement of the barrier.

Table 3

Correlates of MBCT-S Program Completion

Variable	β	*SE*	Wald's χ^2	*p*	OR	95% CI	
						LL	*UL*
Depressive Symptom Severity	.01	.02	.16	.71	1.01	.97	1.1
Hopelessness Symptom Severity	.01	.05	.08	.78	1.01	.93	1.11
"I'm not sure what mindfulness meditation is"	.06	.20	.09	.77	1.06	.79	1.57
"I'm not sure what the safety plan is"	-.05	.21	.06	.80	.95	.63	1.44
"I don't understand the concepts of this mindfulness program"	-.19	.25	.58	.45	.83	.51	1.34
"Mindfulness meditation feels like a strange thing for me to do"	.04	.23	.03	.87	1.04	.66	1.63
"Safety planning feels like a strange thing for me to do"	.31	.22	2.05	.15	1.37	.89	2.10
Race							
White vs. Black/African American	1.53	.50	9.25	.00**	.22	.08	.58
White vs. Other race	.25	.57	1.94	.16	.45	.15	1.38

Note. Nagelkerke R^2 = .162. CI = confidence interval; *LL* = lower limit; *UL* = upper limit.

**$p < .01$

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