

**Impact of mindfulness-based cognitive therapy on counseling self-efficacy: A
randomized controlled crossover trial**

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Abstract

Objective: To investigate the impact of a structured eight-week mindfulness-based cognitive therapy (MBCT) program on counseling self-efficacy among counseling trainees.

Methods: Undergraduate counseling trainees were randomized to an MBCT group (n = 25) or a waitlist control group (n = 25) with a crossover trial design. Psychological measurements regarding mindfulness, empathy, self-compassion, psychological distress, counseling self-efficacy as well as neuro-physiological measures including frontal midline theta activity, respiration rate, and skin conductance were taken at baseline (T1), after intervention (T2), and six-month follow-up (T3).

Results: Mindfulness training **could** make significant positive changes in empathy, self-compassion, stress reduction, and counseling self-efficacy with this being backed up by both psychological and neuro-physiological evidence at T2. However, such differences between the two groups **had** greatly subsided after crossover in which carry-over effect and marked improvement **were** noted in the study and control group, respectively, at T3. In addition, mindfulness **was** the most significant determinant that **contributed** to counseling self-efficacy, followed by psychological distress reduction and self-compassion according to the regression models.

Conclusion: Integrating mindfulness into counseling training is beneficial for helping profession trainees.

Practice implication: Incorporating mindfulness into counseling training can enhance the necessary “being mode” qualities in counseling and address self-care issues during training.

Keywords: mindfulness; counseling self-efficacy; crossover trial design

1. Introduction

Counseling is always perceived as an emotionally demanding career. As such, counseling is a common foundational element across various helping professions [1]. Performing counseling work entails working in an emotionally exhaustive context, and is therefore likely to cause compassion fatigue and vicarious traumatization [2]. For trainees in helping professions, such stressors are concomitant with their highly-demanding training [3] and may even be detrimental to their effectiveness in counseling work [4]. Skills-based training models have usually been adopted in teaching counseling skills and techniques of different therapies [5, 6]. Despite an enhancement in professional competency, skills-based orientation might focus only on a limited variety of counseling skills [7]. Alternatively, less emphasis was put on how to cultivate soft skills such as empathy or therapeutic presence. For instance, previous research findings showed that trainees reported significant increases in counseling skills self-efficacy only over the course of skills-based training but no changes in self-awareness or empathy [8]. In fact, promotion of self-care has become particularly important as a response to stress and challenge during counseling training [9, 10]. Thus, there is a demand for integrating the tenets of self-compassion throughout the counselor education curriculum [11].

This has created a burgeoning interest in integrating alternative elements into counseling training. Mindfulness could be one of the plausible options. Previous findings demonstrated that mindfulness training could enhance self-compassion and empathy among different kinds of helping profession trainees [12-16]. Interweaving both elements during the counseling process can help deepen the sense of intimacy [17], and thus, involving these elements in training has been proposed to create effective counselors [18]. Besides, mindfulness practice is proven to enhance positive affect [19, 20] as well as proper emotion regulation with less rumination [21, 22]. For instance, mindfulness training for medical students was

demonstrated to decrease mood disturbance, including stress, anxiety, and fatigue [23, 24]. On the other hand, mindfulness has also been linked with controlled attention [25, 26], which is an essential element for maintaining therapeutic presence with the client during the counseling process [27, 28].

It seems that learning to be in a state of *being* rather than *doing* is imperative, but this seems to be absent from pertinent training. The misguided approach of developing the skills rather than the person could result in decreased counseling self-efficacy [29]. As such, mindfulness has been linked to an increase of controlled attention, emotion regulation, stress reduction, empathy, and self-compassion. Accentuation of all constituents may eventually lead to the enhancement of counseling self-efficacy. No wonder past studies found that mindfulness has a strong positive relationship with counseling self-efficacy among counseling trainees [29, 30]. The benefits gained from mindfulness may even radiate from the trainees towards clients and result in better treatment outcomes [31].

Nevertheless, previous mindfulness research regarding the application of training in counseling usually focused on qualitative or phenomenological research design, but without a control group for comparison [e.g., 14, 28, 32, 33, 34]; this can greatly limit the generalizability of the findings. In recent years, some quantitative studies have been conducted to investigate the impact of mindfulness on counseling self-efficacy. However, these researchers only attempted to integrate a small dose of mindfulness in counseling training [35] or through a small experiential mindfulness group [36]. Indeed, the effect of a structured mindfulness-based program on counseling self-efficacy has never been investigated. Besides, only self-reported outcome measures were employed in the aforementioned studies but without using objective neuro-physiological measures. In fact, the beneficial effects of mindfulness on stress reduction and attention enhancement can be supported by neurophysiological evidence, such as respiration rate or skin conductance, as

well as frontal midline theta activation [37-40]. Thus, it is warranted to fill the research gap by investigating the impact of a structured mindfulness-based cognitive therapy program on counseling self-efficacy. The present study utilized a randomized controlled crossover study design with both psychological and neuro-physiological measures to enhance the robustness of the research methodology.

2. Method

2.1 Design

We aimed to investigate the experiences of counseling trainees undergoing a structured mindfulness-based cognitive therapy (MBCT) training program [38] and its impact on the improvement of different parameters including mindfulness, empathy, self-compassion, psychological distress, neuro-physiological responses, and counseling self-efficacy. Ethical approval for this study was obtained from the Human Research Ethics Committee of Hong Kong Shue Yan University (reference number: PD-RD-2016-138602M). A total of 50 counseling trainees were recruited and randomly assigned to the study group or waitlist control group by use of computer-generated random numbers. An informed consent form was signed by participants before joining the research. The MBCT training was carried out for the study group and waitlist control group after baseline and first time (three-month) follow-up, respectively. Measurements were taken at baseline (T1), first time (three-month) follow-up (T2), and second time (six-month) follow-up (T3). A detailed flow diagram of the whole process is depicted in Figure 1.

2.1. Participants

Participants were undergraduate counseling trainees from the department of Counseling and Psychology at Shue Yan University in Hong Kong. They were invited to participate via

email or paper flyer. Students were excluded if they had previously participated in related mindfulness programs, or if they were currently practicing mindfulness meditation. Suitable participants were advised to join the research program after school so as not to affect their normal school curriculum. Each participant was offered a coupon worth HK\$50 (US\$6.40) after completion of the whole study.

2.2. Major intervention

MBCT was chosen as the major intervention in this study as it combines mindfulness practice with traditional cognitive behavioral strategies that can further strengthen a decentered approach to one's internal thoughts and experience. MBCT is a structured eight-week group program incorporating a body scan technique, sitting meditation, mindful walking, mindful hatha yoga, mindful movement, and other mindfulness activities linked to ordinary daily activities [41]. In total there are eight sessions (each lasting two hours) in terms of formal and informal practice during which participants are guided to use breathing as an anchor for sustained attention in the present moment [41, 42]. Furthermore, each participant also received handouts and audio clips to be used for daily home practice. It was recommended that they practice at least 30 minutes a day, three times a week. The details of each session and the entire program was illustrated thoroughly in the major MBCT manual [41]. To ensure the fidelity of the intervention, qualified therapists who have basic professional training in mindfulness-based intervention plus at least two years' experience in conducting mindfulness-based programs, were invited to implement the MBCT. A summarized overview of the intervention is shown in Table 1.

2.4. Outcome measures

2.4.1. Mindfulness

The Five Facet Mindfulness Questionnaire (FFMQ) [43] is a 39-item self-report measure of mindfulness. Higher scores on the five-point Likert scales indicate a higher level of mindfulness. The FFMQ consists of five subscales: Observing, Describing, Acting with Awareness, Non-Judging of Inner Experience, and Non-Reactivity to Inner Experience. The five factors form a total mindfulness score that reflects a global measure of mindfulness. The questionnaire has been shown to have good internal consistency ranging from .72 to .92 [44]. The validated Chinese version of FFMQ-C [45] was used in this study.

2.4.2. *Empathy*

The Interpersonal Reactivity Index (IRI) [46, 47] is a 28-item self-report measure of empathy in social situations. The IRI consists of four subscales: Perspective-Taking, Empathic Concern, Fantasy, and Personal Distress. Higher scores on the five-point Likert scales represent higher levels of respondent empathy. The measure has been shown to have good internal consistency, with reliability of the four subscales ranging from .70 to .82 and test–retest reliability from .62 to .71 [48]. The validated Chinese version of IRI-C [49] was used in this study.

2.4.3. *Self-compassion*

The Self-Compassion Scale [50] is used to measure self-compassion based on an aggregate of responses on three subscales: Self-Kindness vs. Self-Judgment, Common Humanity vs. Isolation, and Mindfulness vs. Over-Identification. Higher scores on the five-point Likert scales indicate higher self-compassion. This scale has been shown to have good internal consistency of .94. The 12-item Self-Compassion Scale – Short Form (SCS-SF) [51] was used in this study.

2.4.4. *Psychological distress.*

The 21-item Depression Anxiety and Stress Scale (DASS-21) [52, 53] is used to measure depression, anxiety, and stress symptoms. It consists of three subscales corresponding to the three negative affective states. Higher scores on the four-point Likert scales indicate more severe symptoms. The reliability of the three subscales ranges from .78 to .82. The Chinese version of DASS-21 [53, 54] was used in this study.

2.4.5. *Neuro-physiological responses*

An increase of frontal midline theta activity was measured by a single EEG channel biofeedback system (FlexComp Infiniti system, Thought Technology Ltd), which was used as an indicator of internalized attention. To record the EEG, an EEG-Z sensor that incorporated an automated three-lead impedance checking function was used. Two of the sensor's electrodes were placed on two ear lobes for reference, while the major electrode was placed at the frontal midline area according to the International 10-20 System [55]. The measurement unit used when detecting theta frequency was microvolts (μV). Respiration rate and skin conductance level were measured by the biofeedback system to indicate stress level, with lower rates denoting decreased stress level. To record the respiration rate, a Respiration-Flex/Pro was used. The sensor consists of a long velcro strap that was stretched around the client's abdomen, so as to measure the degree of abdomen expansion. The measurement unit of detecting the breathing rate is number of breaths per minute. To record the skin conductance level, a SC-Flex/Pro sensor was used. Two electrodes were strapped to two fingers of one hand. The measurement unit used when detecting the conductance was micro-Siemens (μM).

During measurement, each participant was instructed to sit quietly inside a cognitive laboratory with their eyes closed throughout the whole session. Measurement procedure was

as follows: baseline eyes closed condition for 3 minutes, continued for a further five minutes while participants listened to guided meditation audiotapes or classical music audiotapes. Classical music was chosen as a comparison condition to mindfulness practice in light of its similar effects on stress and anxiety reduction [56-58]. Specifically, “Canon in D” by Pachelbel was accordingly chosen. Data with movements and muscle artifact were manually removed prior to analysis. At T1, participants in both groups listened to the classical music audiotapes while the corresponding neuro-physiological measurements were recorded. At T2, the study group listened to guided meditation audiotapes whereas the control group kept listening to classical music audiotapes. When at T3, both groups listened to guided meditation audiotapes while the measurements were taken. All the above measurements were performed by the first author, who had received training in conducting the pertinent assessments. Proper procedures were also followed accordingly.

2.4.6. Counseling self-efficacy

The Counselor Activity Self-Efficacy Scales (CASES) [59] is a 41-item self-report measure of counseling self-efficacy. It consists of three scales: Helping Skills Self-Efficacy, Session Management Self-Efficacy, and Counseling Challenges Self-Efficacy. Higher scores on the 10-point Likert scales indicated higher counseling self-efficacy. The scales have been shown to have good reliability and an overall score ranging from .79 to .97 [59, 60].

2.5. Hypothesis

It is hypothesized that significant improvement over the **outcome measures** will be noted after participating in the MBCT program. Specifically, after implementation of MBCT training for the study group, significant differences should be found between the study group and waitlist control group in change scores for all outcome measures at T2.

After crossover from waitlist control to treatment (T3), the control group should show no significant differences from the original study group in change scores for all outcome measures. In particular, treatment gains would be maintained in the study group, whereas treatment effects would be enhanced in the control group after the crossover.

2.6. *Data analysis*

The data were analyzed using the Statistical Package for the Social Sciences (SPSS), version 25.0. Intention-to-treat was used to analyze the outcomes. Firstly, descriptive statistics for all outcome measures were identified at T1. The prospective analyses employed a repeated measure analysis of variance (ANOVA) design. Three measurement time points were the within-subject variable. MBCT training is the between-subject variable. Changes in quantitative and neuro-physiological outcome measures are the criterion variables. Trend analysis is considered across time. Further analysis of covariance (ANCOVA) was done for T2 and T3 by controlling the measurements done in T1. Hierarchical multiple linear regressions were performed to identify significant psychological and neuro-physiological determinants of different components of counseling self-efficacy at T3.

3. Results

3.1. *Descriptive statistics of different variables between study group and waitlist control group at T1*

Fifty counseling trainees agreed to participate in the study. There were 11 males and 14 females in the study group and nine males and 16 females in the waitlist control group. The age range was between 18 and 23. Descriptive information of different quantitative and neuro-physiological outcome measures is presented in Table 2. Means and standard deviations are used to summarize continuous data. Independent t-tests were conducted to

evaluate the differences between the two groups. No significant **differences** among all outcome measures was noted in general between study and waitlist control group except SCS and one subscale in FFMQ, so the effects of pre-scores at T1 were adjusted and controlled by ANCOVA for further subsequent analysis.

3.2. Repeated measures ANOVA

According to the G*Power program [61], a statistical power of 0.97 was attained when considering a moderate effect size (partial $\eta^2 = .28$) achieved in the primary outcome of counseling self-efficacy under the present two-group ANOVA with a total sample size of 50.

Various repeated measures were done for each outcome measure. In general, comparable findings were noted between the two groups at T1. At T2, the discrepancies were widened in many outcome measures between the two groups. At T3, the differences were narrowed down gradually. Significant group interaction effects were identified in different outcome variables. Thus, further ANCOVA were used to test for group differences at each time point. The independent variables were group status with two levels (study group and waitlist control group); the dependent variables were the post-intervention measures, with the pre-intervention measures as covariates. F-test was used to assess the significant difference of the expected values between the two groups, whereas partial η^2 was used to represent the effect size. Results of the ANCOVA at T2 and T3 are depicted in Table 3.

After adjusting the pre-scores at T1, there were significant differences in several outcome measures at T2. Specifically, participants in the study group scored higher in mindfulness, empathy (perspective-taking), and self-compassion after the MBCT training. Moreover, partial η^2 indicated moderate effect sizes, in which the effects of group differences account for 15% to 29% of the group differences plus associated error variance of the significant variables. Meanwhile, study group participants' psychological distress

decreased dramatically after the MBCT training, as indicated by the significant F-test results and moderate effect sizes (partial $\eta^2 = .15$ to $.32$) in all DASS subscales. For the neuro-physiological measures, all parameters indicated significant changes with small to moderate effect sizes between 9% and 21%. With regards to counseling self-efficacy, participants in the study group had a significant increase in Helping Skills and Session Management Counseling Self-Efficacy, as depicted by moderate effect sizes (partial $\eta^2 = .26$ to $.28$).

When at T3, after adjusting the T1 scores, insignificant differences with very small effect sizes (partial $\eta^2 = .00$ to $.10$) were found in almost all different outcome measures between the two groups. When scrutinized further, there was more or less maintenance of the scores of mindfulness, empathy, and self-compassion for the study group, as supported by raw scores inspection and insignificant paired t-test ($t = -.77$ to 2.2 , $p > .05$), whereas there was a gradual increase in the control group after crossover at T3. Similar patterns were also observed in psychological distress and neuro-physiological measures. As far as counseling self-efficacy was concerned, there was a carry-over effect as observed in the study group from T2 to T3 ($t = -1.5$ to $-.26$, $p > .05$), whereas participants in the control group improved markedly in corresponding self-efficacy ($t = -4.3$ to -2.6 , $p < .05$) after the MBCT training at T3.

3.3. Determinants of counseling self-efficacy at T3

Table 4 shows the results of the hierarchical multiple linear regressions model with regard to different components of counseling self-efficacy at T3. Mindfulness factors explained 28.8% to 46.6% of the variance across different components of counseling self-efficacy. Specifically, participants who got higher scores in description, observation, and non-judgmental aspects of mindfulness would have higher levels of Helping Skills, Session Management, and Counseling Challenges Self-Efficacy, respectively. Psychological distress

appears to be the second most significant factor by explaining 2.3% to 15.4% of the variance across different components of counseling self-efficacy. More specifically, participants with a lower degree of anxiety and stress should have a higher level of Counseling Challenges Self-Efficacy. With regards to self-compassion, the results also suggest that a higher level of self-compassion should lead to a higher level of Counseling Challenges Self-Efficacy (Beta = .46, $t = 2.9$, $p < .01$).

4. Discussion and conclusion

4.1. Discussion

4.1.1. The effects of MBCT

Findings from the study confirm the hypothesis stating that significant differences are found between the two groups at T2 after the implementation of MBCT training for the study group. Basically, there was a significant increase of “Perspective-Taking” and self-compassion after the training, which is consistent with previous findings [17, 62, 63]. In fact, the elements of non-judgmental and present-moment awareness, as highlighted in the mindfulness training, should play important roles in fostering empathic response, especially the cognitive ability to take on the perspective of another [46] and a realistic view of human suffering [64]. Besides, learning how to live with difficulties and improvement in self-care are important principles learnt during the MBCT training. This stress reduction effect aligns with previous findings showing the therapeutic effects of mindfulness as being a form of self-care activity [65, 66]. Such effect is backed up by psychological and physiological evidence (including respiration rate and skin conductance level) in this study. Moreover, results from this study also confirm the neurological evidence of enhanced attention through mindfulness training. As such, controlled attention is a higher-order cognitive process that can help us to stay focused [67]. It is consistent with research findings showing that practicing mindfulness

can help therapists show more empathetic and genuine responses to clients by staying focused [29, 68].

In addition, there is a significant increase in “Helping Skills and Session Management Self-Efficacy” after the mindfulness training which is consistent with previous findings [30, 35]. After the mindfulness training, trainees could show more confidence in managing the logistics of their counseling sessions. Perhaps the more they can observe the structural-based ingredients in MBCT [41], the more they can learn to apply the structure in their own counseling sessions. Besides, the enquiry elements as emphasized in MBCT training [41] may also facilitate sharing and reflection of immediate feelings among trainees, which should lead to enhancement of their Helping Skills Self-Efficacy.

Results from ANCOVA at T3 as stipulated by the crossover design can also confirm the hypothesis, denoting no significant differences between control group and the original study group for almost all outcome measures after crossover. At T3, it is essential to compare the sustained effect with the immediate effect of MBCT as represented by the study group and control group. Lack of reminders to practice regularly may lead to a slight attenuation of the carry-over effect of MBCT [69, 70]. Perhaps trainees in the study group might experience some cognitive change only after formal MBCT training. Further ongoing formal and informal practice is essential for an affective change and an even more in-depth transformation [71].

4.1.2. Determinants of counseling self-efficacy

In line with previous research findings [29, 30], results from this study demonstrated a strong positive relationship between mindfulness and counseling self-efficacy. First, higher scores of description gained through mindfulness lead to a higher level of Helping Skills Counseling Self-Efficacy. In other words, individuals can have better basic communication

competencies after gaining better ability through mindfulness training to label their own experiences. This is in line with previous findings showing that mindfulness training can help enhance basic counseling skills in terms of affect labeling [72]. Second, higher scores of observation gained through mindfulness result in a higher level of Session Management Counseling Self-Efficacy. In other words, individuals can facilitate the process of counseling sessions better after augmenting sensory awareness with mindfulness training. In fact, sensory awareness can be instrumental within person-centered psychotherapies [73] and can enhance the cultural sensitivity of multicultural counseling competence [74]. Third, participants having more non-judgmental experience in mindfulness can achieve a higher level of Counseling Challenges Self-Efficacy. That is, through mindfulness training, individuals can have higher competence in dealing with interpersonal tensions and clients' distress after accentuating self-acceptance and unconditional empathy for oneself and/or others. Indeed, the core precept of mindfulness is actually to find ways to deal with mental suffering by achieving equanimity [75].

Besides, reduction of psychological distress after mindfulness training [65, 76] also leads to enhanced counseling self-efficacy. Particularly, individuals with a lower degree of anxiety or stress levels can achieve a higher level of Counseling Challenges Self-Efficacy. This is in line with previous findings showing that a mindfulness-based intervention can promote positive therapist qualities and better therapy outcomes by reducing psychological distress among trainees [77]. In addition, a higher degree of self-compassion also leads to a higher level of Counseling Challenges Self-Efficacy. As such, one of the major elements of self-compassion requires taking a balanced stance, which stems from the willingness to observe our negative thoughts and emotions with openness and clarity [78]. Perhaps this kind of mindful awareness within the therapist's self-compassion can be contagious [79] and ultimately lead to better coping with interpersonal tensions and clients' distress.

4.2. Limitations

Only a small sample of motivated, young and fresh trainees from a single college was recruited for this study, so they cannot be representative of a wider spectrum of helping profession trainees such as those from graduate programs. Despite the quantitative approach of this study, a qualitative supplement is also recommended. Only through a mixed design approach can a deeper understanding and in-depth analysis of trainees' perspectives on mindfulness be obtained. Although a waitlist control study design has been adopted in this study, absence of significant participant or practitioner blinding may contribute to a social desirability effect. Thus, a parallel intervention study design can be considered in future, in which a comparable intervention program of equivalent length can be concurrently implemented for the control group. Last but not least, in light of the insufficient sustained effects of mindfulness training seen in this study, perhaps booster sessions after training should be considered in future to enhance the effects of mindfulness.

4.3. Conclusion

Despite the aforesaid limitations, this study can make a contribution by proving the benefits of integrating mindfulness into counseling training to help profession trainees. It confirms that mindfulness training can make positive changes in empathy, self-compassion, and psychological distress reduction, and ultimately leads to promotion of counseling self-efficacy.

4.4. Practice implications

There is a budding recognition of the importance of providing helping professionals with the necessary tools of self-care in their early careers and even during their training [16, 80,

81]. This study can shed light on significant practical implications and benefits of counseling training in helping professionals in a local context. Specifically, mindfulness practice training should be a promising way to address self-care issues during training. Mindfulness has been proposed as a component, indeed a necessary “big idea”, in psychotherapy training [82, 83]. Research has demonstrated the robust effect of mindfulness on the therapist and on the therapeutic relationship with clients. By learning mindfulness, trainees can shift from a “doing mode” to a “being mode” with their clients. Mindfulness practice can help trainees realize and embody necessary qualities such as empathy and self-compassion in the counseling process. In addition, the stress reduction effect of mindfulness should also be another promising benefit. In line with Siegel [84], mindfulness can facilitate self-attunement, which in turn increases the capacity to attune to others.

Authors’ contribution

SHWC: Conceptualization, study design, methodology, acquisition of data, analysis and interpretation of data, draft the manuscript. CKCY: Revised the manuscript critically for important intellectual content. AWOL: Made comments on data analysis and revised the manuscript content. All authors read and approved the final manuscript.

Conflicts of interest

The authors declare that they have no relevant conflicting interests.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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