

Evaluating Compassion-Mindfulness Therapy in reducing recurrent anxiety and depression: A randomized control trial

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Abstract

Objective: To evaluate the effects of Compassion-Mindfulness Therapy (C-MT), an adapted version of Mindfulness-Based Cognitive Therapy that integrates compassion training as an additional treatment strategy. Method: Individuals aged 17 to 69 with recurrent depressive and anxiety symptoms were randomized to either an eight week C-MT programs (n = 41) or a waitlist control condition (n = 41) in a community mental health service unit. Results: Intent-to-treat analyses showed significant improvement for all measures. Effect sizes for depression and anxiety are 0.89 and 0.71 respectively, and those of physical distress, daily functioning, positive affect, and negative affect ranged from 0.53 to 0.91. All outcome measures sustained in three-month follow-up. Conclusions: Results provided preliminary support for C-MT as a viable treatment options for individuals with recurrent depression and anxiety symptoms. More time-limited treatment like C-MT should be promoted in social work practice.

Keywords

Mindfulness training, compassion, depression, anxiety, treatment

Introduction

Effective time-limited treatment for depression and anxiety is in huge demand.

Epidemiologic studies found that anxiety disorders and mood disorder are two common mental disorders, each with a lifetime prevalence of 14.5% to 28.8% in the United States and European countries (Alonso & Lepine, 2007; Kessler et al., 2005). Studies in other developed countries have found similarly high rates of anxiety and depression (Kessler et al., 2007; Murray & Lopez, 1996).

Psychotherapy trials have been shown to reduce symptoms effectively with comparable results to medication (Cuijpers et al., 2013; Hollon & Ponniah, 2010). Reviews have reported psychotherapy produced moderate to large effect sizes for anxiety disorders (0.73) and depressive disorder (MDD) (0.68), indicating that the changes after treatment should be grossly observable (Cuijpers, van Straten, Bohlmeijer, Hollon, & Andersson, 2010; Hofmann & Smits, 2008; Portney & Watkins, 2009). However, there are also evidences that many people with depressive and anxiety disorders are unable to complete treatment, and many completers fail to achieve clinically significant improvement (Taylor, Abramowitz, & McKay, 2012). For example, dropout rate of cognitive behavior therapy (CBT) for anxiety was 16%, and 35% of the completers were classified by nonresponders, who are defined as people did not achieve a clinically significant improvement

(Taylor et al., 2012). Similar rates were found among studies of treatment for depressive disorders (DeRubeis et al., 2005; Westen & Morrison, 2011).

Identification of best research evidence is only the first step in evidence-based social work practices. Validity and limitations of these evidences should be considered in combination of practitioner's clinical expertise, client and population characteristics, state, needs, values and preferences, and environment and organization context (Thyer, 2007; Thyer & Pignotti, 2011). For example, an outcome study on CBT for Chinese reported that people with more physical distress, cognitive and interpersonal impairment would benefit less from an well validated intervention program (Lo, Epstein, Ng, Chan, & Kwan, 2011). As outcome among different psychotherapeutic approaches for depression and anxiety are minimal or insignificant, alternative intervention approaches that may satisfy client characteristics and environment context should be explored so that they can benefit better from these new and advanced evidence-based practices (Thyer, 2007; Thyer & Pignotti, 2011).

In response to the quest for innovative practice approaches, mindfulness training originates from an ancient Buddhist meditative tradition has been introduced into clinical and health care with growing empirical support (Kabat-Zinn, 1990; Williams & Kabat-Zinn, 2011). Studies on two well

established curricula--Mindfulness-based Stress Reduction (MBSR) and Mindfulness-based Cognitive Therapy (MBCT) provide help to people by directing attention to the present in body, feelings, and thoughts nonjudgmentally (Kabat-Zinn, 1990; Segal, Williams, & Teasdale, 2002). Meta-analyses have demonstrated that mindfulness training can relieve emotional symptoms and improves overall functioning of people with physical and mental health issues effectively (Grossman, Niemann, Schidt, & Walach, 2004; Hofmann, Sawyer, Witt, & Oh, 2010).

Because MBCT has been recommended as a relapse prevention program for MDD (Teasdale, Segal, & Williams, 2003), most rigorous MBCT studies have focused on the relapse prevention effects on MDD and only people in full or partial remission of MDD were included (Kuyken et al., 2008; Ma & Teasdale, 2004; Segal et al., 2010). Three meta-analyses reviewed the outcome of mindfulness training for people with recurrent depressive and anxiety each suffered from different limitations. Hofmann and his colleagues (2010) reported average effect sizes of 0.97 for anxiety and 0.95 for depression, suggesting mindfulness-based therapy has strong effects for people with anxiety and depressive symptoms. However, this study was based on a border population, i.e. people suffering from physical disorders such as cancer or pain and elevated

levels of anxiety or depression. McCarney, Schulz and Grey (2012) included 11 studies of depression but only two of them were randomized controlled trials (RCT)s that included people in full or partial remission of mood disorder.

Vøllestad, Nielsen and Nielsen (2011) included 15 studies of anxiety disorders, if those of acceptance-based approaches were excluded, and only four of them were RCTs, with small sample sizes ranged from 26 to 53. The efficacy of mindfulness training for people with recurrent depression and anxiety is still unclear due to limitations of inclusion criteria (full or partial remission in MDD), small sample and uncontrolled trials. More studies should be conducted to verify the effectiveness of mindfulness training, including its application to moderate to severe depression, treatment satisfaction, attrition rate, etc. so that people with depression and anxiety can get better help.

Compassion meditation is another traditional practice that can help people to cultivate a caring response to their own suffering and the suffering of others (Feldman, 2005; Hanh, 1998). Compassion can be defined as a behavior or an intention to nurture, guide, protect, and offer feelings of acceptance and belonging in order to benefit another person (Gilbert, 2009). Clinicians often use self-compassion as an entry point for developing compassion for others.

Self-compassion is positively associated with happiness, optimism, positive affect,

as well as negatively associated with negative affect and neuroticism (Neff, Kirkpatrick, & Rude, 2007). It has been further asserted that the capability of self-compassion and compassion can tone down the tendencies to focus on threat and safety seeking, and promote an affiliative-focused, soothing wellbeing (Gilbert, 2012).

Compassion is beneficial for people experiencing distress in their interpersonal relationships, which is a common feature of the lives of people with anxiety and depression (Addis & Jacobson, 1996; Lo et al., 2011). Recent preliminary evidence suggests that self-compassion is a more robust predictor than mindfulness for symptom severity and quality of life in depression and anxiety (Van Dam, Shappard, Porsyth, & Earleywine, 2011). Another study found that self-compassion mediated reduction in cognitive reactivity after MBCT (Kuyken et al., 2010). While some treatment programs are designed to develop compassion alone, this research team investigates the outcome of compassion-mindfulness therapy (C-MT), an adapted mindfulness training program, by incorporating compassion training onto the proven and related success of MBSR/MBCT. This is also one of the first studies to test the use of mindfulness training for active depression and anxiety with a larger sample size and a control group.

The purpose of this study was to investigate the effectiveness of C-MT in reducing the symptoms of people with recurrent depression and anxiety in a community mental health setting. It aimed to verify the hypotheses that participants of C-MT could: (1) reduce depressive symptoms, (2) reduce anxiety symptoms, (3) reduce in physical distress, (4) improve in daily functioning, (5) increase in positive affect, and (6) reduce in negative affect. To further investigate the extent of effect of C-MT, it is expected that attrition rate of the program would be less than 20% and effect size for all outcome measures would be higher than 0.4.

Method

Design

This study adopted an RCT design. Participants were randomized into an intervention group and a wait-list control group. Participants from the wait-list control group were offered C-MT after the intervention group had completed treatment. A three month follow-up was arranged for the treatment group.

Participants

Participants were recruited in Hong Kong, China from the general public between late 2008 and mid-2010. Program information was promoted through mental

health services and the family service center. The C-MT and research project were listed in the website www.mindfulness.hk, where most local MBSR/MBCT instructors post their updated programs regularly. Some participants were referred by professionals from mental health and family service units but all joined the study on voluntary basis. This study was based on community sample and people who were pharmacologically treated were not excluded but the use of drug and counseling service at pretreatment were recorded. As the first clinical trial of C-MT, estimation of effect size was made by referring to other studies of CBT and other common approaches for MDD, ranging from 0.4 to 1.0 (*Cohen's d*) and the intended sample size was eighty, based on a calculation of an expected effect size of 0.4 with a power of 80% (Cohen, 1988; Cuijpers, van Straten, & Warmerdam, 2007; Zu et al., 2013).

In total, 117 people indicated their intention to participate in the study.

Inclusion criteria for the study were: (i) no current diagnosis of psychosis; (ii) a total score on the Hospital Anxiety Depression Scales Anxiety subscale (HADS-A) (Zigmond & Snaith, 1983) of 8 or above, and/or a total score on the Beck Depression Inventory (BDI) (Beck, Steer, & Brown, 1996) of 15 or above.

Screening was arranged through individual interviews. A total of 35 applicants were excluded after screening. Twenty-nine of them had low scores in BDI or

HADS-A, two indicated they were not interested to join the program after the screening interview, one reported a diagnosis of bipolar disorder, and three did not show up for screening interview and loss contact afterwards. Once an applicant was accepted for the research, he or she was assigned a study number. An appointed administrative clerk who did not know the identity and background of the participants allocated the participant to either the treatment group, or the waitlist control group using a random number table.

All participants completed their pretreatment assessment at the community mental health service unit before screening interviews. Posttreatment assessment was distributed to them at the final session with a sealed envelope and they were asked to complete the questionnaires at their early convenience and to return the questionnaires to the service unit within two weeks. All accepted participants were required to pay about USD 38 for the enrolment of program but half of the fee was waived for those who were currently on welfare or in low income.

Participants who finished all assessment would receive about USD 25 cash coupon as an incentive to complete all the measures at follow-up.

Procedure

C-MT is a group-based program delivered in eight weekly sessions and lasting for

twenty contact hours. The development of C-MT was based on the work of the first author. During the pilot stage, feedback from participants and consultation with a senior mindfulness instructor in Hong Kong were used to refine the practice protocol. Both feedback from participants and outcomes of an earlier simple pretest posttest comparison study were positive (Lo, Chan, & Ng, 2007). The updated protocol is available upon request to the first author. Table 1 shows an outline of the session themes.

C-MT begins with major mindfulness practices, as taught in all MBSR and MBCT programs. Participants are guided to do body scan, mindful yoga, mindful sitting, and other informal practices to develop awareness of body, feelings and thoughts (Kabat-Zinn, 1990; Segal, Williams, et al., 2002). Participants are encouraged to develop a non-judgmental awareness of the difficulty that can serve as a foundation to the compassion practice at the advanced stage of the program (Germer, 2009; Kristeller & Johnson, 2005).

Compassion practice focuses on cultivating an empathic and balanced relationship with the self and others. Participants are guided to send compassionate blessings to the self, a compassionate image, moving onto a neutral person, and a difficult person (Feldman, 2005; Germer, 2009). The compassionate blessings include four parts: May I (you) be peace, May I (you) be

happy, May I (you) be healthy, and May I (you) be ease and be able in self-care.

These four phrases are based on the traditional lovingkindness meditation. Minor modification is made for making this practice more suitable to the needs of people experiencing emotional distress (Feldman, 2005). Self-compassion practice is introduced at the sixth session and compassion of others is taught at the seventh session. During the compassion exercise, the phrases are repeated four times, allowing people to openly explore their inner experiences and in interpersonal relationships mindfully. Participants are kept reminding to respond their limitations in practice with patience and acceptance, especially towards a difficult person. A deeper empathic understanding of the self and others is expected to cultivate, for transforming interpersonal conflicts and problems as they emerge over time.

Each C-MT session lasted for two and a half hours. Ten to 12 participants were recruited for each group, and three to five more participants without emotional symptoms were included. A larger group size and relatively heterogeneous background of participants helped to open up to interactive dialogue between practitioner and participants that would cover different experiences other than those closely related to depressive and anxiety symptoms (Segal, Teasdale, & Williams, 2013). However, outcome of participants without emotional symptoms

are not included in this study. All participants were required to practice for at least 30 minutes three times a week at home with guided audio compact discs of mindfulness and compassion practices.

All C-MT programs were conducted between early 2009 and late 2010 in a community mental health service unit located in North Point, Hong Kong. And four treatment groups were organized for this study. The waitlist control group participated in a C-MT program about three months later after the completion of C-MT for treatment group but their posttreatment changes did not be include for analysis. Two experienced mindfulness training instructors were responsible for the conducting the C-MT programs and each was responsible for conducting two treatment groups. Both had conducted mindfulness training programs in Hong Kong for four to 10 years and had received extensive training in MBSR and MBCT.

The study did not apply for extra funding source and the project expenditure was absorbed in existing mental health project of Hong Kong Family Welfare Society. It has received formal approval from the Human Research Ethics Committee for Non-Clinical Faculties, The University of Hong Kong (ref.: EA090108), and Hong Kong Family Welfare Society. It has been registered in the Chinese Clinical Trial Registry (ref: ChiCTR-TRC-11002988).

Measures

Primary outcomes are anxiety and depression. Analyses of clinically significant change on primary outcomes will be assessed by two criteria: i) Reliable Change Index (RCI) which is computed by the differences between the scores between T0 and T1 then divided by its standard error, was used to examine whether the change experienced by each subject is reliable (Jacobson & Truax, 1991). As proposed, RCI scores exceeding 1.96 will be considered as an established improved case while one lower than -1.96 will be considered as a worsening case; ii) a reduction of 50% or above of the symptom scores. Secondary outcomes include body-mind-spirit wellbeing, with subscales in physical health and mental health from positive and negative dimensions.

Hospital Anxiety Depression Scale Anxiety Subscale

The Hospital Anxiety Depression Scale Anxiety Subscale (HADS-A) has 7 items for measuring anxiety (Zigmond & Snaith, 1983). This study only used the 7 items for assessing anxiety. These items use a 4-point scale. The HADS-A displays sound psychometric properties; its internal consistency for anxiety subscale ranged from .76 to .93 in studies across Europe, Canada and Asia (Bjelland, Dahl, Haug, & Neckelmann, 2002). The authors of HADS-A proposed

a set of cut-off points as follows: 8 to 10 as mild, 11 to 14 as moderate, and 15 or above as severe. The maximum scores of HADS-A is 21.

Beck Depression Inventory (BDI-II)

The Beck Depression Inventory, second version (BDI-II) is one of the most frequently used self-reported measures for depression. It has 21 items on a 4-point scale and extensive validation has been conducted (Beck et al., 1996). The maximum score of BDI-II is 63, and the cut-off scores are as follows: 1 to 10 as normal, 11 to 16 as mild, 17 to 20 as borderline, 21 to 30 as moderate, 31 to 40 as severe, and 41 or above as extreme .

Body-Mind-Spirit Well-Being Inventory

The Body-Mind-Spirit Well-Being Inventory (BMSWBI) was developed to assess both physical health and mental health (Ng, Yau, Chan, Chan, & Ho, 2005). It included items of positive functioning, and four subscales of the BMSWBI were selected for this study, including physical distress (14 items), daily functioning (10 items), positive affect (8 items), and negative affect (10 items). Each item was assessed on a 10-point scale. For physical distress and negative distress, high scores reflect poor wellbeing while for daily functioning and positive affect, high scores reflect good wellbeing. BMSWBI has reported high concurrent validity in its moderate to strong correlation to SF12 and Perceived Stress Scale. Internal

reliability of the selected subscales ranges from .87 to .92 (Ng et al., 2005).

Treatment adherence

All weekly sessions of C-MT programs of the treatment groups were recorded.

10% of the sessions randomly selected across four groups and eight weekly

sessions and were rated by four independent clinicians with previous experience

in C-MT program. The Mindfulness-Based Cognitive Therapy Adherence Scale

(MBCT-AS) was modified to assess treatment fidelity for this study. Some

modification was made to the original 17 items for this specific application (Segal,

Teasdale, Williams, & Gernar, 2002). Five items were removed because they

covered cognitive behavior therapy techniques and relapse prevention, which is

not covered in C-MT. Two items (provision of rationale for compassion practice,

and review of compassion practice) were added. Raters were required to score the

response from 0 (no evidence of adherence) to 2 (definite adherence). The mean

of the 14 items was 1.64, with an inter-rater reliability of 0.85, which reflected a

strong adherence of both therapists in implementing the core components of

C-MT.

Statistical analysis

Missing values of participants were imputed using the last-observation-carried-

forward method. All analyses were according to the intention-to-treat approach

(Hollis & Campbell, 1999; Moher et al., 2010).

The intervention effect was evaluated by comparing the treatment and control groups. Repeated measures ANOVA with time (pre-test and post-test) as the within-subjects variable and group (treatment group and control group) as the between-subjects variable, was used to detect effects of time, group, and time x group interactions for each of the outcome measures. In the case of significant results, simple effect analysis was used to test where the differences occurred. T-tests were used to examine the program's maintenance effect. All analyses were performed in SPSS 20.0 version.

Results

Demographics

Figure 1 shows the flow of participants through each stage of the trial. The sample (n = 82) was predominantly female (73.2%), and the average age was 44.44 years (SD = 10.8, range 17 to 69). Based on the information provided by participants in screening interview, 56.8% reported diagnoses of either major depression or an anxiety disorder, and the same proportion was on medication at the time of randomization. Altogether, 20.7% had had previous meditation experience. Table 2 summaries the statistics of t-test and chi-square administered for comparing age,

sex, marital status, religious background, psychiatric diagnoses, forms of treatment received between treatment group and control group. None of the differences reached the level of significance (all $p > .05$), indicating that the randomization was successful.

Attrition and participation's comprehension

As shown in Figure 1, eight participants dropped out from the treatment group and three dropped out from the control group. Attrition rates for the treatment and control groups were 19.5% and 7.3% respectively. The reasons for attrition in treatment group include personal factors (such as time clash with other commitment), and technique factors (such as unable to follow the practice instructions). As more than half of the dropouts loss contact with the research team, the reasons of attrition was not recommended for further analysis. The attrition rate for treatment group was similar to studies of CBT while the lower attrition rate in control group may attribute to the expectancy effect during waitlisting (Hofmann & Smits, 2008).

Comprehension of the program from the participant's perspective was assessed after their completion of C-MT. The first author designed a comprehension scale of 13 items, requiring each participant to rate how useful of different practice and ingredient in C-MT in promoting their capacities in managing emotions and stress

at a 6 point scale (from 0 not useful at all, to 5 extremely useful). The items include twelve practice and ingredients in C-MT, such as body scan, mindful sitting, compassion practice, practice review during sessions, course notes, and one final overall rating for the program. 32 copies of comprehension scale were received and the response rate was 97.0 percent. The overall rating for the course was 3.89 (SD=.94). The item with highest score was three minute breathing (M=4.00, SD=1.13) while the one with lowest score was homework (M=3.63, SD=1.16). The score for compassion (M=3.91, SD=1.15) was closed to the mean of twelve items (M=3.90, SD=.87), and such differences were statistically insignificant ($t=.06, p=.96$).

Changes in depression and anxiety

As shown in Table 3, for the anxiety symptoms, there was a time x group interaction for anxiety symptoms $F(1,79)=7.72, p = 0.009$. Simple analyses revealed a significant decrease in the HADS-A score at post-test in the treatment group $t(39)=6.21, p<0.001$, and a significant decrease at post-test in the control group $t(40)= 2.34, p = 0.024$.

The result for depressive symptoms was similar. There was a significant time x group interaction $F(1,76)=15.67, p <.0001$. Simple analyses revealed a significant

decrease in BDI at post-test in the treatment group $t(38)=5.31, p < 0.001$, and an insignificant decrease at posttest of the control group $t(38) = 1.68, p = 0.100$.

Change in other secondary outcome measures

As shown in Table 2, there was a significant time x group effect on the change on BMSWBI physical distress subscore $F(1,78)= 5.80, p=.0018$. There was also a significant Time x Group interaction effect on the BMSWBI daily functioning subscore $F(1,78)=17.35, p<0.001$. There was a significant time x group interaction for positive affect $F(1,78)=10.33, p=0.002$ and negative affect $F(1,78)=4.39, p = 0.040$.

As reported, the C-MT participants showed significant improvement over time in all physical health and mental health measures. Cohen's d was calculated to measure the magnitude of treatment effects, based on pretest to estimate changes in the group means. Table 3 reports the effect size for all outcome measures. The effect size for the outcome measures ranged from 0.67 to 1.20. Effect size was 1.12 for depression and 1.20 for anxiety. Effect sizes for the secondary measures ranged from 0.67 to 1.18. In sum, the effect sizes for depression, anxiety, and all secondary measures were strong (Cohen, 1988).

Maintenance effect

A 3-month follow-up was arranged to assess the maintenance effect. Table 3 summarizes the outcome measures for the treatment group. Paired t-tests comparing the mean differences in changes from pretreatment to post-treatment, pre-treatment to 3-month follow-up, post-treatment to 3-month follow-up, all showed the same pattern of change.

Differences from pre-treatment to post-treatment, and pre-treatment to 3-month follow-up were all significant (all $p < .00$). However, the differences recorded between post-treatment and 3-month follow-up were not significant in all measures (all $p > .05$). In sum, the results establish that there were significant changes between pre-treatment and post-treatment, and pre-treatment and 3-month follow-up. However, there was no difference between post-treatment and the 3-month follow-up.

Clinical significance

Two methods were used to examine the clinical significance of primary outcome change and showed slightly different results (see Table 4). RCI scores exceeding 1.96 were considered as an established improved case while one lower than -1.96 was considered as a worsening case. Those who fell between these two were classified as reflecting no change. Participants from treatment and control groups

were then categorized into three groups: worsening, no change, and improved. Overall speaking, both groups followed a similar trend in that less participants reported being worse but more participants improved. Over 60% participants from the treatment group improved in both measures and less than 10% of them worsened, while less participants from control group improved and more worsened. Such differences had reached the significant level in chi-square analysis. The level of clinical significance was further assessed by the number of participants reporting 50% reduction in symptom scores. For treatment group, 42.2% of the participants reported 50% reduction in depression scores and 27.5% of the participants reported 50% reduction in anxiety scores. For control group, only 7.3% and 12.2 % participants reported 50% reduction in depression and anxiety scores respectively. Difference in depression scores between two groups was significant. Those in anxiety scores were marginally significant, probably due to the lower symptom score in anxiety at pretest and ceiling effect.

Predicting changes by symptom severity, medication and counseling at pretreatment

In view of the concern about application of mindfulness training in people with moderate to severe depression, treatment changes by symptom severity were calculated. Based on the symptom severity and combining the group of mild and

moderate into one for further analysis, one way ANOVA were administered for detecting significant difference among groups. As shown in table 5, the mild depression group reported the least change in BDI scores ($M=6.83$, $SD=10.38$), the moderate depression group reported a larger change ($M=13.55$, $SD=10.56$), and the severe depression group reported the largest magnitude of change ($M=20.70$, $SD=12.39$). Differences between groups was insignificant ($F=1.68$, $p=0.19$) and the effect for mild depression group was influenced by the ceiling effect. Analyses for anxiety symptom severity revealed similar pattern. The mild anxiety group reported the least change ($M=3.10$, $SD=3.14$), the moderate anxiety group reported a larger change ($M=3.46$, $SD=3.36$), and the severe anxiety group reported the largest magnitude of change ($M=4.20$, $SD=3.44$). Again, differences between groups was insignificant ($F=0.42$, $p=0.74$). There is no evidence that people with moderate and severe symptoms had less improvement from the treatment.

Subgroup analysis in use of medication and individual counseling at the time of pretreatment were administered by t-test. The medication group reported a larger reduction in BDI score ($M=11.13$, $SD=13.11$) than the no medication group ($M=8.65$, $SD=8.65$) but the differences are not significant ($t=0.64$, $p=0.52$). It also reported a larger reduction in HAD-A scores but such differences did not reach the

significant level. Participants who received counseling at the same time reported larger treatment changes. The counseling group had a larger reduction in BDI (M=10.89, SD=11.66) than the no counseling group (M=9.41, SD=12.43). It also had a larger reduction in HAD^A (M=3.50, SD=3.45) than the no counseling group (M=3.27, SD=3.51).

Discussion and Application to Social Work

Results from this RCT provide initial evidence of the efficacy of the C-MT program using a community sample. Analyses of both the immediate treatment effects and maintenance effects revealed significant improvements in participants' physical health and mental health. Tests in clinical significance provided further support to the benefits of C-MT in reducing depression and anxiety symptoms. People also benefited from C-MT in the relief of physical distress, and negative affect, and in enhancing positive affect and daily functioning. This outcome fits with the conceptions of a body-mind-spirit intervention model which argues that the three physical, psychological, and spiritual well-being domains interact as an interrelated system (Lee, Ng, Leung, & Chan, 2009; Raphael, Schmolke, & Wooding, 2005).

Many studies on mindfulness training for depression and anxiety have

limitations in poor research design, without control groups and only small sample size. The results of this study contribute to emerging evidence of the value of mindfulness training for reducing recurrent depressive and anxiety symptoms by adopting RCT with a relatively larger sample size. It gave initial support that C-MT as a form of mindfulness-based intervention may produce effects comparable to CBT and other standard treatments.

As more RCT in mindfulness training focused on examining its outcome in relapse prevention of MDD and included participants with partial or full remission, this study included people with moderate and severe depression and they can also benefit much from the program. Participants at different psychopharmacological treatment conditions reported positive outcome in C-MT, although people with moderate to severe symptoms are recommended to receive drug treatment at the same time. Further studies should be conducted to compare the outcomes of C-MT and CBT, and MBSR/MBCT. Instead of opting for a simple comparison of effect sizes of the two approaches, researchers and practitioners should investigate possible outcome predictors, such as psychiatric history, sources of emotional distress, treatment preferences.

C-MT is an initial attempt to integrate compassion and mindfulness practice in one treatment program. Many MBSR teachers include compassion practice once

or twice in the program but seldom treat it as a core component of the program.

Although some practitioners including the MBCT founding fathers worry that participants with MDD may find compassion practice difficult, results of the comprehension test of this study reflected that compassion was as helpful as any other component of the program (Segal, Williams, et al., 2002). More studies should be conducted to investigate the therapeutic value of compassion, including the effects of compassion alone, as well as its integration with mindfulness.

In social work practice, depressive and anxiety symptoms are found in mixed populations and people with different presenting problems such as low income and financial difficulties, child care, family violence, may also exhibit emotional symptoms. This study based on a community sample and reported that a time-limited intervention could effectively improve their overall mental health status. Practitioners should consider mindfulness training or C-MT as an evidence-based treatment option so that clients can get better help from intervention that can match with client's preference and practitioner's expertise.

This study has a few limitations that should be noted. First, it is likely that mindfulness and compassion have different effects and mechanisms of change for people with depression and anxiety. The research design did not have a comparison group undergoing an established mindfulness training program (i.e.,

MBSR or MBCT). It is still an open question whether compassion adds value to the mindfulness training programs. Second, the study was held at a single site, and the sample was a heterogeneous community sample. All participants were Hong Kong Chinese, so the findings may not generalize to people from other populations and cultures. Further studies should investigate the effectiveness of C-MT in a separate population and the potential bias with developer administered intervention can be examined. Third, the inclusion criteria were based on self-reported scales with cut-off scores, instead of diagnostic criteria, such as DSM-IV. Future studies should add diagnostic criteria and investigate cultural background affect responsiveness to C-MT. Outcome studies should ideally include indicators other than self-administered measures, which may suffer from bias. Last, the sample size of this study was relatively small. The inclusion of clinician-reported measures, other physical, physiological, or neurological tests related to anxiety and depression, with a larger sample size, and a design that can detect possible effects within groups and instructors, in further studies can help the establishment of the efficacy of C-MT.

Declaration of conflicting interests

The authors declared no conflicts of interest with respect to the research, authorship, and publication of this article.

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