REVIEW ARTICLE

The Effects of Mindfulness-Based Cognitive Therapy in Multicultural Settings: A Scoping Review

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ABSTRACT

Mindfulness-Based Cognitive Therapy (MBCT) is an experiential group intervention adapted from Buddhist meditational practice aimed at treating recurrent depression. Our scoping review explored the MBCT effectiveness in multicultural settings and whether any adaptations were made to enhance it. By using Arksey and O'Malley's framework, our review examined randomized controlled trials (RCTs) published between 2010 and 2023, focusing solely on studies from non-English speaking countries. Out of 1461 published RCT, only 15 of them met our study criteria and they were mainly from China, Denmark, Germany, Hong Kong, Iran, Netherlands, and Switzerland. Out of 15 selected RCT publications, 10 studies shown that MBCT significantly improved symptom-based measures (e.g., Beck Depression Inventory-II), one study shown little difference between MBCT compared to Cognitive Behavioural Therapy (CBT), and four studies shown that comparative treatments were more effective than MBCT, in which two of them were culturally specific interventions, Traditional Yoga and Qigong. Two studies found MBCT effective when combined with Mindfulness-Based Stress Reduction (MBSR) and Loving-kindness meditation. Common themes including (1) reduction in psychological distress across all studies, (2) trials used small sample sizes, and (3) the feasibility of using MBCT in multicultural settings, with cultural interventions showing greater effectiveness. MBCT interventions reported promising results when used in a multicultural setting, with a potential for culturally integrated intervention. Our results conclude an opportunity for future research to embed psycho-spirituality with MBCT.

Keywords
MBCT, RCT, non-English speakers, Culture

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INTRODUCTION

Mindfulness was first introduced into therapy by Jon Kabat-Zinn who drew the Mindfulness-Based Stress Reduction (MBSR) programme from Buddhist meditational practice of de-centring, self-awareness, impermanence, and compassionate acceptance.[1] Mindfulness was then combined with aspects of cognitive therapy, including behavioural activation through scheduled homework and activities, metacognitive awareness of negative thoughts and feelings, and attention regulation.[2]

Mindfulness-Based Cognitive Therapy (MBCT) is an evidence-based intervention that was initially used for patients with recurrent episodes of depression.[3] MBCT is an eight-session group intervention focused on developing mindful presence, which involves acknowledging thoughts and feelings without judgment and practicing self-compassion and acceptance. Participants learn to manage challenging situations and emotions, embracing impermanence and letting go.[4]

Research Statement of Problem

As many other minorities and migrant communities worldwide, Singaporean Malays, the largest minority group in Singapore, at 13.5% of the population, are susceptible to mental health challenges.[5] Fourteen per cent of Singaporeans are Muslims, with 99.6% of Malays professing the Muslim faith.[6] Singaporean Malays aged 18 to 34, especially those with higher academic achievements, are reportedly more dedicated to prayer and spiritual practices. They tend to prefer traditional complementary and alternative medicine over primary care

for mental illness due to the socio-emotional support and spiritual upliftment it provides.[7] Their cultural misconceptions and misinformation about mental illness makes them less likely to seek or value psychological help.[8] Thus, local researchers call for the cultural contexts of mental illness to be integrated into healthcare systems. Adaptations of Western mental health treatment models have been recommended for targeted minority communities to utilise.[9,10,11]

As Major Depressive Disorder (MDD) was identified as the most common mental disorder in Singapore[12], MBCT has been chosen as the treatment of choice to be culturally integrated for Singaporean Malay because of its solid empirical evidence in reducing MDD.[13] The concern is whether the Singaporean Malay Muslims would accept and comply with a psychological treatment that is culturally integrated from Buddhist practice.

REVIEW OBJECTIVES

Although previous literature has shown that MBCT is effective in treating recurrent depression, little is known if MBCT works well in multicultural settings. Thus we have reviewed research literatures to identify randomised controlled trials (RCT) where MBCT was administered for psychological distress. Since there is a lack of integrated treatment for the Singaporean Malays, our review aimed to:

a) Examine the effects of MBCT in multicultural settings.
b) Examine if adaptations were made to enhance the effectiveness of MBCT in multicultural settings.

We hypothesised that if the literature supported MBCT interventions in multicultural communities or where English is not a primary native language, MBCT might also be effective for the Singaporean Malay Muslims.

METHODOLOGY

A scoping review was employed to obtain literature identifying crucial concepts and possible research gaps while evaluating current research practices, trends, and evidence from previous studies. By utilising a five-stage scoping review framework, the scoping review (1) identified the research question, (2) identified relevant studies, (3) selected the studies, (4) tabled the data, and (5) collated, summarised, and reported the results.[14]

Step 1. Identification of the main study's research question

This main study investigated the effectiveness and feasibility of MBCT for the Singaporean Malays. In addition, the main study compared MBCT with another intervention to determine if social, religious, cultural, and spiritual norms influence treatment outcomes.

Step 2: Sourcing Relevant Studies

A preliminary search terms of "mindfulness-based cognitive therapy" or "MBCT" was conducted on Scopus, EBSCO, Jstor, ProQuest and Taylor & Francis. An advanced search on Scopus and EBSCO included search terms ALL ("Mindfulness-based cognitive therapy" AND mbct) AND NOT ALL (geriatr* AND NOT elder* AND NOT senior) AND NOT ALL (youth AND NOT child* AND NOT teen*) AND ALL (spirit* AND cultur* AND soci* AND religio*). Next, 1,461 titles and abstracts were combed for RCT, specifically in MBCT, published between January 2010 and December 2020. Search alerts were activated for the database from January 2021 to April 2023. Then, only the MBCT RCTs from countries with national languages other than English were extracted for full-text review. Finally, a total of forty-one full-text articles were assessed for eligibility.

The Population, Intervention, Comparison and Outcome (PICO) framework[15] was used to identify eligible research papers.[16]

Populations. Studies involving adults between 18 and 65 years of age, where English was not the primary native language spoken, who were experiencing mental health issues were selected for our review. Studies researching children, adolescent, and geriatric populations; psychosis, neurocognitive, and neurodevelopment conditions were excluded.

Intervention. Randomized Controlled Trials (RCTs) where MBCT was among the interventions explored to alleviate symptoms of mental health issues.

Comparisons. We sought to compare MBCT with other active interventions (e.g., CBT, Traditional Yoga, Tai Chi) or waitlist.

Outcome. Symptom-based measures were identified for improvements in depression (Example: Beck's Depression Inventory (BDI), Depression Anxiety Stress Scale (DASS-21), Montgomery–Asberg Depression Rating Scale (MADRS) and/or anxiety, example Beck's Anxiety Inventory (BAI), Generalized Anxiety Disorder questionnaire (GAD-7).

Step 3: Selecting the studies

Restrictions were imposed to review only full-text RCTs on MBCT with depression, anxiety, or stress-related conditions as primary mental health issues. A total of 41 full-text articles underwent eligibility assessment. We had excluded 26 studies which focused primarily on neurodevelopmental disorders (e.g., ADHD, Autism), neurocognitive deterioration (e.g., dementia), and psychological distress stemming from physical conditions with comorbid symptoms (e.g., tinnitus, cancer, diabetes perinatal). The PRISMA diagram[17] in Figure 1 illustrates the selection process for the 15 full-text articles reviewed.

Step 4: Charting the data

The review identified relevant literature to highlight research gaps and inform future research, policy, and practice. In testing the hypothesis that MBCT can reduce symptoms of distress and improve positive mental health, the first reviewer used an adapted Matrix Method (see Table 1) to document the methodology and intervention.[18] The data were extracted and summarised to highlight key aspects of the articles as follows:

i. Publication year, author(s), title, study design.
ii. Number of participants, country, diagnosis/condition, age of participants, interventions employed.
iii. Measures utilized, time of assessments, minimum sessions required for completion evaluation, attrition.
iv. Identity of facilitators.
v. Methodology for analysis and findings.
vi. Reported limitations.

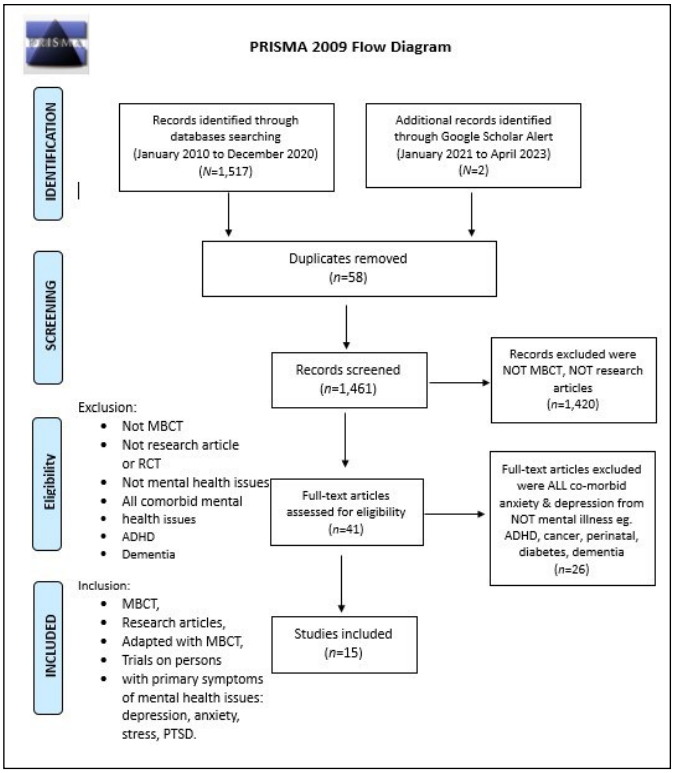

Figure 1: Selection process of 15 articles on MBCT in socio-cultural-religious settings.

Step 5: Summarise, synthesise, and report.

A content analysis was employed to address the research questions, which aimed to investigate the effectiveness of MBCT, assess the influence of culture on treatment outcomes, and summarize the scope of the studies reviewed. The extracted data were further subcategorized. The second author vetted the chart and categories for conformity, resolving discrepancies through discussion.

RESULTS

A total of 15 randomised controlled trials (RCT) were reviewed in Table 1. Studies from Denmark (n=1), Germany (n=1), China (n=3), Iran (n=6), Netherlands (n=2), Sweden (n=1), and Switzerland (n=1) were thoroughly examined to reflect adaptations or feasibility of MBCT in various cultural settings.

Table 1: Adapted Scoping Review Matrix for Mindfulness-based Cognitive Therapy in non-English native language environments.

No.	Publication year / Author / Title / Design	Participants / Age / Intervention	Measures / Time of assessments / Minimum sessions for completion / Attrition	Conducted by	Analysis / Outcomes	Limitations
1	2010. Piet J., Hougaard E., Hecksher M.S., Rosenberg N.K. A randomised pilot study of MBCT and group CBT for young adults with social phobia. Pilot study. RCT crossover design	26 Danish youth Female *n*=18 (69%) Anxiety & Social Phobia 18-25 years *M*=21.9 • Grp 1 (*n*=14) MBCT + GCBT (8+12 sessions) • Grp 2 (*n*=12) GCBT + MBCT (12+8 sessions)	BAI, BDI-II, FFMQ-SF, FNE, IPP, LSAS, RRS-EXT, RPA-NL, SCL-90-R, SCS-SF, SDS, SIAS, SPC, SPS • Pre-Post MBCT & GCBT • Follow-up 6-mths & 12-mths minimum session = 75% of treatment Attrition: • MBCT: 5/26 (19%) • GCBT: 3/26 (11%)	• GCBT therapist with >10yrs experience in CBT for Anxiety disorders (2 therapists: 6 clients) • MBCT therapist trained by Mark Williams (1 therapists: 14 clients)	• ANCOVA, *t*-tests, Intention to treat (ITT), Per protocol (PP) • +ve improvements in both groups • no significant differences between 2 groups. • Outcome variables favour GCBT compared to MBCT	• small sample size • no waitlist/ placebo • crossover design limits conclusion from follow-up data
2	2010. Bondolfi G., Jermann F., der Linden M.V., et. al. Depression relapse prophylaxis with MBCT: Replication and extension in the Swiss health care system Replication trial across language and culture. RCT stratified block randomisation.	60 Swiss patients Female, *n*=43 (71%) In remission (unmedicated) from recurrent depression (<3 episodes) 27–66 years, *M*=47.5 • Grp 1 (*n*=31) MBCT + TAU + 4 booster MBCT sessions every 3 months during follow-up • Grp 2 (*n*=29) TAU alone	• MADRS, • BDI-II, • Interview • Pre-Post • Follow-up every 12 weeks (i.e. month 5, 8, 11, 14). Minimum session = unreported Attrition: • MBCT: 4/31 (13%) • TAU: 1/29 (3%)	• 3 senior CBT psychologist • 1 senior CBT psychiatrist • All attended training by Z. Segal. • 1 therapist:7 participants • Adherence rate 93.33%	• Fisher's exact test for proportions and Mann–Whitney U-test for continuous and ordinal variables. ITT & PP • MBCT + TAU maintained wellness longer, with time to relapse of a median of 29 weeks, compared to TAU of 10 weeks	• secondary analyses conducted only on MBCT + TAU group possibly limit statistical power
3	2011. Kaviani H., Javaheri F., Hatami N. Mindfulness-based cognitive therapy (MBCT) reduces depression and anxiety induced by real stressful setting in non-clinical population. Preliminary feasibility study new cultural population RCT, blinded randomisation.	45 Iranian university students Female, *n*=45 (100%) Self-reported high level of anxiety and depression Age= unreported *M*= 20.5 • Grp 1 (*n*=20) MBCT + TAU • Grp 2 (*n*=25) Waitlist	• BDI, • BAI, • DAS, • ATQ • Pre, mid (session 4), post (session 8) • Follow-up 1-mth, 6-mths. Minimum session & attrition = unreported	• Therapist • therapist: participants ratio unreported.	• 2-way ANOVA with repeated measures. Per protocol. • Significant reduction of anxiety and depression in MBCT group.	• only females • no 2nd intervention grp • repeated data collection and experimenter's demand • no mindfulness measure
4	2012. Kaviani H., Javaheri F., Hatami N. The impact of MBCT on mental health and quality of life in a sub-clinically depressed population RCT, simple randomisation.	30 Iranian University students Female, *n*=30 (100%) Sub-clinically depressed population Age= unreported *M*= 21.7 • Grp 1 (*n*=15) Farsi MBCT • Grp 2 (*n*=15) Control group	• BDI, • BAI, • DAS, • ATQ, • WHOQOL-BREF • Pre, mid (session 4) & post (session 8) • Follow-up 1-mth& 6-mths. Minimal session and attrition: unreported	• psychologist trained in MBCT. • 1 therapist: 15 participants.	• 2-way ANOVA with repeated measures • +ve improvements in WHOQOL • Significant reduction of anxiety and depression in MBCT group.	• mostly females • no 2nd intervention grp • no stress scale

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No.	Publication year / Author / Title / Design	Participants / Age / Intervention	Measures / Time of assessments / Minimum sessions for completion / Attrition	Conducted by	Analysis / Outcomes	Limitations
5.	2013. Abdollah, O., Mohammadkhani P., Mohammadi A., Zargar F. Comparing MBCT and traditional CBT with treatments as usual on reduction of major depressive disorder symptoms RCT with qualitative exploratory design (interview before and after intervention), • 3-arm design	90 Iranian patients referred to the university clinic Female, *n*=60 (67%) History of major depressive disorder Aged 18–45 years, *M*=28 • Grp 1 (*n*=30) Farsi MBCT • Grp 2 (*n*=30) CBT • Grp 3 (*n*=35) TAU	• BSI • Pre-Post Minimal session and attrition: unreported	• therapist unreported. • therapist: participants ratio unreported.	• ANCOVA • +ve improvements in both MBCT & CBT groups • no significant difference between MBCT & CBT • both reduced symptoms of stress and increased healthy state of mind • correlated improvement to homework	• unreported
6.	2013. Collip D., Geschwind N., Peeters F., Myin-Germeys I., van Os J., Wichers M. Putting a Hold on the Downward Spiral of Paranoia in the Social World: A RCT of MBCT in Individuals with a History of Depression RCT sequence generator randomisation (www.random.org)	129 Dutch patients Female, *n*=98 (76%) At least one episode of MDD Age range unreported. *M*=44 • Grp 1 (*n*=63, MBCT • Grp 2 (*n*=66) Control	• ESM self-assessment set with a digital wristwatch • Pre-Post Minimal session: 4 sessions Attrition: 4% invalid entries	• experienced trainers in a centre specialising in mindfulness training. • 1 therapist: 10-15 participants	• Multilevel linear regression analyses, ITT & PP • +ve improved feelings of acceptance. In MBCT groups • MBCT decreases feelings of paranoia about social acceptance	• 1st study on social insecurity & paranoia. But the absence of an active control group • no measure of MBCT fidelity to both adherence and competence • single item measures used, restricting construct validity
7.	2016. Wong S.Y, Yip B.H, Mak W.W, Mercer, S., et. al. MBCT v. group psychoeducation for people with generalised anxiety disorder: randomised controlled trial • RCT simple blinded randomisation. • 3-arm design	182 Chinese patients in Hong Kong Female, n=144 (79%) Generalised anxiety disorder Aged 21 – 65 years *M*=50 • Grp 1 (*n*=61) Cantonese MBCT • Grp 2 (*n*=61) Group psychoeducation • Grp 3 (*n*=60) TAU	• BAI • PSWQ • CES-D • SF-12 • FFMQ • Pre-Post • Follow-up: 3 months Minimal session: 7 Attrition: • MBCT: 29% • Group psychoeducation: 11%	2 clinical psychologists, one social worker intensive MBCT and MBSR training retreats & at least 2 years experience in leading an MBCT group. • 1 therapist: 15 participants	• Linear mixed models PP and ITT • +ve improvements in both MBCT and Group psychoeducation. • Both MBCT and group psychoed treatment decreased worry and anxiety symptoms with no significant difference compared to usual care. • group psycho-ed reported greater acceptability.	• lower adherence in MBCT • self-reported questionnaires are only available for MBCT & CBT • follow up only for 3 months • possible selection bias from self-referred participants • Unable to tell if differences resulted from modality/ result of attention/ time differences • Possible Type 1 error from 2 primary outcome measures and 2 comparisons.

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No.	Publication year / Author / Title / Design	Participants / Age / Intervention	Measures / Time of assessments / Minimum sessions for completion / Attrition	Conducted by	Analysis / Outcomes	Limitations
8.	2018. Grensman A., Acharya B.D., Wändell P., Nilsson G.H., Falkenberg T., Sundin, Werner S. Effect of traditional yoga, MBCT, and CBT, on health-related quality of life: A RCT on patients on sick leave because of burnout. • RCT blinded to block • first RCT on burnout • 3-arm design • Swedish-translated interventions	94 Swedish primary health care patients, 20 to 100% on sick leave for burnout. Female, *n*=70 (90%) Exhaustion Syndrome Aged 18–65 years *M*=44 • Grp 1 (*n*=31) MBCT • Grp 2 (*n*=32) TY • Grp 3 (*n*=31) CBT	• SWED-QUAL (HRQoL) • Pre-Post Minimum sessions: unreported Attrition (13.8%) • MBCT: 5/31 • TY: 6/32 • CBT: 2/31	Trained TY teacher & licensed psychotherapist 1 therapist: 9-11 participant	• Wilcoxon's rank sum test & sign rank; Bonett-Price calculation calculates median; multiple comparisons, using Holm-Bonferroni correction on STATA. ITT • +ve improvements in all groups • TY scored more on the scale of improvements out of 13 QoL subscales: • MBCT 7/13 • TY 10/13 • CBT 7/13	• small group size • fewer men • restricted sample size did not allow sub-analyses • no scale for burnout
9	2018. Omidi A., Hamidian S. Effectiveness of a combined MBCT and MBSR intervention on depression symptoms and quality of life in a group of Iranian veterans with PTSD • RCT	62 Iranian patients all male Female, *n*=0 (0%) Comorbid PTSD and depression. Aged 35 – 49 years, *M*=42 • Grp 1 (*n*=31) MBCT + TAU • Grp 2 (*n*=31) Control Grp + TAU	• SCID-IV • BDI-II • SF-12 • Pre-Post Minimum 6 sessions Attrition = 0	Clinical psychologist therapist: participant ratio unreported	ANCOVA ITT & PP. • +ve improvements in QoL • Depression scores of the MBCT group significantly decreased	• not tested in 3 arms • limited participants (male only)
10	2018. Jasbi M., Sadeghi Bahmani D., Karami G., et. al Influence of adjuvant MBCT on symptoms of PTSD in veterans –results from a randomised control study. • RCT	48 Iranian veterans Female, *n*=0 (0%) PTSD Aged 50–55 years *M*=52.7 • Grp 1 (*n*=24) MBCT • Grp 2 (*n*=24) Control Grp	• PCL-5 • DASS-21 • Pre-Post Minimum 6 sessions Attrition = 0	Experienced psychologists and mindfulness instructors Nurses, social workers & psychologists organized the socio-therapeutic events. 1 therapist: 7-12 participant	• ANCOVA ITT • MBCT reduced DASS symptoms	• The sample size was small • only male patients with PTSD were assessed • no neurobiological data were collected, • sleep and nightmares were not assessed
11	2019. Cladder-Micus M.B, Becker E.S., Spijker J, Speckens A.E.M, Vrijsen J.N. Effects of MBCT on a Behavioural Measure of Rumination in Patients with Chronic, Treatment-Resistant Depression • 1st RCT measuring rumination	• 62 Dutch patients Chronic, Treatment-Resistant outpatients Female, *n*=42 (68%) Depression Aged above 18, *M*=46 years old • Grp 1 (*n*=26) MBCT + TAU • Grp 2 (*n*=36) TAU	• BFT • RRS-EXT • IDS-SR • FFMQ 39 • VAS • Pre-Post minimum session and attrition: unreported	mindfulness teachers therapist: participant ratio unreported	• mixed model ANOVAs ITT • MBCT + TAU reduced thought intrusion. negative thoughts reduction in negative thought intrusions	• BFT is a new measure which needs validation • study is pre-post design, without follow-up • insights only for effects of MBCT for patients with chronic, treatment-resistant depression

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12	2020. Chan S.H.W., Chan W.W.K., Chao J.Y.W, Chan P.K.L, et al. An RCT on the comparative effectiveness of MBCT & Health Qigong-based cognitive therapy among Chinese people with Depression and Anxiety RCT • 3-arm design	187 Chinese participants Female, *n*=unreported (70.5%) Depression and anxiety. Aged 18 – 70 years, *M*=50.5 • Grp 1 (*n*=62) MBCT • Grp 2 (*n*=62) Health Qigong-CT • Grp 3 (*n*=63) Waitlist Grp	• DASS-21 • SF-12 • CPSS • PSQI • GSE • Pre-Post Minimal sessions unreported Attrition: *n*=4, 2.14% • MBCT: 1 • HQCT: 1 • Waitlist: 2	Qualified therapists with 2 years of experience in conducting MBIs. therapist: participant ratio unreported	• ANOVA, linear mixed models (LMM) and investigated through individual growth curve (IGC) models, analysed ITT • Qigong scored better in most measures. • +ve improvements in all groups	• lack of CBT only control group • no breakdown of mood disorder into subtypes • small sample of motivated participants in a single clinic • Only used Baduanjin type of Health Qigong
13	2020. Probst T, Schramm E, Heidenreich T, Klein J-P, Michalak J. Patients' interpersonal problems as moderators of depression outcomes in an RCT comparing MBCT and a group version of the cognitive-behavioural analysis system of psychotherapy in chronic depression -RCT simple randomisation. • 3-arm design	106 German patients Female, *n*=42 (MBCT+CBASP (62%) Chronic depression Aged Above 18 years old. *M*=49.6 • Grp 1 (*n*=36) MBCT + TAU • Grp 2 (*n*=35) TAU + CBASP • Grp 3 (*n*=35) TAU	• HAMD • BDI-II • IIP-32 • Pre-Post • Follow-up 6 mths Minimal session: unreported Attrition: MBCT: 2 CBASP: 1 Lost to follow-up: 5 each	MBCT-certified Clinical Psychologist & Psychiatrist with 5 years of Mindfulness practice therapist: participant ratio unreported	• Two linear multilevel models IIT • Both MBCT & CBASP reduced depression symptoms • MBCT had greater benefits with vindictive/self-centred patients • CBASP had greater benefits with non-assertive patients	• Small sample size • only analysed interpersonal problems as moderators
14	2021. Wang Y, Fu C, Liu Y, Li D, Wang C, Sun R, Song Y. A study on the effects of mindfulness-based cognitive therapy and loving-kindness mediation on depression, rumination, mindfulness level and quality of life in depressed patients RCT simple randomisation.	125 Chinese Female, *n*=72 (58%) Depression Aged 19-58 yrs old. *M*=36.5 • Grp 1 (*n*=63) MBCT + LKM • Grp 2 (*n*=62) Control Grp	• HAMD • RRS21 • FFMQ39 • WHOQOL-BREF • SAQ16 • SSPM11 • Pre-Post Minimal session / Attrition: unreported	Clinical Nurse Specialists therapist: participant ratio unreported	• multi-point ANOVA, ITT • MBCT + LKM can effectively improve depression, rumination, mindfulness level, quality of life, the sense of stigma and degree of self-acceptance in depressed patients • At 2, 4, 6 and 8 weeks after the intervention, HAMD scores were decreased in both groups • HAMD scores in the observation group were lower than before the intervention. • HAMD scores in the MBCT group were lower than in the control group (P<0.05). • At 8 weeks after the intervention, HAMD scores in the control group were lower than those before the intervention (P<0.05)	• The study is general • Effects on depressed patients with different characteristics are not analysed • Effects not demonstrated to affect primary conditions (e.g., age, gender and course of the disease) • Effects of MBCT or LKM not demonstrated individually.

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No.	Publication year / Author / Title / Design	Participants / Age / Intervention	Measures / Time of assessments / Minimum sessions for completion / Attrition	Conducted by	Analysis / Outcomes	Limitations
15	2023. Shokri, A., Kazemi, R., Narimani, M. & Taklavi, S. Compare the effectiveness of mindfulness-based cognitive therapy and cognitive emotion regulation training on psychological well-being of mothers with aggressive students. RCT, simple randomisation Cross-sectional design • 3-arm design	60 Iranian mothers Female, *n*=60 (100%) Mothers with aggressive children Aged 20-50 yrs old. *M*=35.32 • Grp 1 (*n*=20) MBCT • Grp 2 (*n*=20) Cognitive emotion regulation training • Grp 3 (*n*=20) Control Grp	• psychological well-being questionnaire • Pre-Post Minimal session / Attrition: unreported	unreported therapist: participant ratio unreported	• multivariate covariance analysis +ve improvements in MBCT compared to Cognitive emotion regulation training and control group • participants in MBCT had a higher average level of awareness for independence, mastery of the environment, personal growth, positive relationship with others, and acceptance than the cognitive emotion regulation training group	• unable to perform follow-up. • only females

[1]Notes: BAI: Beck Anxiety Inventory, BDI-II: Beck Depression Inventory II, FNE: Fear of Negative Evaluation, IPP: Inventory of Interpersonal Problems, LSAS: Liebowitz Social Anxiety Scale, SIAS: Social Interaction Scale, SCL-90-R: Symptom Checklist-90-Revised, SDS: Shehan Disability Scale, SPC: Social Phobia Composite, SPS: Social Phobia Scale, MADRS: Montgomery–Asberg Depression Rating Scale score, WHOQOL-BREF: World Health Organization Quality of Life Brief instrument.

[2]ATQ: Automatic Thoughts Questionnaire–Negative, BAI: Beck Anxiety Inventory, BDI-II: Beck Depression Inventory II, DAS: Dysfunctional Attitudes Scale, BSI: Brief Symptom Inventory,

[3]PCL-5: Post-traumatic stress disorder scale for DSM, DASS: Depression, anxiety, and stress scale, HRSD-17: Hamilton Rating Scale for Depression, WHOQOL-BREF: World Health Organization Quality of Life, short version, FFMQ: Five Facets Mindfulness Questionnaire, KIMS: Kentucky Inventory of Mindfulness Skills, RRS-NL-EXT: Ruminative Response Scale, extended version, RRS-NL: Ruminative Response Scale, BFT: Breathing Focus Task, IDS-SR: Inventory of Depressive Symptomatology Self-Report, VAS: Visual Analogue Scales.

[4]HAMD/HDRS: Hamilton Depression Rating Scale, RSS: Ruminative Response Scale, SMQ: Southampton Mindfulness Questionnaire

Design

All studies were RCTs, with a maximum of three-arm groups (*n*=5). A Danish study reported utilizing a crossover design.[19]

Participants

The study participants were recruited from schools (*n*=96, 7.2%), universities (*n*=184, 13.8%), and hospitals (*n*=1062, 79%), with the ages ranging between 18 and 65 years old. A total of 1,306 were recruited, in which 786 (59.2%) were female. There were two Iranian studies included only male veterans of the war in their studies.[20,21]

The sample size ranged from 26 to 182 participants. The smallest sample size recruited was 26 university students[19], while the largest recorded was 182 patients with Generalized anxiety disorder (GAD).[22] The trials' conditions varied from social phobia (*n*=26, 1.99%)[19], anxiety (*n*=182, 13.9%)[22], depression (*n*=602, 46.1%) [23,24,25,26,27,28,29] both depression and anxiety (*n*=232, 17.76%)[30,31], exhaustion (*n*=94, 7.2%)[32], caregiver's stress (*n*=60, 4.59%)[33], and Post-Traumatic Stress Disorder (PTSD) (*n*=110, 8.42%).[21,20]

Interventions

All 15 studies compared eight sessions of 2.5 hours MBCT to at least one other active intervention (e.g., CBT (*n*=4), Traditional Yoga (*n*=1), Qigong (*n*=1) psychoeducation (*n*=1), control group (*n*=6) or treatment-as-usual (TAU) (*n*=3). Only one study had its intervention groups attended both MBCT and CBT (i.e., crossover design).[19] Two studies conducted the MBCT day retreat.[21,27] Two studies integrated MBCT with another intervention, MBCT with MBSR[20] and MBCT, including loving-kindness meditation.[29]

Three studies (*n*=3) conducted MBCT while participants were treated with TAU and compared it to a TAU-only group.[23,20,27]

Five studies (*n*=5, 33.3%) conducted 3-arm interventions; MBCT was compared to CBT and TAU-only[25]; MBCT, group psychoeducation, and TAU-only.[22] MBCT, traditional yoga, and CBT[32]; MBCT, Health Qigong cognitive therapy, and a waitlist group.[31] MBCT with TAU was also compared to the cognitive-behavioural analysis system of psychotherapy (CBASP) with TAU and TAU-only.[28]

Six studies (*n*=6, 40%) compared MBCT to a control group. Some control groups are waitlist groups that did not receive any interventions.[30,24,26,33] The minimum number of participants for MBCT was 7,[23] and the maximum was 15 participants to one therapist.[24,22]

Module translation and adaptation

All 6 Iranian studies[30,24,20,21,34,33] utilised a Farsi version of MBCT[35] and meditations.[36] Other MBCT studies were translated to Cantonese,[22] the Dutch language,[27] and the German language.[28] One study required participants to be fluent in Swedish.[32] Another study integrated the Chinese culture into their intervention.[31] Other studies did not report language translations or cultural adaptations in their interventions.

Measures

The most used scale of measure was the BDI-II: Beck Depression Inventory-II (*n*=6, 40%).[19,23,30, 24,20,28] The WHOQOL-BREF: World Health Organization Quality of Life Brief instrument was used by 3 studies with a variation for Swedish-QoL.[24,32,29] The BAI: Beck Anxiety Inventory were used in 4 studies.[19,30,24,22] Four (*n*=4) studies utilised the FFMQ: Five Facets Mindfulness Questionnaire.[19,22,27,29]

Lesser used scales were the RRS-NL-EXT: Ruminative Response Scale (*n*=3), SF-12: Short Form Health Survey (*n*=3), DASS: Depression, anxiety, and stress scale (*n*=2), HAMD: Hamilton Depression Rating Scale (*n*=2), SCID-IV: Structured Clinical Interview For DSM-IV, (*n*=2), DAS: Dysfunctional Attitudes Scale (*n*=2), ATQ: Automatic Thoughts Questionnaire–Negative (*n*=2).

One study utilised a unique tool, the Experience Sampling Method (ESM) self-assessment digital wristwatch, to investigate the interaction between experience and behaviour.[26]

All studies conducted pre-post intervention, with 6 studies conducting follow-ups (46.7%). One study conducted 3 months of follow-up,[22] three studies conducted 6 months follow-up[30,24,28] and two studies conducted 12 months or more follow-up.[19,23]

There were five studies that reported minimum requirements for participants to be considered treatment adhering in which one study required 75% attendance[19]; another required 7 sessions[22]; two required 6 sessions[20,21] while another required only 4 sessions of attendance.[26]

Attrition was only reported by seven studies. One study reported 5 dropouts from MBCT (19% out of 40% total number of attrition in the study).[19] Another reported 13% dropout from MBCT out of 16% of total attrition.[23] A Hong Kong study reported 40% total attrition, with 29% being from MBCT.[22] A Swedish study reported 13.8% of total drop-outs, 5.3% from MBCT.[32] A Chinese study reported 2.14% of total dropouts, with only 1 dropout from MBCT.[31] Two Iranian studies reported 0 attrition.[20,21]

Therapists

MBCT-certified therapists conducted 6 of the studies.[19,23,24,21,27,28] Three studies reported that MBCT was facilitated by therapists who either attended mindfulness retreats or had experience conducting mindfulness-based groups.[26,22,31] Five studies had therapists[30,25] licensed psychotherapists,[32] clinical psychologists,[20] clinical nurse specialists[29] conducting the interventions. Two studies did not report who conducted their intervention.

Analysis

Six of 15 studies utilised both intention-to-treat (ITT) and per protocol (PP) analysis.[19,23,26,25,22,20] Six studies utilised an ITT approach to analyse data.[21,27,28,29,31,32] Two utilised only the PP approach.[30,24] One study did not report their approach.[33]

Outcome of Interventions

MBCT More Effective

Five out of 6 Iranian studies compared MBCT against controlled groups showed MBCT faring better in outcome measures.[30,24,20,21,33] The findings were consistent with 5 RCTs from Switzerland[23], the Netherlands[26,27], Germany[28] and China.[29]

No Significant Difference Between MBCT and Another Treatment

One Iranian Farsi MBCT study found that MBCT showed little difference compared to CBT.[20]

Other Treatments More Effective Than MBCT

While MBCT generally reduced symptoms and improved mood, 4 studies found that the comparative interventions scored better in assessment measures than MBCT.

The Hong Kong study[22] found that CBT was reportedly more appreciated and beneficial in reducing worry and depressive symptoms. Similarly, young adults in the Danish study[19] found their outcome variables scoring better in group CBT to reduce their anxiety and social phobia than in MBCT. A Swedish study[32] found that traditional yoga improve more subscales for treating burnout and exhaustion than MBCT and CBT. Likewise, the Chinese study[31] found that Health Qigong-based cognitive therapy scored better in all measures for depression and anxiety than MBCT and waitlist.

Integrated MBCT with another intervention

Two studies, from Iran[20] and China[29], revealed that it was feasible to integrate MBCT with another treatment (Mindfulness-Based Stress Reduction (MBSR) and Loving Kindness Meditation (LKM) and still achieved improvement in patients' symptoms for PTSD and depression.

Positive results in all studies

All fifteen studies reported that MBCT reduced symptoms of depression, anxiety and stress, improved mindfulness awareness (as measured by FFMQ) in six studies, and quality of life in five studies.

DISCUSSION

The study aimed to examine the effects of MBCT in multicultural settings and if adaptations were made to enhance the effectiveness of MBCT in multicultural settings.

MBCT Feasible for Muslim Communities

Iranian researchers found a unique correlation between Iranian Muslim conservative religiosity and increased religious commitment, positive mental health, self-knowledge, self-regulation and mindfulness.[37,38,39] Iran's Islamic fundamentalism with the truth of texts and teachings enabled them to see wisdom in other religious traditions.[39] Of the fifteen studies, six were from Muslim communities in Iran, showing substantial feasibility and improved psychological distress scores, especially in Depression (n=3), anxiety (n=1), Post-Traumatic Stress Disorder (n=1) and caregiver stress (n=1). All six studies were conducted in Farsi by experienced Iranian therapists.

Previous research reported that female meditators had more significant emotional well-being improvements than male meditators. Researchers reasoned that female youths experienced greater vulnerability to adverse events, thereby more responsive to support-seeking than male youths.[40,41] In the small study sample[30] with female students self-reporting stress due to upcoming exams, MBCT significantly reduced anxiety and depressive symptoms. The same authors conducted another study with a larger sample size of a similar target population the following year[24] revealing that MBCT improved the quality of life for female university students while

decreasing symptoms of depression.

Research also shown mothers were more likely to benefit from mindfulness-based interventions.[42] Mothers in the MBCT group reportedly developed awareness, acceptance, independence for personal growth, mastery of the environment and better relationships with others, compared to mothers in the cognitive emotion regulation training or waitlist group.

There were also research which shown that elderly veterans perceived more significant benefits to MBCT compared to younger veterans. They completed the therapy when they perceived an increased mindful awareness and were interested in learning more about it.[43]

Integrating MBCT with cultural intervention is Feasible

Besides the aforementioned Iranian study[20], the Chinese study[29] that included loving-kindness meditation (LKM) to MBCT effectively improving depression, rumination, mindfulness level, quality of life, the sense of stigma and degree of self-acceptance in depressed patients. These studies reported the feasibility and effectiveness of integrated cultural intervention, reflecting the importance of integrating culture into therapies.

Areas Identified for Future Research

Ten of the 15 studies were limited to small sample sizes, with less than a hundred participants, proposing larger-scale research to be carried out. Nine studies compared MBCT to TAU or a control group and recommended a second treatment intervention arm to compare the effectiveness of MBCT. Across the studies, there was no unified method to measure depression, anxiety, or stress. Six studies used BDI-II as a scale, while other studies utilised other scales for depression. One study had three different measuring assessments for the three groups and recommended a consistent assessment measure. Four studies utilised only a single gender population from its convenience sample and recommended varying the gender sample.

Limitations and strengths of the review

The screening, data extraction, and findings summary were interpreted by only one author, assisted by the supervising author, without a blind reviewer. The current review also did not capture non-English language articles that may add to studying cultural integration with MBCT. All studies were conducted face-to-face in group settings across the nations. However, given the COVID-19 pandemic, therapies were facilitated online, which none of these studies explored. This review is one of the few that studied cultural adaptations or integration.

CONCLUSION

This scoping review identified that MBCT is more effective against treatment as usual or control groups to reduce symptoms of anxiety, depression, and stress in multicultural environments where the adult natives did not speak English as a first language. Findings were mixed as to whether MBCT is more effective than other psychological interventions. Integrating MBCT with another intervention also reported effectiveness compared to TAU or a control group. This review holds promise for ensuing research to hypothesise that integrating MBCT with a familiar cultural intervention may reduce psychological distress symptoms and increase general wellness.

Authors' Contributions

NAW conducted the database searches, screened the results and drafted the review. JHAK supervised the screening processes and reviewed the article.

CONFLICT OF INTEREST

This study is unfunded, and there is no conflict or competing interest.

INSTITUTIONAL REVIEW BOARD (ETHICS COMMITTEE)

Approved by the International Islamic University Malaysia (IIUM) Institutional Research Ethics Committee (IREC) ID No.: IREC 2021-279 and Agency of Integrated Care (AIC)' s Institutional Review Board (IRB) Reference No.: 2022-001.

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