Review Article

# Mindfulness-Based Cognitive Therapy in Psychiatric Disorders : Basic Knowledge with a 2023 Update

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## Abstract

**Introduction:** Mindfulness meditation, rooted in Buddhism, has become Mindfulness-Based Cognitive Therapy (MBCT), an evidence-based depression treatment, but its efficacy in other psychiatric conditions remains uncertain.

**Methods:** The assessment of MBCT's effectiveness in psychiatric disorders was carried out through the examination of Clinical Practice Guidelines (CPGs) and relevant research articles. A search restricted to meta-analyses and systematic reviews was conducted in the PubMed database, covering the period from January 2015 to May 2023.

**Results:** This search uncovered one network meta-analysis, 13 meta-analyses and 2 systematic reviews regarding the effectiveness of MBCT. MBCT demonstrates additional effectiveness in preventing long-term depression relapse, addressing sleep issues in patients with depression and anxiety and providing a short-term anxiolytic effect.

**Conclusions:** There is insufficient evidence for the effectiveness of MBCT in treating other psychiatric disorders. Future studies should concentrate on assessing the effectiveness of each mindfulness technique to discern their active ingredients.


**Keywords:** Mindfulness, Cognitive Behavioral Therapy, Mindfulness-based intervention, Psychotherapy, Mental disorders, Psychiatric illnesses

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## Introduction

A form of Evidence-based psychotherapy, Mindfulness-Based Cognitive Therapy (MBCT), has gained recognition and support from mental health professionals and researchers worldwide. MBCT is considered an effective therapeutic approach for individuals with depression[1-2] and has been recommended as a treatment option for various clinical conditions such as anxiety disorder, post-traumatic stress disorder, suicidal ideation, post-stroke depression, insomnia and pain in patients with cancer.[3-7]

**Background and Basic Knowledge about MBCT [8]**

MBCT is a form of scientific-based psychotherapy developed by Zindel Segal, Mark Williams and John Teasdale in the 1990s. It is based on Mindfulness-based Stress Reduction (MBSR) combined with Cognitive Behavioral Therapy (CBT) for depression.

Cognitive Behavioral Therapy (CBT) for depression was first developed by Aaron T. Beck using clinical research principles at the University of Pennsylvania in the 1960s. In 1979, Mindfulness-based Stress Reduction (MBSR) was applied for stress management by Jon Kabat-Zinn at the University of Massachusetts Medical School. It was the first scientific Western mindfulness intervention and its benefits are widely recognized in the clinical psychology discipline. Subsequently, Vipassana Meditation, rooted in Theravada Buddhism as an integral part of the MBSR, was scientifically developed in the name of MBCT. The general goal of mindfulness is to improve self-introspection through self-awareness, self-integrity, self-knowledge and equanimity. The goal of mindfulness in MBCT is to improve one's metacognition.

With MBCT a person becomes more aware of their thoughts, emotions and bodily sensations with non-judgmental acceptance, without evaluating or reacting. MBCT started to prevent relapses in depressed patients, who were prone to ruminating negative thoughts leading to relapse depression. It helps depressed patients recognize their depressogenic thinking and negative ruminations, which helps break the cycle as they understand how distressed automatic thoughts lead to unhealthy moods and responses. They perceive and accept the inner experience of emotional and mental processes which naturally arise and disappear. This essential component of MBCT can also be applied to other mental illnesses.

**Therapeutic modality of MBCT**

**The MBCT process** usually consists of 8 sessions per course. Each session lasts approximately 2-2.5 hours and daily practice at home is 30-45 minutes between sessions. The process of MBCT includes the following:

***Psychoeducation:*** The first session of MBCT involves studying mindfulness and its relationship to cognitive and emotional processes, as well as introducing the rationale for using mindfulness in mental health treatment.

***Formal Mindfulness Training:*** The core of MBCT involves learning and practicing mindfulness, including sitting meditation, mindfulness of breath, body scanning, loving-kindness meditation and mindful movement for focused awareness of routine daily activities. These involve focusing on the present moment, non-judgmental observation of thoughts and emotions, and developing a perception that is not responsive to inner experience.

***Cognitive restructuring:*** This involves identifying and challenging negative thought patterns that lead to distress and developing more adaptive ways of thinking. "By identifying and modifying negative thought patterns, individuals can prevent or reduce mental disorder relapse"

***Group Discussion:*** In each session, participants have opportunities to discuss their experiences with both formal and home mindfulness practices, and any challenges or ideas they had during the week.

***Home Practice:*** Participants are encouraged to practice daily mindfulness for 30-45 minutes per session. This reinforces the skills learned in group sessions and fosters continued growth and change.

**Group and Individual MBCT** Studies show no significantly different primary or secondary outcomes between group MBCT (gMBCT) and individual MBCT (iMBCT).[9] Therefore, MBCT treatment can be performed either as a group or individually. In both forms, the patient must attend the formal form, with a session 2-2.5 hours/time/week for 8 weeks.

***Group therapy (gMBCT):*** The therapist leads a client group (8-12 participants) to practice diverse mindfulness techniques and discussions. Clients learn from others' experiences and create a sense of connection with the group.

***Individual therapy (iMBCT):*** Treatment sessions are of the same format and duration as group sessions, but therapy is tailored to that individual. This iMBCT was first applied particularly for patients who were unable to participate in group sessions due to disabilities, severe illness, pain, or fatigue. It allows more focus on specific issues and more flexible scheduling.

**An important limitation to the success of MBCT**

As we know, exercise is not something everyone seeks out. Likewise, mindfulness is like an exercise for the mind. The same is true for mindfulness in which everyone has a different motivation to practice continuously particular psychiatric patients. The true obstacle to success in MBCT is a lack of motivation, particularly the practice of sitting still. [10,11] Studies reported a rate of engagement at the first MBCT session around only 50% in depressive patients. The drop-out rate of participants was nearly 20% before they reached an adequate dose of treatment (defined as four sessions).[10]

**Update of trial evidence in MBCT**

Many preliminary MBCT studies found positive outcomes in various physical conditions, e.g., post-stroke depression, vascular disease, cancer, systemic lupus erythematosus, diabetes, dementia and mental disorders. However, repeatable higher-quality randomized controlled trials are required to confirm these findings. MBCT is definitely an effective treatment for depression, but further study is underway, particularly of long-term effects. New research is also investigating positive effects in other psychiatric illnesses e.g. different anxiety disorders, psychosis, post-traumatic stress disorder (PTSD), obsessive-compulsive disorder (OCD), somatic symptom and related disorders and substance use disorders.[7] This study is a narrative review of mindfulness-based cognitive therapy to treat psychiatric conditions. The question is: What current evidence suggests MBCT can treat psychiatric patients?

***Method of review:*** This review focused on recent publications regarding MBCT effectiveness, such as Clinical Practice Guideline (CPG), meta-analytic and systematic review studies. The search used time limits and psychiatric diagnoses with no limiting the age of patients. ***The inclusion criteria*** were 1. mindfulness-based cognitive therapy or MBCT 2. PubMed 3. human 4. the English language with the full version available. ***The exclusion criteria*** were 1. non-psychiatric subjects such as psychologically vulnerable or healthy subjects and people with physical illnesses, 2. preprint

***The steps of the review***

***Step 1*** CPG related to MBCT is searched on Google and found 4 CPGs of NICE (The National Institute for Health and Care Excellence), CANMAT (Canadian Network for Mood and Anxiety Treatments), RANZCP (The Royal Australian and New Zealand College of Psychiatrists) and APA (American Psychiatric Association).

***Step 2*** PubMed database was searched with the filter of meta-analysis, systematic review with a period of 1/1/2022-26/5/2023. The first result articles were 110 and manually excluded 98 papers by not meeting the inclusion criteria. The included papers were 12 (10 meta-analyses, 2 systematic reviews).

***Step 3*** PubMed database was searched with the filter of Meta-analysis with a period of 1/1/2015-31/12/2021. The first results were 43 and manually excluded 39 papers by inclusion/exclusion criteria. The studies with the same psychiatric conditions or research aim for any depressive conditions as in Step 2 were not included to review. The final included articles were 3 meta-analyses and one network meta-analysis.

The results of the most updated studies and details about MBCT are shown in ***Table 1***.

**Evidence of CPGs and Meta-analyses:**

***Mood and related conditions:*** A network meta-analysis showed MBCT is equally effective as in TAU [Treatment as Usual = Antidepressants and/or CBT)] for patients with acute mild-moderate depression, including a 12-month maintenance period for recurrence depressive patients. There was no current good evidence to support that MBCT use helps depressed patients with suicidal ideation. Meta-analysis showed that MBCT might improve depression and anxiety symptoms in bipolar disorders and not alleviate manic symptoms in bipolar disorder.

***Other psychiatric conditions:*** MBCT has a role of adjunctive treatment in generalized anxiety disorder and panic disorder. MBCT was also recommended in children and adolescents with social anxiety disorder. The effectiveness of MBCT in specific phobia, adult social anxiety disorder, agoraphobia, OCD, PTSD, somatic symptom disorders, substance use disorders and psychosis, was limited by included studies of each meta-analysis.

**Evidence of 2 systematic reviews:**

The first Cochrane systematic review of 29 RTCs of psychological interventions (N = 2599) on MCI and dementia, which included 2 RCTs of MBCT (n = 90) showed inadequate data to conclude the effectiveness of MBCT on reducing depressive and anxiety symptoms in patients with mild-moderate dementia. The second review showed the undetermined positive effect of MBCT on PTSD due to different combined treatments in the included 4 studies (only one RCT).

**Table 1** Summarized results of MBCT effectiveness in Psychiatric conditions [1/1/2015 - 26/5/2023 of PubMed database]

| Conditions | Authors (Year), Origin | Studies | Year of included meta-analyses | N meta-analyses | N Partici-pants | Summary results | Limitation of studies | Evidence of MBCT in psychiatric disorders |
|---|---|---|---|---|---|---|---|---|
| **Major depressive disorder**<br>**- Relapse prevention**<br>**- Recurrent depression**<br>**- Residual depressive symptom** | RANZCP (2015) Australia[12] | CPG | | | | Role as a relapse prevention intervention, particularly amongst patients with recurrent ≥3 depressive episodes. | | Recommended |
| | CANMAT (2016) Canada[2] | CPG | | | | 1st line: Maintenance treatment (Level 1 Evidence) for recurrent MDD (relapse prevention).<br>2nd line: Alternative to long-term maintenance antidepressant treatment (Level 2 Evidence).<br>2nd line: Adjunctive treatment (Level 2 Evidence) for acute depression. | | Recommended |
| | NICE (2022) UK[1] | CPG | | | | Relapse prevention therapy for remitted depression with a two-year high-risk of relapse (effective and cost-effective compared to TAU) Can be used as an adjunct to TAU or as an alternative treatment in cases of a ntidepressant discontinuation | | Recommended |
| | APA (2019)[13], (2021) USA | CPG | | | | 1. Initial treatment: Unable to recommend MBCT as monotherapy for initial treatment, despite having at least one strong piece of evidence. The patient should share decision-making with therapeutic options. BUT MBCT was recommended as 1st line psychotherapy treatment for mild to moderate major depressive disorder.<br>2. Relapse prevention: There was insufficient evidence to be able to recommend MBCT rather than TAU. | | Recommended (combined with TAU in the initial treatment)<br><br>Insufficient evidence (In relapse prevention) |

**Table 1** Summarized results of MBCT effectiveness in Psychiatric conditions [1/1/2015 - 26/5/2023 of PubMed database] (Cont.)

| Conditions | Authors (Year), Origin | Studies | Year of included meta-analyses | N meta-analyses | N Partici-pants | Summary results | Limitation of studies | Evidence of MBCT in psychiatric disorders |
|---|---|---|---|---|---|---|---|---|
| **Prevention and time to depressive relapse** | McCartney M. (2021) UK[14] | NMA | Up to June 2019 | 17RCTs from 23 included papers | 2077 of 14RCTs (relapse depression) 2017 of 13RCTs (time to relapse) | Depression-related outcomes and follow-up at ≥12 months. Statistically significant long-term effectiveness of MBCT over TAU for relapse of depression (RR = 0.73, 95% CI 0.54 to 0.98) and for time to relapse of depression (MBCT vs TAU: HR = 0.57, 95% CI 0.37 to 0.88; MBCT vs placebo: HR = 0.23, 95% CI 0.08 to 0.67). | Some heterogeneity in some of the analyses. | Strong |
| **MDD with multiple episodes, Sui-cidal ideation** | Hui-Wen Tseng (2023) USA[15] | S&M of RCTs | 2008-2019 | 9 RCTs | 1327 | Based on this meta-analysis, MBCT sessions lasting 1.5-2.5 h, five times per week for 8 weeks can effectively relieve depression and suicidal ideation indicators of MDD patients. MBCT is an effective way of preventing and improving block rumination for MDD patients. | High Heterogeneity. Constrained statistical power. (Q =29.654, $p$ =0.000, $I^2$ = 83.139) | n/a |
| **Suicidal ideation in patients with depression** | Zhang B (2022), China[5] | S&M of RCTs (compared between MBCT and TAU groups using a random-effects model) | 2000-Aug.2021 | 7 RCTs | 479 | A significant benefit of MBCT is to improve suicidal ideation in a specific patient group. Block rumination. | High hetero-geneity of 7 RCTs. Unknown long-term effect. | n/a |

**Table 1** Summarized results of MBCT effectiveness in Psychiatric conditions [1/1/2015 - 26/5/2023 of PubMed database] (Cont.)

| Conditions | Authors (Year), Origin | Studies | Year of included meta-analyses | N meta-analyses | N Partici-pants | Summary results | Limitation of studies | Evidence of MBCT in psychiatric disorders |
|---|---|---|---|---|---|---|---|---|
| **Bipolar disorders de-pression** | RANZCP (2020), Australia[16] | CPG | | | | Lack of adequately powered randomized trials means MBCT cannot as yet be recommended for improving cognitive function, emotional regulation, and symptoms of anxiety, depression, and mania in bipolar disorder. | | Insufficient evidence |
| | CANMAT (2018), Canada[4] | CPG | 2018 | 1 RCT (2013)[6] reference in CPG(n = 95)<br><br>2 small studies: 1 systematic review (2016) (n = 62 of MBCT)[17] 1 controlled fMRI study (2013)[18] | | 1 RCT<br>- less anxiety and depressive symptoms in the MBCT arm.<br>- but no difference in relapse prevention compared to a TAU group.[6]<br>2 small MBCT studies: have a role in reducing anxiety.[17,18] | Only one RCT | Insufficient evidence |
| | Xuan R (2020), China[19] | S&M | 2020 | 7 uncontrolled trial studies 3 controlled trial studies | | Do not alleviate mania.<br>Subgroup analysis: depression and anxiety significantly improved at 3 months post-intervention but not at 12 months.<br>In between-groups analysis: significantly reduced depression but not anxiety. | Limitation of meta-analysis power. | Moderate evidence of positive effect on depressive and anxiety symptoms in bipolar disorder |

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| Conditions | Authors (Year), Origin | Studies | Year of included meta-analyses | N meta-analyses | N Partici-pants | Summary results | Limitation of studies | Evidence of MBCT in psychiatric disorders |
|---|---|---|---|---|---|---|---|---|
| **Generalized anxiety disorder (GAD)** | CANMAT (2014), Canada[20] | CPG | 2014 | | | MBCT has demonstrated efficacy for the treatment of GAD as adjunctive treatment | | Recom-mended |
| | Ghahari (2020), Iran[21] | S&M | up to November 2018 | 6 (various clinical trials: mean revised Jadad score of 4.3) | 403 | Effective intervention for GAD.<br>The overall risk ratio for MBCT vs controls was 0.65.<br>No evidence of publication bias. | Small number of included studies.<br>Neglected evidence of heterogeneity between individual studies with the reason of vast cultural differences between countries of studies. | Strong |
| **Panic disorder** | CANMAT (2014), Canada[20] | CPG | 2014 | | | Adjunctive therapy with medication to reduce depression and anxiety. | | Recom-mended |
| **Social anxiety disorder in child and adolescents** | CANMAT (2014), Canada[20] | CPG | 2014 | | | CANMAT indicated that MBCT has demonstrated efficacy in treating social anxiety disorder (SAD) in children and adolescents.[22] | | Recom-mended |

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| Conditions | Authors (Year), Origin | Studies | Year of included meta-analyses | N meta-analyses | N Partici-pants | Summary results | Limitation of studies | Evidence of MBCT in psychiatric disorders |
|---|---|---|---|---|---|---|---|---|
| **Social anxiety disorder, Agoraphobia, Specific phobia, OCD, PTSD** | CANMAT (2014), Canada[20] | CPG | 2014 | | | No strong suggestion of MBCT for Social anxiety disorder, Specific phobia, OCD and PTSD in CANMAT. CANMAT referred S&M of MBT (= MBSR+MBCT) which studied MBT for reducing anxiety symptoms and depressive symptoms.[23] | Individual patients should be evaluated for particular anxiety or related disorders first before MBCT selection. | n/a |
| **Posttraumatic stress disorder** | Wagner (2022), UK.[24] | Systema-tic review | 2018-2022 | 4 papers (1RCT) | 253 | The positive effect is undetermined. | Different combined treatments in included studies | n/a |
| **DSM-5 anxiety disorders** | Haller H (2021), Germany[25] | S&M | 2007-June 2021 | 23RCTs (3 of MBCT vs TAU) | 1815(ABT+ ABBT+ MBSR+ MBCT)<br><br>MBCT N = 248 | MBCT showed short-term anxiolytic effects compared with TAU. MBCT at 2, 6 and 12 months no significantly differ from psychoedu-cation. | Unable to sub-group analyses for each anxi-ety disorder, so the results should not be applied to spe-cific diagnoses of anxiety disorders | Strong (in short-term anxiety effect) |
| **Sleep problems in depression and anxiety disorders** | Chan SH (2022), HongKong [26] | S&M | 2010-2019 | 10RTCs (2RTCs of MBCT in the year 2010 and 2012 | 541 (all mindfulness interventions)<br><br>MBCT N = 39 | MBCT, with its large effect sizes and various forms of MBI programs, such as MBTT, IMMI and MBSR (except MM), are effective options for improving sleep problems among individuals with depression or anxiety disorders. | | Strong |
| **Depression and anxiety (in dementia, and mild cognitive impairment)** | Orgeta V. (2022) UK[27] | Systema-tic review | 1997-2020 | 29RTCs (3 RCTS of different MBIs combined with/without-MBCT)[28-30] | 2599 (all psychological interventions)<br><br>MBIs N = 93 | There was very little data and very low-certainty evidence to draw conclusions about the MBIs and MBSR effectiveness. | Low validity of 3 included studies. | n/a |

**Table 1** Summarized results of MBCT effectiveness in Psychiatric conditions [1/1/2015 - 26/5/2023 of PubMed database] (Cont.)

| Conditions | Authors (Year), Origin | Studies | Year of included meta-analyses | N meta-analyses | N Partici-pants | Summary results | Limitation of studies | Evidence of MBCT in psychiatric disorders |
|---|---|---|---|---|---|---|---|---|
| **Adult Bodily distress** **(defined as symptoms of Somatoform symptom disorders)** | Maas Genannt Bermpohl F (2023), Germany. [31] | Meta-analysis | Jan 2016 - April 2020 | 16RCTs (2MBCT) | 1288 | Very little data and very low-certainty evidence to draw conclusions about the effectiveness of MBIs and MBSR. MBCT showed greater clinical benefit than control conditions, with a small to moderate effect. | Various control conditions. Treatment evaluation in only group settings which study could not eliminate the potential confounding effect of social support. | n/a |
| **Substance use disorder** | Korecki JR (2020), USA[32] | Systema-tic review | 2016 - April 2020 | 30 | 749 | MBIs reduced the frequency and quantity of alcohol and drug use, substance-related problems, craving for substance use and increased the rate of abstinence | Mindfulness-based programs, not MBCT | n/a |
| **Psychosis** | Lazzari (2022) UK.[33] | S&M | 2015-2020 | 9 studies (8 quantitative + 1qualitative studies) 5 MBCT (with 2 MBCT RCT) and 4 MBIs] | 170 intervention 165 comparison | MBIp had a moderate effect size ($r = 0.34$; $p<0.001$) on psychosis (95% CI 0.26-0.42 (small to high)). MBIp increased acceptance of psy-chotic symptoms, self-awareness and empowerment with reduced anxiety and depression. | 1. Limitation of population validity. The result cannot be claimed to other psychotic groups. 2. Mixed in-cluded studies. | n/a |

**Note: ABT** Acceptance and Commitment therapy, **ABBT** Acceptance-Based Behavioral Therapy, **IMMI** Internet mindfulness meditation intervention, **MBI** Mindfulness-Based Intervention or Meditation-Based Intervention, **MBCT** Mindfulness-Based Cognitive Therapy, **MBIs** Mindfulness-Based Interventions, **MBIp** Mindfulness-Based Intervention for psychosis, **MBSR** Mindfulness-Based Stress Reduction, **MBTT** Mindfulness-Based Touch Therapy, **MBSR** Mindfulness-Based Stress Reduction, **MCI** Mild Cognitive Impairment, **MM** Mindfulness Meditation, **n/a** no answer, **NMA** Network Meta-Analysis, **OCD** Obsessive Compulsive Disorder, **PTSD** Posttraumatic Stress Disorder, **RCTs** Randomized Controlled Trial studies, **SAD** Social Anxiety Disorder, **S&M** Systematic review and Meta-analysis, **RANZCP** The Royal Australian and New Zealand College of Psychiatrists, **TAU** Treatment As Usual = Antidepressants (SSRIs, SNRIs, TCAs and CBT)

## Discussion

This review affirms the effectiveness of MBCT in managing depressive symptoms, encompassing the treatment of mild to moderate acute depressive episodes, prevention of depression relapse during long-term follow-ups extending beyond 12 months[14] and the mitigation of sleep problems.[26] However, its role as an adjunctive treatment for depression and anxiety in individuals with bipolar disorders needs further clarification.[4, 19]

In 2014, CANMAT approved MBCT as an adjunctive treatment for GAD and panic disorder and it was also approved for use in social anxiety disorder in children and adolescents.[20] The meta-analysis in 2020 also found evidence supporting the effectiveness of MBCT as an intervention for GAD.[21] A meta-analysis conducted in 2021[25] revealed moderate evidence of the short-term anxiolytic effect of MBCT when compared to TAU for anxiety disorders. However, it did not significantly differ from psychoeducation in the longer term, specifically at 2, 6 and 12 months. Additionally, MBCT is an effective option to improve sleep problems among patients with depression and anxiety disorders.[26]

There are many systematic reviews and meta-analyses on the effectiveness of MBCT in various psychiatric disorders. Nevertheless, recently published meta-analyses are limited by the heterogeneity of included studies, variability in control conditions across studies, effect size estimation, small sample size, various outcome measurements, limited follow-up periods, potential confounding factors (such as demographic data, dropout rate, therapist competence)[34] and negative/nonsignificant publication bias. Furthermore, analyzing the studies included in meta-analyses to determine the effectiveness of MBCT on each specific psychiatric disorder is challenging compared to assessing common clinical symptoms associated with these disorders, such as depression, anxiety, insomnia and ruminative thoughts. Hence, it can be concluded that our review corroborates the effectiveness of MBCT in alleviating symptoms of depression and anxiety, consistent with prior research findings.

This review identified limitations in the evidence from meta-analyses regarding the positive effects of MBCT as an alternative treatment for psychiatric illnesses. These include suicidal ideation in depressive patients, adult social anxiety disorder, agoraphobia, specific phobia, OCD, PTSD, somatic symptom disorders, depression and anxiety in dementia and Mild Cognitive Impairment (MCI), psychosis and substance use disorders.

The key element of MBCT is mindfulness. While MBCT has a clear therapeutic structure that makes it difficult to flexibly compare to other forms of treatment as usual, it may result in the emergence of various forms of mindfulness-based interventions in RCTs instead of using the complete MBCT model. Research studies utilizing RCTs, which are included in meta-analyses, often explore the outcomes of various forms of mindfulness-based interventions (MBIs) to a greater extent when compared to RCTs specifically focused on MBCT. Consequently, the results of MBCT for the treatment of psychiatric disorders have been analyzed alongside other mindfulness-based interventions, leading to less robust findings in meta-analysis studies.

The basic idea is that meditation operates in a dose-dependent manner. This indicates that the effects of mindfulness training depend on the frequency, duration and intensity of the practice. While the development and utilization of various MBIs are significant endeavors, it is equally crucial to understand the unique inner transformations associated with each mindfulness technique.

The dynamic nature of the mind, which experiences ongoing fluctuations, presents unique challenges, particularly in individuals with diverse psychiatric disorders. Conducting large RCTs with rigorous experimental controls may help provide a clearer picture of the effectiveness of each mindfulness technique. Analyzing the physiological and psychological changes that manifest within the body and mind during the utilization of various mindfulness techniques integrated into different MBIs, such as mindfulness of breathing, body scanning, progressive muscle relaxation, mindfulness meditation with mantras, visualized meditation, guided imagery, middle-way meditation and others, can potentially illuminate the essential active elements inherent to each method. This could assist in the identification of the most efficacious techniques for expeditious patient outcomes. Consequently, this might pave the way for research endeavors focused on evaluating the effectiveness of individual mindfulness techniques

and their respective neurological impacts, including neurotransmitter modulation and inflammation regulation, among psychiatric patients.

Fortunately, neuroscience has progressed over the past two decades and studies are now underway to identify macro-micromolecular, genetic and epigenetic connections between brain-mind and body. Further studies on the mechanism of action of mindfulness at the molecular level may help to show similarities and differences between mindfulness and medication treatment in psychiatric patients.

## Conclusion

MBCT plays a significant role in the treatment of mild to moderate depressive episodes, relapse prevention in depression and as an adjunctive treatment for depression in bipolar disorders, generalized anxiety disorder, panic disorder, and social anxiety disorder in children and adolescents, as well as for managing sleep problems in individuals with depression and anxiety disorders.

To assess the effectiveness of MBCT in diverse psychiatric conditions, it is crucial to conduct rigorous randomized controlled trials. These trials should investigate its potential for addressing suicidal ideation in individuals with depression and bipolar disorder, as well as its applicability in adult social anxiety disorder, PTSD, OCD, depression occurring in cases of MCI and dementia, substance use disorder, and psychosis.

## Limitation

The neuroscience of MBCT and its applications for physical illnesses are beyond the scope of this article.

**Financial support:** No.

**Conflict of Interest:** The author is a mindfulness meditator who is interested in the application of mindfulness.

**Acknowledgments:** I would like to show gratitude to all my mindfulness meditation teachers who are always kind and generous. They never burn out to guiding and advising people with their knowledge.

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