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Mindfulness-Based Cognitive Therapy for Depression, Taking It Further (MBCT-D-TiF): An Assessment of an Intervention Development Study

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Abstract

Background: Mindfulness-Based Cognitive Therapy (MBCT) reduces depression relapse, yet graduates have expressed a need for structured guidance post-program to maintain mindfulness practice and sustain benefits. To address this, we created MBCT for Depression-Taking it Further (MBCT-D-TiF).

Objective: To refine and pilot test feasibility and acceptability of MBCT-D-TiF.

Methods: We collected qualitative focus group data to inform refinements and quantitative data to pilot test feasibility and acceptability of MBCT-D-TiF. In round one, participants received MBCT-D-TiF (n = 14), consisting of 4 weekly and then monthly sessions delivered via group videoconferencing. In round two (n = 20), participants were randomized 1:1 to MBCT-D-TiF or waitlist control. Surveys were completed at baseline, 1 and 4 months by all participants. We explored participants' experiences with MBCT-D-TiF in two focus groups (n = 7 in each) conducted via videoconferencing. We used descriptive statistics and mixed linear models to analyze quantitative data and thematic content analysis to analyze qualitative data.

Results: MBCT-D-TiF participants (n = 25) attended all weekly sessions (100%) and at least 75% of the monthly sessions (76%); found the weekly sessions very or extremely helpful (77.1%), and the monthly sessions very or extremely helpful (66.7%). The following themes emerged: (1) the importance of the group for participants' social connection, support, and practice community that enhanced their meditative experience, helped improve their mental health, and facilitated accountability; (2) MBCT-D-TiF provided mental health benefits, including tools to lessen the negative impact of depression and anxiety, increase connections to the world, and enhance positive experiences; (3) participants' home practices were reinvigorated during the weekly MBCT-D-TiF sessions, but fell short of their goals thereafter.

Conclusion: MBCT-D-TiF was well attended and rated very or extremely helpful by most participants, supporting its feasibility and acceptability. Qualitative data showed that additional steps to help participants sustain home practice are needed, offering a target for refinement and further testing.

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Introduction

Depression is a recurrent condition that affects approximately 5% of adults worldwide.[1] Of the estimated 280 million people affected, about 60% of individuals who experience an episode of major depression will experience another episode within 5 years, and the risk of relapse increases to 80% in people with a prior history of more than two episodes.[2] While there are several evidence-based non-pharmacologic treatments for depression, there are significantly fewer interventions for preventing depression relapse. Mindfulness-Based Cognitive Therapy (MBCT)[3] is a leading intervention for relapse prevention MBCT is effective at both preventing depression relapse and decreasing depressive symptoms,[4,5] is recognized as an Empirically Supported Treatment by Division 12 of the American Psychological Association[6] and is now part of standard care for depression treatment in the United Kingdom National Health Service.[7]

MBCT is an 8-week group intervention that was modeled after the Mindfulness-Based Stress Reduction (MBSR) program[8] and, similarly, it provides experiential learning through various mindfulness practices (e.g., sitting meditation, mindful movement, and informal practices during daily life). Relative to MBSR, MBCT incorporates greater focus on elements of Cognitive Behavioral Therapy (CBT), such as recognizing the influence of thoughts and behaviors on mood states. A core aim of MBCT is to leverage the awareness that is cultivated through mindfulness practice to help individuals disengage from negative thinking patterns (i.e., self-criticism and rumination), which may contribute to onset of depression relapse.

While the curriculum of MBCT was developed to prevent depression relapse, several additional benefits of MBCT have been documented. MBCT graduates have described tenets of MBCT, including present moment awareness, adopting a curious attitude toward difficulties, and responding instead of reacting, as life skills that can be applied outside the prevention of depression relapse.[9] Indeed, the themes and guiding principles of the MBCT curriculum can be explored across a lifetime, revisited and re-examined an unlimited number of times to convey new insights. Unsurprisingly, many graduates of the MBCT program have re-taken the course hoping to gain a deeper understanding of the themes and skills presented.[9] Our prior work highlighted MBCT graduates' expressed need for and interest in continued support after the 8-week program to maintain mindfulness practice and sustain benefits.[9] While MBCT has been described as transformational, and even life changing for some participants,[9,10] approximately one-third of MBCT graduates with a history of recurrent depression experience a depression relapse within 1-2 years of completing MBCT.[11] This pattern suggests more can be done to leverage the foundational teachings of MBCT, extend benefits, and potentially extend the prevention of depression relapse.

To address these gaps and build on our prior work, we created a novel program, Mindfulness-Based Cognitive Therapy for Depression-Taking it Further (MBCT-D-TiF). The goal of MBCT-D-TiF is to address MBCT graduates' desire to extend and deepen the key themes from the MBCT curriculum and reinvigorate and/or re-establish their mindfulness practice. MBCT-D-TiF was designed for people who have taken MBCT (or potentially similar courses like MBSR) with the goal to build on the foundational skills and didactic material provided in these programs. The aims of the current study were to refine and pilot test the feasibility and acceptability of MBCT-D-TiF and study procedures through qualitative and quantitative data, respectively.

Methods

The study protocol and procedures were approved by the Institutional Review Board (#22-37109) at the University of California, San Francisco (UCSF). All participants provided electronic written informed consent for study participation. This research was performed in accordance with the principles stated in the Declaration of Helsinki. We registered this study on Clinicaltrials.gov (NCT05859386).

Participants

We enrolled 34 adults with a history of depression who met the following inclusion criteria: (1) previously completed the MBCT program, for which they had enrolled primarily for depression; (2) have access to a web-enabled device to attend a virtual class; (3) ability to speak and read English; (4) reside in the United States. Exclusion criteria: (1) Patient Health Questionnaire (PHQ-8)[12] score >14 or "more than half the days" endorsed on ≥5 PHQ-8 items, with at least one of the items being a cardinal symptom of depression (anhedonia and depressed mood); (2) high, acute risk of suicide determined by the Columbia Suicide Severity Rating Scale (CSSR-S)[13] or reported history of suicide attempt within the last year; (3) unable or unwilling to attend virtual group-based sessions as scheduled; (4) self-reported history of Bipolar I Disorder, Psychosis, Schizophrenia, or Borderline Personality Disorder (or a score >6 McLean Screening Instrument);[14] (5) substance

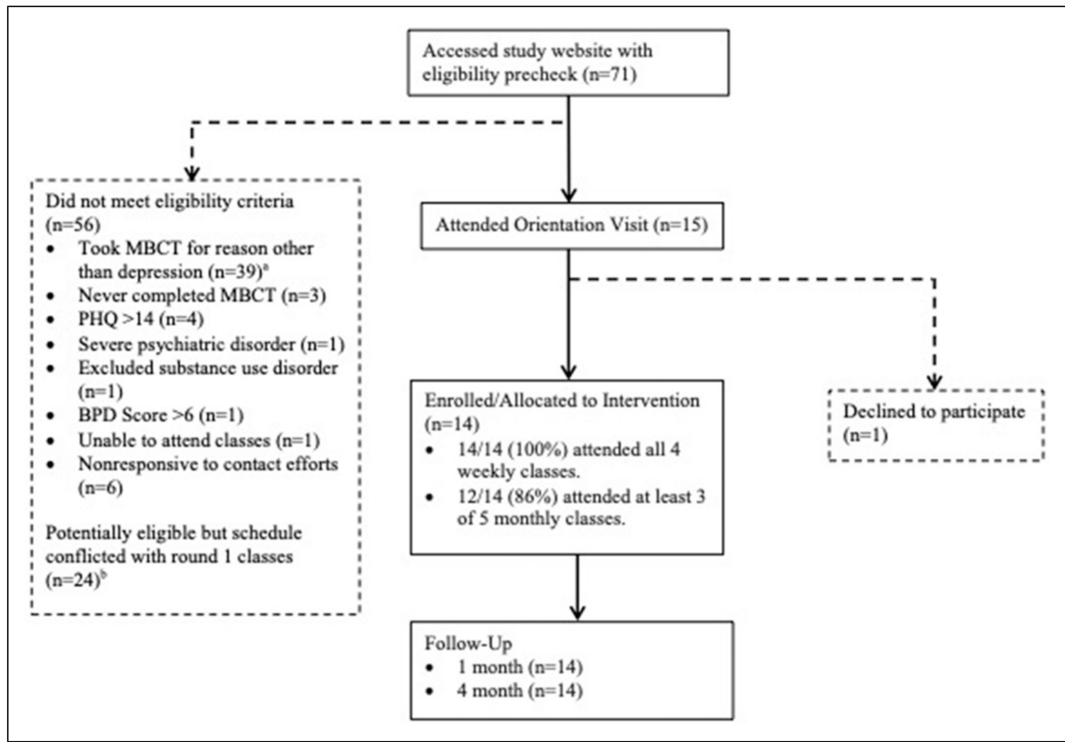

Figure 1. Participant flow diagram for round one of MBCT-D-TiF.
[a] The reported reasons for taking MBCT, other than depression, were anxiety (n = 27), general interest (n = 5), panic attacks (n = 3), and other (n = 4).
[b] Individuals who passed the online screening survey, but were not available to attend the pre-scheduled round one classes were deferred to round two. These individuals (n = 24) are included in Figure 2.

use, mental health, or another condition that, in the opinion of the investigators, would make participation in a group difficult.

Recruitment. MBCT teachers sent IRB approved study information to their existing email lists or other communications (e.g., electronic newsletters) to recruit graduates of MBCT. Interested MBCT graduates were directed to an online eligibility screener. A phone interview was conducted to clarify eligibility as needed. Once eligibility was determined, potential participants were invited to an orientation visit conducted via videoconferencing, during which they learned more about the study and, if interested, provided written informed consent electronically via DocuSign (Figures 1 and 2).

Study Design

In round one, all participants (n = 14) received MBCT-D-TiF (4 weekly sessions and then 5 monthly sessions). In round two, participants (n = 20) were randomized 1:1 to MBCT-D-TiF (n = 11) or a waitlist control condition (n = 9). Round two participants randomized to MBCT-D-TiF received 4 weekly sessions followed by 4 monthly sessions (instead of 5 like round one). Participants randomized to the waitlist control group were offered the 4 weekly booster sessions after the study. Self-report survey data were collected online via Qualtrics at baseline, 1 month (after the weekly sessions and before the monthly sessions), and 4 months from all participants. In the surveys, participants reported on psychological measures, questions about their meditation practice, and satisfaction with and feedback about MBCT-D-TiF. Finally, the participants who received MBCT-D-TiF were invited to attend a focus group via videoconferencing.

MBCT-D-TiF Intervention

MBCT-D-TiF entailed 4 weekly sessions, monthly sessions (5 or 4 in rounds one and two, respectively), and a safety-net process in which trained staff checked on participants who missed sessions without notice or scored >27 on the PROMIS Depression 8a (~t-score >65, roughly PHQ-9 >15) on the monthly survey. The safety-net process was designed to address limitations of loosely organized alumni "sits," the main existing option for continued interaction post-MBCT program.[9] MBCT teachers and graduates previously shared that the loose organization of these "sits" leaves no system in place to reach absent participants who, due to depression, may be most in need of support. In these contexts, absences may not be noted, with no follow-up or check-in, rendering individuals without adequate support, which is what prompted the safety net feature.

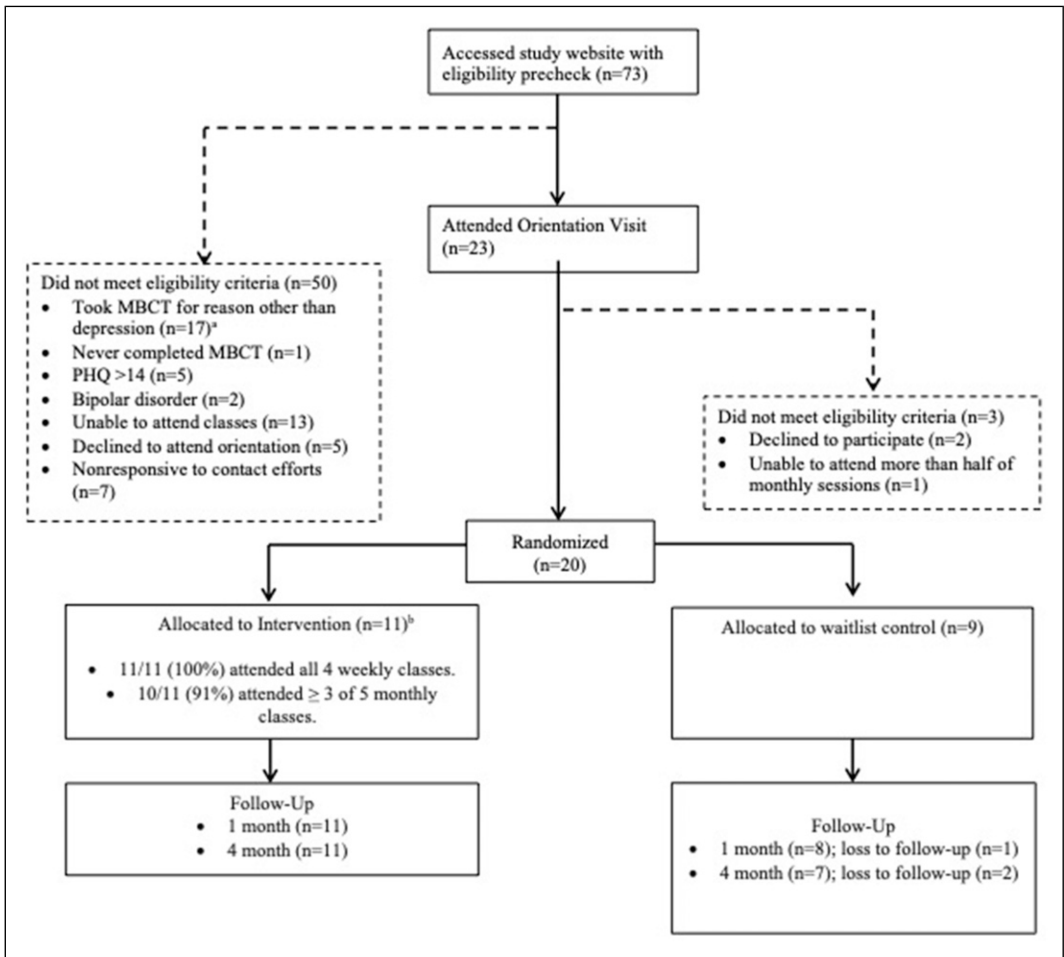

Figure 2. Participant flow diagram for round two of MBCT-D-TiF.
[a] The reported reasons for taking MBCT, other than depression, were anxiety (n = 14), general interest (n = 2), and other (n = 4).
[b] After MBCT-D-TiF round two monthly classes ended, participants who received MBCT-D-TiF (in round one [Figure 1] or round two) were invited to attend a focus group to provide feedback about their experience. Two focus groups were conducted (n = 7 in each group). The first focus group had 3 participants from round one and 4 participants from round two. The second focus group had 3 participants from round one and 4 participants from round two.

All sessions were delivered in a group format via videoconferencing by two mental health professionals with certification and extensive MBCT teaching experience. In the weekly sessions, participants learned to build self-efficacy and agency to create their own plan for depression relapse prevention. Weekly topics included: (1) Deepening mindfulness with a focus on interoceptive awareness; (2) Hedonic system: Appreciating the light within (i.e., focus on positive emotion); (3) Responding not reacting; (4) Taking care of ourselves and others: Integrating lessons into daily life regarding sleep, diet, healthy relationships, and behavioral activation. The format of the monthly sessions was a group meditation practice, a check-in, and discussion of a topic relevant to the MBCT course.

Survey Measures

We used well established self-report surveys of mood, mental health, and mechanisms of change, and satisfaction to assess feasibility, acceptability, and preliminary changes associated with MBCT-D-TiF.

Psychological Measures

PROMIS Positive Affect 15a is a validated and standardized measure of positive emotions.[15] Fifteen items are rated on a scale of 1 (not at all) to 5 (very much) to indicate how much respondents experienced positive emotions and moods (e.g., joy, contentment, happiness) over the past 7 days.

PROMIS Depression 8a measures the frequency of eight depression symptoms over the past 7 days.[16] Participants rate the extent to which they experienced different depression symptoms using a 5-point scale from 1 ("Never" to 5 ("Always"). Higher scores indicate greater depression. The items focus on negative mood (sadness, guilt), views of self (self-criticism, worthlessness), and social cognition (loneliness, interpersonal alienation), as well as decreased positive

affect and engagement (loss of interest, meaning, and purpose). The scale does not include somatic symptoms that can be associated with depression, such as disturbances in sleep, fatigue, sexual function, and appetite. PROMIS depression 8a has good reliability and validity.[17] In a study that compared the reliability and validity of several common self-report depression measures, the PROMIS 8a had the highest internal consistency (Cronbach's alpha = 0.97) and test-retest reliability (ICC = 0.88).[18]

These PROMIS instruments were scored according to each instrument's manual to produce composite T-scores, where a higher score indicates a greater degree of the concept being measured (ie, higher scores indicate greater positive affect for Positive Affect 15a and greater depressive symptoms for Depression 8a). T-scores have a mean of 50 and standard deviation of 10 in the referent general population, and cutoffs vary slightly depending on the instrument. For the depression scale, scores of 55, 60, 65, and 70 represent mild, moderate, moderately severe, and severe depression.[19] For Depression 8a decreasing scores over time represent improved outcomes, for Positive Affect 15a, increasing scores represent improved outcomes.

All PROMIS tools were developed using item response theory (IRT)[20] and details about the PROMIS initiative, including psychometric properties, can be found at www.nihpromis.org.

Experiences Questionnaire (EQ) is 20-items and composed of the Decentering and Rumination subscales.[21] The Decentering subscale (11-items) measures decentering, a multifaceted construct involving the ability to view one's self as separate and different from one's own thoughts. The Rumination subscale (6-items) measures rumination, defined as, "a negative perseverant thought pattern about the past, present and future."[22] Respondents rate items on a 5-point Likert scale ranging from 1 ("Never") to 5 ("All the time"). EQ has adequate internal reliability, factorial validity, and high internal reliability for the Decentering subscale (Cronbach's alpha = 0.83) and adequate internal reliability for the Rumination subscale (Cronbach's alpha = .70).[21]

Ruminative Response Scale (RRS-10) is a measure of an individual's tendency to ruminate when in a sad or depressed mood.[23] The 10-item scale is comprised of two subscales, brooding (e.g., 'Think, "Why do I have problems other people don't have?"' and reflection (e.g., 'Think, "Go someplace alone to think about your feelings"'). Respondents rate the frequency of each event on a 4-point scale ranging from 1 ("Almost never") to 4 ("Almost always"). Scores for each subscale are computed by summing its respective items. Higher scores indicate higher rumination levels. RRS-10 has demonstrated sound internal consistency (Cronbach's alpha = 0.77, .072 [brooding and reflection subscale, respectively]),[24] test-retest reliability after 2 years (r = 0.60, .062 [brooding, reflection subscales]),[24] as well as construct,[25] discriminant,[24] and convergent validity.[23]

Five Facet Mindfulness Questionnaire (FFMQ-15) is a validated 15-item scale that measures mindfulness with regard to thoughts, experiences, and actions in daily life. Items are rated on a 5-point scale (Never/Very rarely true to Very often/Always true).[26] Average scores are calculated by summing the responses and dividing by the number of items yielding average scores for five subscales and a total average score. Higher scores are indicative of being more mindful in everyday life. This measure has good internal consistency (Cronbach's alpha = 0.82)[27] as well as good convergent validity.[28]

Self-compassion Scale-Short Form (SCS-SF) is a validated, standardized 12-item scale assessing how often people are kind and caring toward themselves, especially in difficult situations.[29] Responses are made on a Likert-type scale from 1 (Almost never) to 5 (Almost always). The total score of SCS-SF has demonstrated adequate internal consistency (Cronbach's alpha ≥ 0.86).[21,30]

Client Satisfaction Questionnaire (CSQ-8) is a widely used questionnaire for measuring patient-reported satisfaction in mental healthcare settings and research.[31] Eight items are rated on a 4-point scale (possible range from 8 to 32), where a higher score indicates a higher level of overall satisfaction with service. CSQ-8 has high internal consistency (Cronbach's alpha = 0.93).

Other Constructs

Meditation practice (1- and 4-month timepoints): Participants reported on their formal mindfulness practice in the last week (in hours) and month (frequency) as well as frequency of the 3-minute breathing space practice in the last month.

Helpfulness (4-month timepoint): Participants were asked, "How helpful have you found the weekly/monthly sessions?" and were given response options on a Likert scale ranging from 1 (Not helpful at all) to 5 (Extremely helpful).

Maintenance (4-month timepoint): Participants were asked, "How well do you think you will be able to maintain any improvements in your wellbeing in the upcoming months?" and were given response options on a Likert scale ranging from 1 (Not well at all) to 5 (Extremely well).

Write-in responses (4-month timepoint): Participants were provided space to respond to open-ended questions about what they found most helpful, suggestions for improving, and expectations for the program, how the program did/did not meet those expectations, barriers to engagement (if any), and what skills/practices from the program they plan to continue using (if any).

Focus Group Purpose and Procedure

The aim of each focus group was to explore participants' experiences with MBCT-D-TiF and gather feedback for how to improve MBCT-D-TiF. Focus groups are well-suited to elicit qualitative information for greater depth and

Table 1. Summary of Demographic and Other Baseline Characteristics and Attendance Data Among Study Participants by Round and Group (Treated or Control)

	Round one treated (n = 14)	Round two treated (n = 11)	Round two control (n = 9)	Combined (N = 34)
Age, years	55.71 (12.81)	50.73 (14.81)	58.67 (11.63)	54.88 (13.18)
Gender				
Female	14 (100.0%)	11 (100.0%)	9 (100.0%)	34 (100.0%)
Employment status				
Employed full-time	7 (50.0%)	5 (45.5%)	4 (44.4%)	16 (47.1%)
Employed part-time	2 (14.3%)	2 (18.2%)	3 (33.3%)	7 (20.6%)
Unemployed	1 (7.1%)	2 (18.2%)	0 (0.0%)	3 (8.8%)
Retired	4 (28.6%)	2 (18.2%)	2 (22.2%)	8 (23.5%)
Education				
Less than 4 years college	0 (0.0%)	2 (18.2%)[a]	0 (0.0%)	2 (5.9%)
Bachelor's degree (eg, BA, BS)	5 (35.7%)	4 (36.4%)	4 (44.4%)	13 (38.2%)
Master's degree	5 (35.7%)	4 (36.4%)	4 (44.4%)	13 (38.2%)
Doctoral or professional degree	4 (28.6%)	1 (9.1%)	1 (11.1%)	6 (17.6%)
Household income				
$24,999 or less	1 (7.1%)	1 (9.1%)	0 (0.0%)	2 (5.9%)
$50,000 to $74,999	1 (7.1%)	1 (9.1%)	1 (11.1%)	3 (8.8%)
$75,000 to $99,999	0 (0.0%)	4 (36.4%)	0 (0.0%)	4 (11.8%)
$100,000 to $149,999	3 (21.4%)	2 (18.2%)	2 (22.2%)	7 (20.6%)
$150,000 to $199,999	1 (7.1%)	2 (18.2%)	4 (44.4%)	7 (20.6%)
$200,000 or more	6 (42.9%)	1 (9.1%)	0 (0.0%)	7 (20.6%)
Decline to respond	2 (14.3%)	0 (0.0%)	2 (22.2%)	4 (11.8%)
Race and ethnicity				
Black or African American	0 (0.0%)	2 (18.2%)	0 (0.0%)	2 (5.9%)
Hispanic or Latino	2 (14.3%)	0 (0.0%)	0 (0.0%)	2 (5.9%)
White	11 (78.6%)	9 (81.8%)	9 (100.0%)	29 (85.3%)
Prefer not to say	1 (7.1%)	0 (0.0%)	0 (0.0%)	1 (2.9%)
Taken MBCT more than once?				
No	10 (71.4%)	5 (45.5%)	6 (66.7%)	21 (61.8%)
Yes	4 (28.6%)	6 (54.5%)	3 (33.3%)	13 (38.2%)
Have you had depression relapse since your MBCT class?				
No	3 (21.4%)	3 (27.3%)	2 (22.2%)	8 (23.5%)
Yes	11 (78.6%)	8 (72.7%)	7 (77.8%)	26 (76.5%)
Are you currently in other mindfulness programs?				
No	11 (78.6%)	9 (81.8%)	8 (88.9%)	28 (82.4%)
Yes	3 (21.4%)	2 (18.2%)	1 (11.1%)	6 (17.6%)
Have you experienced depression in past 6m?				
No	3 (21.4%)	2 (18.2%)	2 (22.2%)	7 (20.6%)
Yes	11 (78.6%)	9 (81.8%)	7 (77.8%)	27 (79.4%)
Currently taking psychiatric medications?				
No	5 (35.7%)	1 (9.1%)	2 (22.2%)	8 (23.5%)
Yes	9 (64.3%)	10 (90.9%)	7 (77.8%)	26 (76.5%)
Currently receiving talk therapy?				
No	4 (28.6%)	3 (27.3%)	3 (33.3%)	10 (29.4%)
Yes	10 (71.4%)	8 (72.7%)	6 (66.7%)	24 (70.6%)
Major life changes or grief, past year?				
No	6 (42.9%)	3 (27.3%)	3 (33.3%)	12 (35.3%)
Yes	8 (57.1%)	8 (72.7%)	6 (66.7%)	22 (64.7%)
Attendance (#) at weekly classes, mean (SD)	14 (100%)	11 (100%)	n/a	4 (0)
Attendance (#) at monthly classes, mean (SD)[b]	3.79 (1.25)	3.73 (0.65)	n/a	3.76 (1.01)

Continuous variables are summarized as mean (standard deviation) and categorical variables summarized as n (%).

[a]Among the round two treated group participants who reported less than 4 years of college (n = 2), one completed a High School diploma or GED and one completed an Associate's degree (2-year college degree).

[b]The control group was not offered monthly classes; n/a refers to not applicable. Round one participants were offered a total of 5 monthly classes and round two (treated) participants were offered a total of 4 monthly classes.

understanding of participant experience to inform future program refinements, a primary goal of the study. A moderator's guide was drafted, reviewed, and refined by the research team, covering topics like: experience with the MBCT-D-TiF; goals and reasons for participating initially and how well the program met those goals; benefits of the program; challenges to maintaining program benefits and what would have helped to maintain benefits; and recommendations for improvement.

Two focus groups were conducted via videoconferencing and lasted approximately 90 minutes. Only the participants who received MBCT-D-TiF (i.e., not those assigned to waitlist control) were invited to attend a focus group. Of the 24 participants invited to attend, a total of 14 (58%) engaged in a focus group (n = 7 in each group). Reasons participants did not attend a focus group included scheduling conflicts (n = 5), lack of interest (n = 4), and no-show (n = 1). One participant repeatedly expressed a lack of benefit from any of the many meditation programs they had attended, and as a result, they were not expected to have helpful feedback for this pilot program, and were therefore, not invited to attend. Each group was moderated by the same facilitator who has 30 years of experience moderating focus groups for the purpose of qualitative data collection. At the start of each group, the moderator facilitated a consent process that included an explanation of the purpose of the session, a discussion about confidentiality, including storage video and audio recorded content and deidentification of transcripts, as well as a reminder about the voluntary nature of participation. Participants were invited to ask question before the recording was started. Each focus group was recorded, transcribed verbatim, and anonymized.

Data Analysis

Quantitative data. The aims of this pilot study were to assess the feasibility and acceptability of the program and to refine the intervention in preparation for an efficacy trial. We also collected preliminary data on pre-post intervention changes in depression and target mechanisms of MBCT-D-TiF (e.g., increased decentering and self-compassion and decreased ruminative thought). The control group in the second phase (round two) was included to test the feasibility of recruitment for a future, larger randomized controlled trial. Due to the small size of the control comparison group (n = 9) and the use of a control group in only one of the two phases of the pilot study, we did not conduct comparisons with the control arm. We used descriptive and summary statistics to describe demographic and other sample factors. To estimate the within-group changes in psychological measures (e.g., depressive symptoms using the PROMIS 8a and the target mechanisms of action), we used linear mixed effects models with the psychometric scale measure as the outcome, a time point indicator as a fixed effect, and nested random effects for person nested within group to account for the correlation of repeated measures and clustering within treatment groups (using Stata version 18).

Qualitative data. We used thematic analysis to identify patterns in the transcribed focus group data. Thematic analysis is a technique applicable across a broad range of qualitative research, used to identify and interpret patterns of meaning, or themes, from the data.[32] Our analysis was iterative, beginning with a process of familiarizing ourselves with the data by closely reviewing focus group transcripts, taking notes about initial impressions and emergent patterns in these data. Our research team then met over several sessions to develop and subsequently refine a codebook of 52 codes (eg, structure; content; participation goals; benefits of participation) and subcodes (eg, group; teacher; meditation; community; accountability; coping; self-compassion) with definitions based on patterns found in the data. Once the codebook was established, two investigators independently coded each transcript using Dedoose (version 9.2.12).[33] The team of investigators met repeatedly (until consensus was achieved) to identify and resolve coding disagreements and, later, to distill emerging themes through group discussion. The focus group themes as well as key concepts and quotes from the written responses from the surveys are described below.

Results

Study Sample

The sample was female, highly educated, primarily White (Table 1); 38.2% reported haven taken MBCT more than once; and 76.5% reported experiencing depression relapse since completing MBCT the first time.

Feasibility and Acceptability

Recruitment. Recruitment goals of at least 12 (round one) and 20 (round two) participants were met in under 6 weeks, exceeding our expectation. *Survey completion.* Of the participants offered MBCT-D-TiF, survey completion was 100% at baseline and 4 months. Among waitlist controls, survey completion was similarly at 100% at baseline but decreased to 78% at 4 months. *Attendance*. All MBCT-D-TiF participants (100%) attended all weekly sessions and 76% attended at least 75% of the monthly sessions (Table 1). The mean number of monthly classes attended across rounds one (offered 5 classes) and two (offered 4 classes) was 3.76 (SD = 1.01). *Satisfaction*. MBCT-D-TiF participants reported being very satisfied, as determined by a mean score of 27.09 (SD = 5.97) on the CSQ-8. *Helpfulness*. Most MBCT-D-TiF participants (77.1%) found the weekly sessions "very" or "extremely" helpful, and 66.7% found the monthly sessions "very" or "extremely" helpful. Most MBCT-D-TiF participants (90%) found the 2-hour length of the weekly sessions to be "just right."

Table 2. Changes in Psychological Measures Among n = 25 Participants Receiving MBCT-D-TiF From Baseline to Month 1 and 4

	Baseline	Month 1			Month 4		
Outcome	Mean (SD)	Mean (SD)	Change from BL (95%CI), P	Effect size	Mean (SD)	Change from BL (95%CI), P	Effect size
Positive affect T score (PROMIS 15a)	39.05 (7.82)	40.66 (6.34)	1.60 (−0.99, 4.20); P = .23	0.24	40.57 (10.05)	1.52 (−1.07, 4.11); P = .25	0.23
Depression T score (PROMIS 8a)	57.09 (7.03)	57.40 (7.50)	0.30 (−1.87, 2.48); P = .78	0.05	56.97 (8.16)	−0.12 (−2.30, 2.06); P = .91	−0.02
Decentering scale (Experiences questionnaire)	33.20 (5.73)	34.40 (5.66)	1.20 (−0.64, 3.04); P = .20	0.26	34.68 (8.03)	1.48 (−0.36, 3.32); P = .11	0.32
Rumination scale (Experiences questionnaire)	21.60 (4.27)	20.52 (3.96)	−1.08 (−2.28, 0.12); P = .077	−0.35	19.68 (3.42)	−1.92 (−3.12, −0.72); P = .0016	−0.63
Mindfulness total score (FFMQ)	48.40 (7.30)	49.96 (7.27)	1.56 (−1.03, 4.15); P = .24	0.24	50.36 (9.99)	1.96 (−0.63, 4.55); P = .14	0.30
Rumination score (Ruminative response scale)	12.52 (3.78)	11.16 (3.45)	−1.36 (−2.37, −0.35); P = .0086	−0.53	10.76 (3.80)	−1.76 (−2.77, −0.75); P = .0007	−0.68
Reflection score (Ruminative response scale)	12.88 (2.96)	11.16 (3.12)	−1.72 (−2.48, −0.96); P < .0001	−0.89	11.20 (3.54)	−1.68 (−2.44, −0.92); P < .0001	−0.87
Self compassion total score (self compassion scale)	2.66 (0.54)	3.01 (0.62)	0.35 (0.14, 0.56); P = .0010	0.66	3.04 (0.75)	0.38 (0.17, 0.59); P = .0003	0.72

Notes: SD = standard deviation; CI = confidence interval; BL = baseline. See Methods for details on measures. Change from baseline uses estimates from mixed effects models. Effect size is from Cohen's D.

Preliminary Data

Depression and target mechanisms. As expected, given the pilot nature of the study and small sample size, the results of the linear mixed models showed no-to-small effects in the change in scores on depression and other target mechanism from baseline to 1 month and 4 months in participants who received MBCT-D-TiF (Table 2). The scores suggest participants reported experiencing a decrease in rumination as well as an increase in positive affect, decentering, mindfulness, and self-compassion at 4 months.

Other Self-Reported Outcomes

Maintaining well-being: Of the participants offered MBCT-D-TiF, when asked "How well do you think you will be able to maintain any improvements in your wellbeing in the

Table 3. Self-Report Meditation Practice by Round and Timepoint Among Participants Who Received MBCT-D-TiF (n = 25)

	Round one (n = 14)		Round two (n = 11)	
	Month 1	Month 4	Month 1	Month 4
Formal meditation hours in the past week, mean (SD)[a]	2.88 (2.01)	2.21 (1.81)	3.14 (2.45)	1.91 (2.31)
Formal meditation frequency last month, n (%)				
Not at all	1 (7.1%)	1 (7.1%)	0 (0.0%)	0 (0.0%)
Sometimes (1-2x/week)	4 (28.6%)	6 (42.9%)	3 (27.3%)	6 (54.5%)
Regularly (3x/week, ≥15 min/time)	5 (35.7%)	5 (35.7%)	7 (63.6%)	4 (36.4%)
Often (≥4x/week, ≥30 min/time)	4 (28.6%)	2 (14.3%)	1 (9.1%)	1 (9.1%)
3-minute breathing space frequency in the last month				
Not at all	3 (21.4%)	4 (28.6%)	1 (9.1%)	4 (36.4%)
Sometimes (1-2x/week)	8 (57.1%)	5 (35.7%)	9 (81.8%)	5 (45.5%)
Regularly (3x/week)	0 (0.0%)	2 (14.3%)	1 (9.1%)	2 (18.2%)
Often (≥4x/week)	3 (21.4%)	3 (21.4%)	0 (0.0%)	0 (0.0%)

[a]The round one, month 4 data had one extreme outlier for hours of formal mediation in the past week (the value of 60 was 6.7 times the next highest value in the data, and it appears implausible for the participant who was employed full time). Here, before calculating the mean and SD for round one, month 4, the single extreme value was Winsorized at the 95th percentile, such that the original value of 60 was replaced with the 95th percentile value in the data, which was 7 hours.

upcoming months," 58.3% endorsed "slightly" or "moderately." *Meditation practice:* Participants who received MBCT-D-TiF reported a decrease in formal meditation practice from month 1 to month 4 (Table 3).

Focus Group Themes

The following three themes emerged following thematic content analysis of the focus group data: (1) the importance of the group for participants' social connection, support, and practice community that enhanced their meditative experience, helped improve their mental health, and facilitated accountability; (2) MBCT-D-TiF provided mental health benefits, including tools to lessen the negative impact of depression/anxiety, increase connections to the world, and enhance positive experiences; (3) participants' home practices were reinvigorated during the weekly MBCT-D-TiF sessions, but fell short of their goals thereafter.

(1) The importance of the group for participants' social connection, support, and practice community that enhanced their meditative experience, helped improve their mental health, and facilitated accountability.

Participants commented consistently on the importance and positive impact of the group element of the program, stating "the community aspect was invaluable" and "it really just feels different to meditate as part of a community." Even for seasoned meditators who reported having an established individual practice outside of the group, the desire to be part of a practice community was a draw for joining the study. One such participant explained, "I have a pretty consistent practice. . .but I did really benefit from coming, being accountable to a group, and then having other meditators to discuss it with." The nature of a "shared community practice" helped participants stay accountable to program and their independent practice outside of MBCT-D-TiF sessions, explaining, "when we are in the group it is easier, you are not just accountable to yourself." Some participants expressed surprise that this strong sense of community was possible in the online format since they initially anticipated the virtual environment would be a detriment due to the absence of in-person contact.

Participants said both the act of practicing as a community and the group discussion afterward were powerful. The opportunity to share and discuss their experience of the practice with the other members of the group was "incredibly impactful" and allowed for "shared experiences around how we related to [the meditation]." One participant expressed their appreciation for "knowing that someone else in this group. . .had a similar feeling about the different meditations; that sense of community was really nice." Another said, "there was one session where participants shared how they were feeling in that moment. That moment of honesty and openness about how everyone was also struggling was by far and away the most helpful. It made me feel not alone and like I was not a failure for not feeling better." This process was also supportive for participants when they experienced challenges during their practice since it allowed them to draw on what one participant referred to as "the safety of the group." In these instances, they could utilize "the connection with people to talk through if it was hard or if [they] could not do it." This sense of group connection and positive regard for others in the group extended beyond in-session practice. As one participant explained, "I found myself wondering. . .how [other participants] are doing. I think about people. . .if I do a loving-kindness meditation, I send them some good thoughts."

Participants said the connections and the benefits that ensued were specially formed in breakout groups. The breakout sessions were described as important because, as one participant said, "in the small groups we were actually able to engage in a real way." Participants enjoyed the routine encounters with each other in the larger group context during the weekly sessions, but participants emphasized the importance of the small break-out sessions for developing deeper connections. Many participants asked for formal ways to maintain these connections and a sense of community after the program.

Not only did the community aspect of the program improve participants' experiences with meditation practice and provide accountability, it also improved their mental well-being. Considering the isolative effects of anxiety and depression, participants emphasized how the MBCT-D-TiF program had a positive effect on their mental health by reducing their loneliness. One participant explained:

> Meditation in and of itself has really changed my life. However, one of the big realizations I had with this program is the way in which my anxiety and depression are both heightened by loneliness and contribute to being more isolated from people. Having a regular connection point with other people [who are] dealing with the same issues as I am and having the space to reflect and share on our experiences is the aspect that was game changing for me. It disrupts my rumination, reminds me that I'm not alone, and helped me feel connected to others. It has been so powerful on many levels.

Another participant noted how their anxiety can be difficult to disrupt independently, saying "I can't stop myself," but that the MBCT-D-TiF program helped them "build real connection with people about the hard stuff. . .just having a conversation with somebody disrupts that [anxiety]." Participants discussed the link between the social experience of the MBCT-D-TiF and their mental well-being, pointing to the meaningfulness of the relationships formed in these groups. Participants' experiences with depression and anxiety were shared in the group and seemed to reduce their symptoms while simultaneously validating and normalizing their struggles.

Participants also had high praise for the facilitators and described feeling well-cared for by project staff, which also contributed to a sense of community, connection, and positive relationships. Participants described the facilitators as "compassionate and experienced people," which contributed to their overall experience of positive relationships. Participants particularly appreciated the instructors' flexibility and said their approach did not feel as "dogmatic" as prior experiences. One participant explained, "with the facilitators there was a real focus on flexibility with our practice. . .I think that is important in terms of maintaining a daily practice, is being flexible." Participants also noted feeling supported by the project staff. One participant expressed gratitude for the safety-net feature (an individual check-in with study personnel prompted by elevated score on the depression screen) saying,

> My scores were really low at one point, and it was such a surprise and delight that a clinician had followed up with me to say, "Are you okay?" Just knowing that there is a system that had my back if something was dreadfully wrong--Just knowing that in the back of my mind, this is all a system and part of a larger network, a net to kind of catch you and carry you through this.

Other participants, however, described a different experience with the safety-net feature and said the check-ins were unwanted or even burdensome, explaining, "I wanted to answer the surveys honestly for the sake of the study, but at the same time I did not want to be bothered by extra phone calls." One participant noted:

> I probably would have dropped out if I would have kept getting those [calls], but [the Research Coordinator] worked it out so that she would just like text me, like "Are you doing okay? Do you need anything from me?" It was just a hassle. And I understand you need to work to protect people's safety and all that, but it was not really being helpful.

Regardless of these differences in communication preferences and perceived usefulness of the check-ins, participants expressed generally meaningful experiences from the interpersonal relationships cultivated within MBCT-D-TiF.

(2) MBCT-D-TiF provided mental health benefits, including tools to lessen the negative impact of depression/anxiety, increase connections to the world, and enhance positive experiences.

Participants said they sought out the study initially because of the desire to reduce the negative impact of depression and anxiety on their lives. A participant explained their motivation for joining by saying, "I had been having a lot of anxiety and grief that I had been struggling to move through…so when I was coming into this course, I was looking to reconnect with tools and feel more present again." Many participants reported meeting this goal, indicating they felt "less anxious" and that when their mood became depressed, it did not get "as low." One participant described meditation as "very beneficial" for their mental health and said, "the program helped remind me how important it was to just reinforce that [practice] in my life…to know that this is something that really does help me with depression and anxiety and self-doubt and all sorts of things." Participants described mindfulness practice as a key component to cultivating well-being and mental stability in their lives, akin to exercising and eating well.

MBCT-D-TiF provided teachings and tools to help support participants. A participant explained, "The diverse range of teachings has given me a plethora of tools to use to help support myself in various situations where I may have anxiety and/or depression. It feels like I have added new tools to my toolbox." One participant reported developing more patience, especially about appreciating the temporary nature of things, and subsequently tolerating emotional ups and downs. As one participant said, "I do not go as deep into sadness or anxiety as I used to—I am able to be with my feelings but not drown in them." Techniques such as breath-focused exercises supported participants in their efforts to regulate their mental states, and some participants spoke about their improved capacity for decentering (the ability to observe thoughts and feelings as temporary and automatic events in the mind, rather than facts or true descriptions of reality) in their experiences with depression or anxiety: "I am more able to separate and observe my thoughts and emotions, rather than becoming overwhelmed." Deepening participants' relationship with their practice was reported to have an anxiety-reducing and sleep-improving effect, and it also helped some participants recognize early signs of anxiety or depression as intended.

Importantly, participants indicated that MBCT-D-TiF did not just lessen the negative impact of depression or anxiety in their lives, but it also enhanced their positive life experiences and connections to the world around them. This included a greater degree of self-acceptance, feeling more focused, and pursuing more activity with friends and family. One participant explained this change in their life, saying, "I am much more at ease [and] able to hold different perspectives and strengthen my curiosity in situations;" another said, "I feel proud of my ability to notice so many details around me. It makes my feelings of awe more profound." The increased focus on eudemonic well-being in the MBCT-D-TiF curriculum was noted by participants; however, participants also noticed a decreased emphasis on symptom management. One participant explained, "I have taken a couple MBCT classes, my first one they really addressed the issues of anxiety and depression. It was really talked about," but in MBCT-D-TiF, some participants felt that "anxiety and depression just was not in the room." This suggests future iterations of MBCT-D-TiF should strive to maintain content designed to enhance eudemonic well-being while preserving a focus on participants' experiences with depression and anxiety.

Overall, participants reported being profoundly moved, connected to, and deeply impacted by the in-session content

(e.g., stories, poems, principles of mindfulness) and appreciated the meditation practices. One participant shared, “I had such a positive experience, and I felt like something landed differently than the MBCT course, which I just adored the teacher and loved that. But I felt like something finally kind of jelled or landed this time. I feel like it’s really been life changing in a really good way.” A few participants commented, “I wish it could go on indefinitely.”

(3) Participants’ home practices were reinvigorated during the weekly MBCT-D-TiF sessions, but fell short of their goals thereafter.

Participants also reported entering the study with the goal of “reinvigorating” their practice and gain tools to “help me meditate on my own more regularly.” However, many participants reported that this goal was only partially achieved. While some participants felt MBCT-D-TiF helped them return to/strengthen their daily meditation practice during the program, most participants said they ultimately struggled to maintain their practice post-program. One participant shared that MBCT-D-TiF “did not really help me solidify my practice outside of session” and another noted, “I did well when I was engaged in the structure of a program, but I have fallen off the wagon again.” Participants reported noticeable difficulty during the transition from weekly to monthly sessions, explaining, “Once we moved into the monthly, I felt like I started having a little more trouble keeping up with my home practice.” Unsurprisingly, participants gave high praise for weekly sessions but reported less benefit from the monthly sessions, explaining that the transition from weekly to monthly sessions felt overwhelming due to lost sense of community and accountability for practice. Yet, participants appreciated the transition from weekly to monthly more than ending “cold turkey,” and some found the monthly sessions to be helpful. One participant said, “It is comforting to reconnect with our facilitators and our group members again. I find the monthly programs like a tune up and good reminders of continuing to integrate mindfulness into our daily lives.” In summary, participants experienced the most benefit from the regularity of weekly sessions, and despite not meeting their goal of maintaining regular practice post-program, one participant said, “Even though I have not kept things up very well since [MBCT-D-TiF], I kept them up more than I would have without the class, for sure.”

Participants pointed to the loss of structure and accountability as contributors to difficulty with maintaining practice after the program. Symptoms of depression and anxiety (e.g., self-isolation, low motivation, self-criticism, “overreacting”) were mentioned as additional barriers to maintaining a personal practice. Finally, participants described lack of community as a barrier to maintaining practice, explaining, “I think a challenge for me was that meditating on my own just does not feel as impactful as meditating as part of a group. When I meditate as part of a group, I do feel sort of an immediate calming, I feel it immediately. But when I’m on my own…things get harder.”

Participants offered several recommendations for addressing the transition to lessen challenges with home practice post-program. One participant suggested modifying the program content to focus a portion of each session on how to sustain home practice with an explicit request for “behavior change strategies.” Several participants suggested increasing and/or extending the length of engagement with the program (i.e., more or longer sessions, on-going drop-in sessions after the program, and a longer tapering schedule to promote behavior formation), stating: “maybe weekly does need to go on forever,” a point to which another responded, “I wish it could.” Other suggestions included sending reminders to help with practice post-program, such as push notifications or daily emails that prompt practice, or creating a user-friendly online space to organize, share, and distribute information (e.g., a website) that is accessible during and after the program. In general, participants entered the study with the goal to maintain their daily practice after the program, and although this goal was not met by some participants, participants still felt they made progress and benefited from MBCT-D-TiF.

Discussion

This study aimed to refine and pilot test the feasibility and acceptability of MBCT-D-TiF and study procedures. Recruitment targets were met, MBCT-D-TiF was well attended, and participants rated it very or extremely helpful, supporting its feasibility and acceptability. The qualitative data suggested MBCT-D-TiF achieved the desired outcome of extending and deepening the themes of MBCT without repetition. Participants described being moved by the session content (i.e., stories, poems, mindfulness principles) and found the program content facilitative of greater self-acceptance and a broadened proclivity for seeking out positive life experiences. Participants viewed meditation practice as an important component for enhancing their mental stability, and the MBCT-D-TiF program provided valuable teachings and tools to support the development of this practice. Strengthening equanimity, extending patience, and practicing breath-focused exercises all helped participants with their mental health and well-being, and they noticed an association between their mindfulness practice and reduced anxiety, better sleep, and increased awareness of early signs of anxiety and depression. Importantly, participants emphasized their desire to welcome depression and anxiety “in the room,” which points to the meaningfulness of explicitly engaging with participants’ mental health issues during MBCT-D-TiF. Participants described benefiting from small group discussions that allowed them to share and validate one another’s experiences navigating mental health challenges.

Given the pilot nature of the study, it was not powered to assess efficacy; therefore, we did not conduct analyses comparing the treated and control groups. However, we administered self-report surveys at three timepoints (baseline,

1 and 4 months) to assess preliminary trends in the-pre-to-post-intervention changes in depression and target mechanisms (e.g., increased decentering and self-compassion and decreased ruminative thought). Results support promise for MBCT-D-TiF; however, these data are preliminary and are likely unstable due to the small sample size. Thus, the interpretation of these trends should be done conservatively.

Participants reported a main reason for participating in the study was to reinvigorate and subsequently maintain their meditation practice post-program. While many participants reported an increase in practice during the weekly MBCT-D-TiF sessions, they said sustaining their practice thereafter proved challenging. Some participants expressed disappointment in their inability to achieve this goal, and pointed to several barriers, predominantly citing the loss of practicing as a community and structure, as well as symptoms of depression and anxiety, as hindrances to home practice once the weekly sessions ended. Given this, it is not surprising that both attendance rates and helpfulness ratings decreased as the frequency of the sessions decreased. At 4 months, participants rated their ability to maintain improvements in their well-being after the program as "slightly" or "moderately" well, and 48.7% of the participants who were offered MBCT-D-TiF (excluding waitlist controls) said they practiced "sometimes" (1-2 times per week). The self-report survey averages suggest that participants had some success maintaining improvements to their overall well-being following participation in the MBCT-D-TiF program. Nonetheless, participants reported experiencing challenges to maintaining regular home meditation practice post-program during the focus groups. This points to an opportunity to collaboratively define success, set goals, and expectations for home practice at the start of the program in future iterations of MBCT-D-TiF. In addition, to mitigate challenges to at home practice post-program, participants suggested extending the length of the program or providing systematized reminders for daily practice. Additional steps are needed to better support participants' desired regular home practice, an opportunity for program refinements.

A key takeaway from this study is the reported importance of the group format. Participants said the group is a central aspect of MBCT-D-TiF that cannot be separated from the rest of the program. Participants described an inherent motivation and positive experience meditating in a community that had deeper effects beyond accountability, such as interpersonal connections and validation of struggles with meditation practice or mental health. This element of the MBCT-D-TiF program—the group setting and the practice community—seems to be uniquely meaningful to participants' perceived success in the program. Though this was a strong theme from our focus groups and has been documented following other mindfulness-based group interventions as well,[34] to our knowledge, an individual approach to delivering MBCT has not been compared to the group format on outcomes such as depression, an important area of future exploration.

Taken together, these findings point to the importance of considering the implications of delivering the MBCT-D-TiF program in a group format coupled with an expectation, whether explicit or assumed, that participants can translate and sustain group-developed skills in an individual context after the program. Understanding this translational gap warrants further investigation, especially since participants continue to express a desire for establishing post-program practice and maintaining its benefits.[9] This suggests that for some participants the MBCT-D-TiF program may benefit from long-term group meetings, and the optimal frequency could be examined further. Future MBCT-D-TiF programs might also anticipate participants' expectations at the program's outset and discuss the nature of community support, as well as adjusting the curriculum to incorporate behavior change strategies for home practice maintenance. It should be noted that this challenge is not unique to MBCT/MBCT-D-TiF. Maintaining behavior change applies broadly to all behavioral group-based interventions that rely on participants applying skills on their own after the program ends.

Limitations

This intervention development study achieved the intended goals to refine and pilot test MBCT-D-TiF and study procedures; yet there were limitations that should be acknowledged. First, given that MBCT-D-TiF was in the development stage, round one participants were offered 5 monthly sessions, whereas round two participants were offered 4. This means that unlike round two participants, round one participants completed the month four survey prior to finishing all the monthly sessions, a difference that could have affected the monthly ratings. The need to modify study protocols during intervention development studies is common; however, future studies could avoid this limitation by assessing the desired number of sessions before starting the pilot study. Second, our sample was composed entirely of adults who identify as female, potentially limiting generalizability to individuals who identify with a different gender. This is, in part, because many MBCT programs tend to attract mostly women, but a future study might aim to avoid this by emphasizing additional recruitment of men and other populations that are under-represented in MBCT programs. Despite this limitation, the themes that emerged from the current qualitative analysis (i.e., the benefits of the group format, experiencing mental health benefits, and challenges with maintaining practice post-program) align with prior findings from qualitative studies on MBCT among more heterogenous samples,[9,35,36] suggesting these findings are not limited to individuals who identify as female. Nonetheless, the overarching skew towards participants identifying as

female in MBCT qualitative studies is a broader issue that warrants further investigation.[37]

Conclusions

MBCT-D-TiF was well attended and rated very or extremely helpful by most participants, supporting its feasibility and acceptability. One theme that emerged from the analysis of qualitative data was the reported challenge of sustaining daily meditation practice post-program, offering a target for refinement. Based on the qualitative data, MBCT-D-TiF also appeared to achieve the desired outcome of extending and deepening the themes of MBCT, given that participants described being deeply impacted by the content and said the program was supportive of their mental well-being in several ways. Overall, MBCT-D-TiF holds promise for improving outcomes for MBCT graduates and warrants additional testing.

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Ethical Considerations

This study was conducted in accordance with the Declaration of Helsinki, and the study protocol was approved by the Institutional Review Board (#22-37109) at the University of California, San Francisco (UCSF) on May 17, 2025.

Consent to Participate

All participants provided written informed consent to participate in the study.

Consent for Publication

All participants provided written informed consent to publication of findings resulting from study participation.

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