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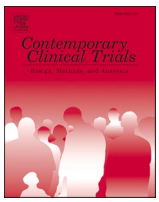

Peer-supported mindfulness-based intervention for managing depressive symptoms in community-dwelling older adults: Protocol for a randomized controlled trial

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ABSTRACT

Background: Depression in old age is a public health concern contributing to individual and societal burdens. Mindfulness-based stress reduction (MBSR) and mindfulness-based cognitive therapy (MBCT) have shown promise in reducing depressive symptoms. However, time commitments associated with these interventions could pose challenges to older adults. To address this, we propose a briefer mindfulness-based intervention (MBI) with peer supporters to engage and support participants experiencing time constraints and distress. This protocol describes a study examining the efficacy of a peer-supported MBI in reducing depressive symptoms among older adults.

Methods: The study involves a two-arm randomized controlled trial and a propensity score-matched comparison group. Participants will receive either (1) a social worker-led MBI consisting of six weekly 2-h sessions or (2) the same MBI supplemented with peer supporters. A total of 138 community-dwelling older adults above 60 years old, with mild to moderately severe depressive symptoms, will be recruited through local non-governmental organizations. Study metrics will be assessed at baseline, completion of the intervention, and 3 months following the intervention, through self-assessed questionnaires. The primary outcome is depressive symptoms measured by PHQ-9. Data ($n = 69$) from a prior study involving mindfulness teacher-led MBCT with the same participant criteria and data collection procedures will be matched to the other two groups using propensity scores.

Discussion: The study results will suggest the efficacy and scalability of a peer-supported MBI in community mental health services, improving intervention accessibility and the mental health of older adults.

Trial registration: ClinicalTrials.gov NCT06528132 on 30 July 2024.

1. Introduction

Depression in old age is a significant public health concern due to its impact on emotional suffering, mortality risk [1], and substantial economic and societal costs on the community and health care system [2]. Globally, the prevalence of major depressive disorders among older adults is 13.3 % [3] and 28.4 % for nonclinical depressive symptoms [4]. The incidence of late-life depression is expected to increase with the aging population given its tendency to run a relapsing course [5]. Therefore, it is crucial to ensure that social resources, medications, and therapeutic tools are readily available and accessible to address late-life depression effectively.

Mindfulness-based intervention (MBI), usually in the forms of mindfulness-based stress reduction (MBSR) and mindfulness-based

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cognitive therapy (MBCT), is a promising approach to managing a series of health and psychological conditions among older adults [6,7]. Through exercises such as body scan, mindful eating, mindful walking, and bringing awareness and attention to different parts of the body, MBI aims to shift people's awareness to the present moment in a nonjudgmental manner [8]. Studies have demonstrated the efficacy of MBIs in increasing positive affect, as well as reducing depression, anxiety, loneliness, stress, sleep problems, and rumination across different populations and age groups [6,7,9]. However, the time commitment required by MBSR and MBCT–eight weekly sessions lasting for two to three hours, a whole-day retreat, and 40-min daily practice–could impact older adults' engagement and motivation [10]. Recent research suggests that brief adaptations of MBIs, such as a condensed version of MBSR and MBCT comprising eight half-hour sessions, can yield improved mental well-being in older adults [11]. Nonetheless, there remain concerns regarding the comparative efficacy of these brief MBIs versus the more established, manualized versions of MBSR and MBCT.

Another potential means to enhance engagement and motivation, particularly for daily practice, is through peer support. An emerging body of evidence underscores the potential for peer support to enhance recovery capital, which encompasses the internal and external resources individuals leverage to initiate and maintain recovery [12]. Peer supporters in mental health, also called "experts by experience", are individuals who have direct lived experience and can exchange practical or emotional support with peers who are going through similar challenges in a non-judgmental way [13]. Their lived experiences are regarded as empowering and insightful by service users [14]. In older adults, more specifically, a pilot study found that when peer supporters are involved in an online intervention for older adults with depression, adherence is improved while burden is reduced [15]. Thus, integrating peer supporters in interventions for older adults may help enhance engagement and reduce attrition. However, the effects of integrating peer supporters on other outcome measures remain unclear. For example, a systematic review and meta-analysis found that incorporating one-to-one peer support has a modest positive impact on self-reported psychosocial outcomes (e.g., self-rated recovery and empowerment), but not clinical outcomes [16]. In this study, we postulate that integrating peer supporters within the framework of MBIs could potentially foster greater engagement among participants and potentially augment efficacy in improving mental health. For the reason being, through interaction with peer supporters who can share their experiences and coping strategies for maintaining mindfulness practice during stressful times, older adults may find it easier to apply techniques acquired to everyday life.

1.1. Objectives

This protocol paper describes a partial randomized controlled trial (RCT) of MBI for older adults with mild to moderately severe depressive symptoms. The primary aim of the study is to examine the effectiveness of MBI, with and without peer support, in reducing depressive symptoms compared to MBCT. We hypothesize that both MBIs will have comparable effects with MBCT. Another aim is to compare the effectiveness of MBI with and without peer supporters. We hypothesize that peer-supported MBI will lead to better engagement in the interventions and better outcomes than the MBI without peer supporters.

2. Methods

2.1. Trial design

The study will utilize a combination of RCT and propensity score matching techniques to examine the effectiveness of different types of MBI among older adults with depressive symptoms. Participants will receive either the MBI or peer-supported MBI. Data from a previous study involving MBCT will be matched to the other two groups using propensity scores [17]. Both studies have the same criteria for participants and data collection procedures. This research design was selected due to practical considerations in data collection, following consultations with researchers and social workers. The study was approved by the Human Research Ethics Committee of The University of Hong Kong (Ref. No.: EA220105).

2.2. Participants

2.2.1. Recruitment

Participants will be recruited from the aged care units and mental health care units partnering with Jockey Club Holistic Support Project for Elderly Mental Wellness (JC JoyAge), a large-scale collaborative stepped-care intervention service for late-life mental health across Hong Kong [18]. Posters and leaflets for this study will be posted on notice boards in partnering units. In addition, mindfulness and mental health talks will be held.

2.2.2. Inclusion criteria

To be eligible to participate in the study, participants must be (1) aged 60 years or above, (2) show mild to moderate depressive symptoms, as indicated by scoring 5 to 14 on the Patient Health Questionnaire-9 (PHQ-9), and (3) able to give informed consent to participate. According to the JoyAge service protocol, participants with mild to moderate depressive symptoms will be provided with psychosocial interventions. However, each participant will receive only one type of intervention at a time. There are no restrictions on treatment received outside of the JoyAge project, whether related to mental health or physical health.

2.2.3. Exclusion criteria

The exclusion criteria include: (1) known history of autism, intellectual disability, schizophrenia-spectrum disorder, bipolar disorder, Parkinson's disease, or dementia, (2) current abuse of drugs or alcohol, and (3) difficulty in communication. After participants are allocated to the intervention group, a screening interview will be scheduled. Participants will be further excluded if they (4) have an imminent suicidal risk, or (5) if the schedule or the training is unsuitable for the participant.

2.2.4. Screening interview

A one-to-one interview (approximately 45 to 60 min) will be conducted with the eligible participants in the MBI groups. The purpose is to manage the expectations of participants regarding the MBI and ensure that they are physically and mentally fit for it. They will be asked about their current mental and physical health status, as well as their experience of living with depressive symptoms. Based on participants' responses, the interviewer will illustrate how their depressive experiences are related to automatic cognitive responses, and how mindfulness may help alleviate these unpleasant experiences. During this interview, participants will have the opportunity to ask any questions they have about the study or the intervention. Finally, the interviewer will invite participants to engage in a 10-min body scan to have a taste of what the training will involve (i.e., the experience of awareness and the present moment). If participants report uncomfortable feelings during this exercise (e.g. physical discomfort, emotional distress, or dissociation), the interviewer will discuss with them whether the MBI is appropriate for their needs and circumstances.

2.3. Intervention

All interventions are delivered in in-person group format, with six to eight participants in each group. The differences between the MBI and MBCT lie in their intervention duration, instructor, and structure. The 6-week MBI is led by trained social workers, whereas the 8-week MBCT is facilitated by certified mindfulness teachers. Additionally, the MBI

emphasizes experiential activities, such as mindful breathing and body scanning, with a focus on engaging participants in practice rather than inquiry-based discussions. These activities are designed to be shorter and structured with gradually increasing duration to support participants in building a sustainable mindfulness habit.

2.3.1. Mindfulness-based intervention (MBI)

The intervention is developed based on MBCT, which combines mindfulness practices with.

principles from cognitive behavioral therapy. It aims to assist participants in cultivating a nonjudgmental attitude toward their thoughts and feelings, enabling them to recognize and disengage from maladaptive cognitive patterns that lead to emotional distress [19]. The intervention consists of six 2-h weekly sessions (Table 1). Each session includes guided mindfulness exercises, feedback and discussion, homework review, and psychoeducation. A reunion will take place one month after the final session, which is designed to enhance training effects and the application of mindfulness techniques into everyday life. The intervention will be conducted in Cantonese and led by social workers who received a two-day training provided by a certified mindfulness teacher at the Oxford Mindfulness Centre and the Hong Kong Centre for Mindfulness. The training emphasized experiential learning and sharing in a small group setting. Demonstration and practice of key mindfulness exercises, such as the raisin meditation, body scan, mindful breathing, and mindful walking, will be included. The trainer first introduced activities and guidelines for each session, followed by role-play, group discussions, and a question-and-answer session. There is also training on pre-group interviews to facilitate the screening procedure for identifying suitable participants to receive the invention.

2.3.2. Peer-supported mindfulness-based intervention (PS-MBI)

The intervention follows the same protocol as the the MBI, with the addition of peer supporters who assist during group sessions and engage participants outside group time. Peer supporters are volunteers from JC JoyAge, who completed 80 h of training and practicum that cover topics such as mental health in late life, the recovery model, confidentiality, and appropriate ways to support older adults with depressive symptoms. For this study, we aim to recruit peer supporters who have a strong interest in mindfulness, are willing to practice and share in a group setting, and are available to provide support to participants between intervention sessions. Social workers will provide additional training to these peer supporters on mindfulness principles and conduct a taster session of mindfulness practice to enhance their understanding. Peer supporters will be matched to participants based on gender and living area whenever possible. Each peer supporter will be assigned to support two participants, facilitating their engagement in in-class activities and completion of homework assignments. Over the 6-week intervention period, peer supporters will reach out to their paired participants via phone once or twice, guided by semi-structured protocols to ensure consistent and meaningful engagement. These contacts will focus on participants' experiences with mindfulness practice, challenges faced, and encouragement of continued practice. Social workers will provide necessary supervision and follow-up support to the peer supporters before and after each MBI session. In the event that a peer supporter is unable to contact a participant as scheduled, social workers will follow up to identify and address any barriers, and, if necessary, arrangements will be made to replace the peer supporter to ensure participants receive the intended level of support throughout the intervention.

2.3.3. Mindfulness-based cognitive therapy (MBCT)

The intervention consists of eight weekly sessions. Adjustments for cognitive and functional changes in old age are made, including shortening the sessions from 2.5 h to 2 h, replacing mindfulness stretching exercises with mindfulness sitting meditation, and removing the whole-day retreat. Handouts and recordings are provided to participants so that they can perform daily home practice after each session. Participants are encouraged to record any feelings, thoughts, or challenges they encounter as they do the practice. A group reunion session is held four weeks following the completion of the intervention. The details of the intervention have been reported elsewhere [17] and presented in Table 1.

2.4. Randomization

Randomization will be performed at the social worker level. A researcher who is not involved in delivering the interventions or interacting with the social workers will perform the randomization process using a random number table. The study will conduct a total of 20 groups (i.e. 10 MBI groups and 10 peer-supported MBI groups), each involving six to eight participants to achieve the desired sample size. The study aims to train 20 social workers to deliver the MBI, with the expectation that each social worker will lead at least one group. This provides flexibility to recruit additional groups if initial enrollment exceeds expectations or to reassign facilitators if some social workers become unavailable. Social workers will be randomly allocated to deliver either MBI or peer-supported MBI. Following the allocation, the researcher will inform the research team and the mindfulness teacher, who will subsequently inform the social workers about their assigned intervention type. The MBCT group will consist of participants receiving MBCT in a previous study, using propensity score matching that takes into account demographic information, depressive symptoms, and anxiety levels.

2.5. Procedure

Recruited participants will be asked to give informed consent prior to taking part in any part of the study. Demographic information such as age, gender, marital status, living status, socioeconomic status, education level, religion, number of chronic diseases, and the presence of chronic pain will be collected at baseline. All outcome measures will be collected at baseline (T0), immediately after the intervention (T1), and 3 months after the intervention (T2). A senior research assistant and two research assistants will administer the questionnaires to participants in paper form at baseline, post-intervention, and follow-up. They will receive training on data collection procedures, including confidentiality, accurate recording, and adherence to study protocol. The questionnaire is expected to last for approximately 30 min. The senior research assistant will oversee the progress of data collection and thus be aware of the group assignment. The two research assistants will remain blinded to the group assignment. Data will be entered into a Qualtrics form configured with validation rules to prevent out-of-range responses. To ensure data accuracy, the senior research assistant will regularly compare electronic entries with the original paper forms, promptly addressing any discrepancies identified during these reviews.

2.6. Outcome measures

2.6.1. Patient health questionnaire

Depressive symptoms will be assessed using the validated Chinese version of the Patient Health Questionnaire [20]. The 9-item instrument incorporates depression diagnostic criteria with other leading major depressive symptoms and rates the frequency of the symptoms on a four-point Likert scale ranging from 0 (*not at all*) to 3 (*nearly every day*). A total score will be calculated, with higher scores indicating higher levels of depressive symptoms. The internal consistency of the Chinese version of the PHQ-9 is good ($\alpha = 0.86$; [20]).

2.6.2. Generalized anxiety disorder scale

Anxiety symptoms will be assessed by the validated Chinese version of the Generalized Anxiety Disorder 7-item scale (GAD-7; [21]). The instrument taps on the most prominent diagnostic features for generalized anxiety disorder. Participants will rate the frequency of symptoms

Table 1
MBI and MBCT Session Plan.

Session	MBI -Theme	MBI Practice/ Homework Assignment	Adapted MBCT - Theme	Adapted MBCT Practice/ Homework Assignment
1	**Automatic reaction and well-being** ● Group and self-introduction ● "Doing mode" and "Being mode" ● Learning about direct experience ● Cultivating curiosity and openness toward bodily sensations	➢ Body scan (10 min) ➢ Mindful eating ➢ Gratitude practice	**Automatic reaction and well-being** ● Group and self-introduction ● "Doing mode" and "Being mode" ● Learning about direct experience ● Cultivating curiosity and openness toward bodily sensations	➢ Body scan (30 min) ➢ Mindful eating
2	**Awareness in action** ● What is mind wandering ● Learning about attention-shifting ● Cultivating present-moment awareness ● Identifying the scattered mind and its limitations ● Integrating the practice into daily life	➢ Body scan – extended version (20 min) ➢ Breathing space ➢ Daily mindful activity ➢ Pleasant experiences calendar	**Awareness in action** ● What is mind wandering ● Learning about attention-shifting ● Cultivating present-moment awareness ● Integrating the practice into daily life	➢ Body scan (30 min) ➢ Mindful breathing (10 min) ➢ Daily mindful activity ➢ Pleasant experiences calendar
3	**Relaxing body, refreshing mind** ● Recognizing reactivity ● Using breath and body awareness to connect to the present moment ● Learning about mindfulness in movement ● Cultivating curiosity and acceptance toward experiences ● Exploring the possibility of working with unpleasantness	➢ Mindful breathing or mindful stretching/ ➢ Breathing space ➢ Breathing space (when noticing feelings of unpleasantness) ➢ Unpleasant experiences calendar	**Concentrating on the scattered mind** ● Identifying the scattered mind and its limitations ● Using breath and body awareness to connect to the present moment ● Positive experience awareness and appreciation ● Practice active awareness	➢ Body scan ➢ Mindful breathing (20 min) ➢ Breathing space ➢ Unpleasant experiences calendar
4	**Working with lingering difficult experience** ● Turning toward while not turning away from difficulty ● Externalizing depressive mood and difficult thoughts ● Using breath and body awareness to work with difficulties ● Understanding the interactive relationship between thoughts and feelings ● Changing the relationship with thoughts	➢ Sitting with difficulty (15 min) or select one of the following: body scan/ mindful breathing/ mindful stretching/ mindful walking ➢ Breathing space ➢ Breathing space (when noticing feelings of unpleasantness) ➢ Noticing early warning signs	**Identifying unpleasant feelings** ● Identifying unpleasant feelings ● Recognize what distracts us from the present moment ● Externalizing depressive mood and difficult thoughts ● Recognizing automatic thoughts and the tendency to react	➢ Mindful sitting ➢ Breathing space ➢ Breathing space (when noticing feelings of unpleasantness)
5	**Joy or Joyless? A choice of how we live** ● Promoting self-care and self-compassion ● Using body awareness to work with emotions and respond skillfully ● Identifying activities that help physical and mental well-being	➢ Breathing and bodily awareness practice (14 min) or select one of the following: body scan/ mindful breathing/ mindful stretching/ mindful walking ➢ Breathing space ➢ Breathing space (when noticing feelings of unpleasantness) ➢ My action plan – responding wisely	**Working with lingering difficult experience** ● Allow unpleasant feelings ● Turning toward while not turning away from difficulty ● Cultivating curiosity and acceptance toward experiences ● Using breath and body awareness to work with difficulties	➢ Sitting with difficulty ➢ Breathing space ➢ Breathing space (with extra guidance; when noticing feelings of unpleasantness)
6	**Get prepared to live** mind**fully**	–	**Identify the differences between thoughts and facts**	➢ Self-selected practice (at least 30 min per day) ➢ Breathing space

(*continued on next page*)

Table 1 (*continued*)

Session	MBI -Theme	MBI Practice/ Homework Assignment	Adapted MBCT - Theme	Adapted MBCT Practice/ Homework Assignment
	● Encouraging and extending what has been learned to daily life ● Keeping motivation for continuous practice ● Integrating formal and informal practices		● Understanding the interactive relationship between thoughts and feelings ● Understanding thoughts and feelings are psychological phenomenon ● Changing the relationship with thoughts	➢ Breathing space (with extra guidance; when noticing feelings of unpleasantness) ➢ Noticing early warning signs
7	–	–	**Self-compassion; make the most of everyday** ● Using body awareness to work with emotions and respond skillfully ● Promoting self-care and self-compassion ● Identifying activities that help physical and mental well-being	➢ Self-selected practice (at least 30 min per day) ➢ Breathing space (three times a day) ➢ Respond version of breathing space (when noticing feelings of unpleasantness) ➢ My action plan – responding wisely
8	–	–	**Active aging; living a worry-free life** ● Encouraging and extending what has been learned to daily life ● Keeping motivation for continuous practice ● Integrating formal and informal practices	–
Reunion (one month post group)	● Consolidating group learning experiences ● Encouraging application into daily life		● Consolidating group learning experiences ● Encouraging application into daily life	

on a four-point Likert scale, ranging from 0 (*not at all*) to 3 (*nearly every day*). A total score will be calculated, with higher scores indicating higher levels of anxiety symptoms. The internal consistency of the Chinese version of the GAD-7 is good (α = 0.88).

2.6.3. Subjective level of stress

Subjective levels of stress over the past month will be assessed using a single-item measure (SLS-1; [22]) rated on a scale from 0 (*not at all*) to 10 (*extremely*). The SLS-1 demonstrates good validity and predictive utility.

2.6.4. European quality of life 5 dimensions 5 level version

Health-related quality of life will be assessed using the EuroQol-5 dimension 5-level version (EQ-5D-5L) in traditional Chinese [23]. The measure assesses five dimensions of health, including mobility, self-care, usual activities, pain/discomfort, and anxiety/depression. Each dimension is rated on five levels ranging from "no problem" to "extreme problems", which will be transformed into a 5-digit code and an index value will be calculated. Participants will also indicate their current self-rated health on a visual analogue scale ranging from 0 (the worst health you can imagine) to 100 (the best health you can imagine).

2.6.5. Five facet mindfulness questionnaire

Trait mindfulness will be assessed using the Five Facet Mindfulness Questionnaire (FFMQ-SF; [24]). The 20-item instrument measures mindfulness by five domains: observe, describe, acting with awareness, non-judging, and non-reactivity. Respondents rate how much each statement reflects their lives on a Likert scale ranging from 1 (*never or very rarely true*) to 5 (*very often or always true*).

2.7. MBI program-related ratings

2.7.1. Expectancy and acceptability ratings

Before and after the MBI, participants will complete a few questions pertaining to program expectancy and acceptability (based on [25,26]). At baseline (T0), participants will rate "how useful do you think this program will be in improving your mental health?" on a five-point scale from 0 (*not at all useful*) to 4 (*very useful*). Following program completion (T1), participants will rate "how useful was this program in improving your mental health?", "how satisfied are you with the program?", and "with what degree of confidence would you recommend this program to other older adults?" on a five-point scale from 0 (*not at all useful/satisfied/confident*) to 4 (*very useful/satisfied/confident*).

2.7.2. Mindfulness exercise practice frequency

During the follow-up assessment (T2), participants will rate the frequency of which they practiced mindfulness exercise over the past week on a scale from 0 (*never*) to 4 (*almost every day*).

2.8. Sample size

The sample size calculation is based on a recent meta-analysis, which found a moderate effect (Hedges' $g = 0.53$) of MBCT on reducing depressive symptoms in older adults [27]. Assuming a two-tailed α of 5 %, 80 % power, and accounting for 10 % attrition over three assessment time-points, a minimum of 69 participants per group is required to perform linear mixed modelling.

2.9. Data collection plan

To ensure high retention rates, the importance of data collection at

different time points will be emphasized to participants at the beginning of the study. Using an intention-to-treat approach, follow-up data will be collected from participants who withdrew from the study.

2.10. Data management

All information obtained in this study will remain strictly confidential. The data collected will only be accessed by members of the research team and will be stored in locked cabinets and/or password-protected computers. Data containing personal identifiers will be kept for five years after publication. Participants will not be identified by name in any report or papers.

2.11. Data analysis plan

Intention to treat approach will be adopted, which will include all data in the analysis [28]. Participants who dropped out of the study will still be invited to complete subsequent follow-up assessments. The purpose is to reduce overly optimistic claims about the efficacy of the intervention. Interim analyses will not be performed. Linear mixed models will be used to compare outcome changes from T0 to T2 among the groups. Centres will be included as a random effect to adjust for clustering of data within centres. The exact timing of assessments (measured in weeks since intervention start) will be incorporated as a covariate to adjust for differences in post-intervention (i.e. 6-week and 8-week) and follow-up timing between groups. Missing data will be addressed using imputation. All results will be reported with appropriate effect sizes, statistical significance, and confidence intervals.

2.12. Adverse event reporting

MBI may involve discussion of unpleasant life experiences, which may provoke feelings of sadness, anger, guilt, anxiety, and frustration. If participants report risks of suicide during screening, assessments, and throughout the group sessions, trained research assistants and peer supporters will inform social workers for immediate follow-up and further assessment. Participants exhibiting severe distress or suicidal ideation are recommended to receive individual support from social workers until their situation is stabilized. At any time, if there are concerns about a person's suicide risk, or if the person is assessed as having a moderate or higher risk of suicide, a referral will be made to a hospital or the Fast Track Clinic for Elderly Suicide Prevention Programme. Social workers will also follow organizations' protocol for risk management and inform their service supervisor or responsible staff accordingly.

2.13. Program fidelity

Fidelity indicators for the MBI groups include adherence to session content, quality of delivery, and participant responsiveness to mindfulness practice. These will be assessed through direct observation during a subset of sessions (selected based on the availability of the certified mindfulness teacher) and participant feedback forms. There will be monthly online group meetings with all social workers involved in the research study, providing a space for everyone to address questions, share experiences, troubleshoot challenges, and reinforce fidelity to the intervention protocol. Any unusual situation or deviation from the protocol will be discussed with the mindfulness teacher.

3. Discussion

MBI presents a viable approach to address the pressing public health concern of depression in older adults. Despite the promise of standard MBSR or MBCT, their substantial time commitments, including group sessions and home practice, pose obstacles to older adults. To address these challenges, we propose an MBI consisting of six 2-h sessions, supplemented by the integration of peer supporters to bolster participants' engagement. This proposed research aims to examine the efficacy of the MBI, both with and without peer support, in managing depressive symptoms among community-dwelling older adults with mild to moderately severe depressive symptoms, compared to MBCT. This study will also examine whether the inclusion of peer supporters in MBI improves intervention engagement and effectiveness.

The proposed MBI is anticipated to be more accessible and scalable than the traditional MBCT. It does not require a certified mindfulness teacher to deliver the intervention, making it particularly relevant for low- and middle-income countries that currently face a significant disparity between increasing mental health service needs and professional capacity. The mindfulness training provided to instructors in this study could serve as a foundational model for future research, facilitating the possibility for other trained professionals or community members to deliver the intervention. By incorporating peer supporters, this study will shed light on the potential for integrating peer support strategies into various psychological and psychosocial interventions, thereby enhancing participant engagement and treatment outcomes.

Overall, the findings of the proposed study may augment the existing literature on MBI in two dimensions. Firstly, it will contribute valuable insights regarding the comparative efficacy of the newly developed MBI versus traditional MBCT. Secondly, it will explore the effectiveness of integrating peer supporters within the MBI framework. If the interventions demonstrate positive outcomes, these MBIs could be seamlessly integrated into routine community mental health services, thereby increasing the accessibility and benefits for a larger segment of the aging population.

4. Summary

This paper presents a novel MBI for community-dwelling adults with mild to moderately severe depressive symptoms. The outcome produced from this protocol may facilitate the evaluation of the comparative effects of the newly developed MBI versus MBCT in managing depressive symptoms. Furthermore, the findings facilitate the investigation of whether the incorporation of peer supporters can yield superior intervention effects. Ultimately, the findings may increase the scalability of mental health resources in regions with insufficient service or a high aging population.

CRediT authorship contribution statement

Yun-Lin Wang: Writing – original draft, Conceptualization. **Yun-Han Wang:** Writing – original draft, Conceptualization. **Dara Kiu Yi Leung:** Writing – review & editing, Writing – original draft, Supervision, Conceptualization. **Stephanie Ming Yin Wong:** Writing – review & editing, Conceptualization. **Zuna Loong Yee Ng:** Writing – original draft, Project administration, Data curation. **Raymond Chi Leung Chan:** Conceptualization. **Oscar Long Hung Chan:** Writing – original draft, Project administration, Data curation. **Wai Chi Chan:** Writing – review & editing, Conceptualization. **Gloria Hoi Yan Wong:** Writing – review & editing, Conceptualization. **Terry Yat Sang Lum:** Writing – review & editing, Supervision, Conceptualization.

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Declaration of competing interest

All authors declare that they have no conflict of interest.

Data availability

No data was used for the research described in the article.

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