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In Review

Mindfulness-Based Cognitive Therapy: Theory and Practice

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Mindfulness-based cognitive therapy (MBCT) incorporates elements of cognitive-behavioural therapy with mindfulness-based stress reduction into an 8-session group program. Initially conceived as an intervention for relapse prevention in people with recurrent depression, it has since been applied to various psychiatric conditions. Our paper aims to briefly describe MBCT and its putative mechanisms of action, and to review the current findings about the use of MBCT in people with mood and anxiety disorders. The therapeutic stance of MBCT focuses on encouraging patients to adopt a new way of being and relating to their thoughts and feelings, while placing little emphasis on altering or challenging specific cognitions. Preliminary functional neuroimaging studies are consistent with an account of mindfulness improving emotional regulation by enhancing cortical regulation of limbic circuits and attentional control. Research findings from several randomized controlled trials suggest that MBCT is a useful intervention for relapse prevention in patients with recurrent depression, with efficacy that may be similar to maintenance antidepressants. Preliminary studies indicate MBCT also shows promise in the treatment of active depression, including treatment-resistant depression. Pilot studies have also evaluated MBCT in bipolar disorder and anxiety disorders. Patient and clinician resources for further information on mindfulness and MBCT are provided.

La thérapie cognitive basée sur la pleine conscience (TCBPC) incorpore les éléments de la thérapie cognitivo-comportementale avec ceux de la réduction du stress basée sur la pleine conscience dans un programme de groupe en 8 séances. Conçue à l'origine comme une intervention pour prévenir la rechute chez des personnes souffrant de dépression récurrente, on l'applique depuis à diverses affections psychiatriques. Notre article vise à décrire brièvement la TCBPC et ses présumés mécanismes d'action, et à examiner les résultats actuels de l'utilisation de la TCBPC chez les personnes souffrant de troubles anxieux et de l'humeur. La position thérapeutique de la TCBPC veut avant tout encourager les patients à adopter une nouvelle façon d'être et de négocier avec leurs pensées et leurs sentiments, tout en insistant légèrement sur la modification ou la contestation de cognitions spécifiques. Les études préliminaires de neuroimagerie fonctionnelle concordent avec un rapport selon lequel la pleine conscience améliore la régulation émotionnelle en rehaussant la régulation corticale des circuits limbiques et du contrôle attentionnel. Les résultats de recherche de plusieurs essais contrôlés randomisés suggèrent que la TCBPC est une intervention utile pour prévenir la rechute chez des personnes souffrant de dépression récurrente, et que son efficacité peut être semblable à celle des antidépresseurs d'entretien. Des études préliminaires indiquent que la TCBPC s'avère aussi prometteuse dans le traitement de la dépression active, notamment la dépression réfractaire au traitement. Des études pilotes ont également évalué la TCBPC pour le trouble bipolaire et les troubles anxieux. Des ressources pour les patients et les cliniciens désirant plus de détails sur la pleine conscience et la TCBPC sont fournies.

Mindfulness practices have their root in Buddhist traditions extending back over 2500 years. In recent decades there has been an accelerating interest in applying mindfulness in the context of Western medical treatments. MBCT is an adaption of MBSR as developed at the University of Massachusetts Medical Center by Jon Kabat-Zinn and colleagues.[1] While other mindfulness-based interventions, such as MBSR, have been applied more broadly to various medical and psychiatric problems,[2] our article aims specifically to review the application of MBCT to people with mood and anxiety disorders.

Mindfulness itself is not a singular phenomenon, and there have been recent efforts to establish an operational definition and delineate the facets of what constitute mindfulness.[3,4] As defined for participants of MBCT, "Mindfulness is the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgmentally to things as they are."[5, p 47] As first described by Segal et al,[6]

MBCT consists of 8 consecutive weekly sessions of about 2 hours' length. Instruction consists of various formal and informal meditation practices, including guided body scans, sitting and walking meditations, mindful movement (based on Hatha yoga), 3-minute breathing spaces, and focused awareness on routine daily activities. Early sessions involve more guided meditations bringing attention to breathing or bodily sensations. Later, there is more emphasis on developing an independent practice and expanding mindful awareness to mental events, including thoughts and emotions that may previously have been avoided. Homework is an essential element of treatment, and patients are encouraged to spend 45 minutes daily practicing mindfulness activities, often using guided meditation recordings.

MBCT also includes elements of cognitive therapy and psychoeducation about depression. People learn that attempting to resist or avoid unwanted thoughts or feelings may actually intensify distress and perpetuate depression, rather than help resolve it. Additional behavioural elements also include supporting participants to mindfully complete activities that enhance well-being, such as taking a bath, listening to pleasant music, or going for a walk. Patients develop action plans that identify early warning thoughts or feelings that signal worsening symptoms, along with steps to take when they occur.

Although MBCT incorporates elements of cognitive therapy, the therapeutic stance of MBCT is quite distinct from CBT as traditionally conceptualized. MBCT places little emphasis on changing or altering thought content; rather, by focusing on participants' awareness of their relationship to their thoughts and feelings, it aims to enhance metacognitive awareness. That is, the degree to which thoughts, feelings, or beliefs are experienced as "mental events rather than as aspects of self or direct reflections of truth."[7, p 277] For example, people with depression can learn that a thought such as, "I am a rotten person," is not a fixed reality. Like the many impermanent thoughts that may come and go during meditation, such depressive statements are just thoughts that can be acknowledged as such without having to judge the validity of the content. This approach to allowing aspects of emotional and mental experience that had been the focus of efforts of change or avoidance, can be uncomfortable, and may be frankly incongruent with messages received from past therapies. Therefore, it is essential for the leaders to have their own mindfulness practice to be able to serve as a genuine resource to patients as they practice a new way of relating to thoughts and feelings. This includes embodying a mindful stance in the moment toward any negative affect that may arise within groups. Table 1 highlights some of the prominent distinctions in the therapeutic stance between MBCT and typical CBT.

Highlights

- MBCT is an effective and efficient intervention for prevention of depression relapse, and shows promise in the treatment of active depression.
- The therapeutic stance of MBCT is characterized by promoting an enhanced awareness of one's relationship to thoughts and feelings, rather that changing specific thought content.
- MBCT may exert its psychological mechanisms of action by increasing acceptance, self-compassion, present-moment awareness, and ability to selectively deploy one's attention, while enhancing cortical regulation of limbic circuits involved in affective disorders.

Limitations

- There remains a need for more randomized controlled trials evaluating MBCT against active, credible control therapies.
- Future deconstructive studies will help delineate the specific active components of therapeutic change within MBCT.

Mechanisms of Action

Rumination, particularly brooding on past failures, has been proposed as an important driver of depression.[8] Similarly, anxiety is often characterized by catastrophic worries about the future. In either case, when engaged in these past or future-based ruminations, people may often experience these thoughts as if they were actually occurring and demand attention as immediate threats. Given that increased activation of the amygdala is a register for threat and emotional valence of stimuli,[9] it is easy to understand that catastrophic ruminations and attempts at avoidance of perceived threat would be accompanied by limbic dysfunction. In Mayberg's model,[10] depression is characterized by higher baseline amygdala activity, higher amygdala reactivity to emotional stimuli, and dysfunction between limbic and cortical circuits that regulate affective states. Functional magnetic resonance imaging studies of healthy people who score higher on instruments designed to measure aspects of mindfulness, when compared with lower-scoring people, have lower baseline right amygdala activation and depressive symptoms[11] and show a downregulation of the amygdala by several regions of the PFC during affect labelling tasks.[12]

Abbreviations

AD	antidepressant
BD	bipolar disorder
BDI	Beck Depression Inventory
CBT	cognitive-behavioural therapy
GAD	generalized anxiety disorder
MBCT	mindfulness-based cognitive therapy
MBSR	mindfulness-based stress reduction
PFC	prefrontal cortex
RCT	randomized controlled trial
TAU	treatment as usual
TRD	treatment-resistant depression

Table 1 Comparison of therapeutic stances of MBCT and CBT	
MBCT	CBT
Thought process focused	Thought content focused
Promotes new way of *being with* painful affect and challenging circumstances	Promotes new way of *looking at* painful affect and challenging circumstances
Distinguishing thoughts as thoughts (versus statements of fact)	Distinguishing dysfunctional and negative thoughts from healthy thoughts
Noticing and allowing thoughts and feelings without fixing, changing, or avoiding	Testing and challenging dysfunctional beliefs and inventing new interpretations
Behavioural interventions focused on developing present moment awareness	Behavioural interventions focused on reinforcing more adaptive responses
Therapist embodies approach	Therapist instructs and coaches

An important putative mechanism of action of MBCT is to enhance metacognitive awareness by encouraging participants to adopt a distinct mode of being. Doing mode is a state in which the mind registers the discrepancy between how one views things, compared with how they ought to be, and is characterized by efforts to reduce the discrepancy between the view of is and of ought.[6] While this discrepancy-based problem solving is appropriate in situations where there is a clear course of action available, applying this approach to aspects of internal experience can lead to increased suffering and a persistent sense of dissatisfaction.[6,13] In contrast, being mode is characterized by a focus of attention on noticing and accepting that which is in the present moment. In being mode, "there is no need to evaluate experience in order to reduce discrepancies between actual and desired states."[6, p 73] Functional neuroimaging supports the notion of 2 distinct modes of self-reference: narrative and experiential. Narrative self-reference is involved with memory for self and other traits and the continuity of identity over time, and is associated with activation of medial PFC associated in a similar pattern described as the default mode network[14]; whereas experiential self-reference refers to one's momentary experience, and involves a right lateralized network involved in somatic and visceral sensation.[15] After a period of mindfulness training, subjects initially naive to meditation displayed a pronounced shift in cortical activation consistent with the above account when their attention was directed from narrative to momentary experience of the self, which was not observed prior to training. The narrative mode of self-reference may be analogous to doing mode in the sense that discrepancy-based problem solving must involve some comparison between current circumstances and a conceptualized past or future self.

By cultivating nonjudgmental present-moment awareness of one's experience, including sadness itself, mindfulness may interrupt the cycle of rumination about past regrets or future fears, and enhance self-compassion,[16] breaking the link between cognitive reactivity and escalating depressive symptoms. Functional imaging of mindfulness-trained subjects show a distinct neural response, compared with untrained control subjects, on a test of provoked sadness, with greater activation of lateral networks associated with somatic and visceral sensation and fewer depressive symptoms, despite equivalent subjective reports of sadness.[17]

Another important mechanism of action of MBCT may be to enhance the ability to intentionally deploy one's attention, allowing for more flexible cognitive and behavioural responses.[18] Part of the functional impairment of depression and anxiety disorders may be related to the disproportionate amount of attention, behaviours, and cognitive resources devoted to attempting to resolve or avoid unwanted thoughts and feeling, often to the exclusion of other valued activities.[19] Threatening stimuli serve to compete for perceptual attention and further processing resources and this bias may be mediated by threat-detection signals from the amygdala.[9] As people develop metacognitive awareness by actively labelling thoughts and feeling as mental events, distressing cognitions may be perceived as less threatening, and consequently less demanding of cognitive resources. Functional brain imaging of participants performing an affect labelling task similar to the mental noting of mindfulness meditation, shows increased activation in PFC and decreased activation in the amygdala,[20] and subjects with social anxiety disorder undergoing mindfulness training displayed reduced amygdala activity and increased activity in brain regions involved in attentional deployment.[21] Additionally, mindfulness training may also improve attentional control and affect regulation by enhancing working memory capacity, which is a resource in willfully guiding behaviour and overcoming emotionally intrusive thoughts in the setting of cognitive or emotional demands.[22]

MBCT for Depression

Relapse Prevention

MBCT was first developed as a strategy for relapse prevention that could be delivered in groups. The rationale for first applying MBCT to relapse prevention lies in the assumption that the repeated associations between depressed mood and catastrophic and despairing thinking that occur during an episode of depression create vulnerability to future episodes of relapse. Namely, people with prior

episodes of depression will be more likely to respond to episodes of mild dysphoria with a self-reinforcing cycle of ruminative thinking that recalls previous major depressive episodes, and this vulnerability increases with each episode of depression.[23] Given this account, approaches that allow patients to become more aware of negative thoughts and feelings earlier in a dysphoric episode (while at risk for relapse), and to disengage (decentre) from these thoughts and feelings, will enhance resilience and reduce the risk of relapse. Because MBCT does not require specific negative cognitions, it is well suited to periods of remission—where everyday experience can be used as the object of training.

The initial trials of MBCT compared the study intervention to subjects receiving TAU and were designed to establish the potential effectiveness of this intervention in a group of patients with recurrent depression currently in remission. Two studies published by the originators of the protocol in 2000[23] and 2004,[24] reported significantly lower rates of relapse in the MBCT condition, compared with TAU (37%, compared with 66%, in the 2000 study, and 36%, compared with 78%, in the 2004 study). This finding was noted only in people with 3 or more episodes of depression. While the authors speculated that the lack of effect in patients having only 2 lifetime episodes of depression may reflect a distinct population with a different process mediating relapse,[24] this finding has not been fully investigated in subsequent studies.

MBCT's efficacy was then demonstrated in an RCT by a team in Belgium, distinct from the originators of the intervention, which essentially replicated the 2 earlier studies, demonstrating a large reduction in relapse rates with MBCT compared with TAU (30% and 68%, respectively), and improved quality of life scores.[25] A similar study,[26] which included subjects with recurrent depression treated within the Swiss public health system, found relapse rates following MBCT to be similar to the other 3 studies cited (33%); however, the relapse rate in the TAU condition was much lower than that observed in the other studies (36%). The authors speculated that the Swiss public health system may represent a much higher level of TAU care. Another uncontrolled study also found a similar relapse rate of 38%.[27]

One major limitation of the initial studies of MBCT has been the lack of an active control group. Two more recent studies have studied MBCT maintenance, using ADs, considered the gold standard of treatment, as the control. One study in a high-risk population sought to compare MBCT to maintenance ADs, and specifically gave active support for MBCT participants to taper and discontinue ADs.[28] During a 15-month follow-up period, comparable outcomes were observed in terms of relapse (47% MBCT and 60% ADs) and participants in MBCT had lower residual depressive symptoms and higher quality of life scores. Additionally, more than 75% of participants in the group receiving MBCT discontinued their ADs. An expanded follow-up study is ongoing.[29] In an ambitious study, Segal et al[30] compared MBCT alone to AD maintenance to placebo in a group of subjects presenting with active depression, and then subsequently treated to remission with ADs. In patients who initially achieved a stable remission, there was no difference between either treatment condition or placebo. However, in subjects deemed unstable remitters, owing to intermittent symptom flurries, the protective effects of MBCT and ADs were comparable, and both clearly superior to placebo (27% for ADs, 28% for MBCT, and 71% for placebo).

Treatment of Active Depression

When first devised, there was concern that intensity of negative thinking and difficulties concentrating would prevent patients with active depression from fully benefiting from MBCT.[23] However, other researchers have explored MBCT for treatment of active depression. In part, this has been based on metacognitive awareness, which MBCT teaches so well, being postulated as an active component of CBT,[7] and CBT has a rich literature supporting its use in active depression.[31] The first pilot study[32] to examine MBCT as a therapy for the active phase of recurrent depression reported a clinically meaningful improvement in BDI scores at 3 months after completing a course of therapy (reduced from a mean score of 36 to 18), a comparable improvement in anxiety scores, and a high degree of patient tolerability. In another small pilot study[33] of subjects with substantial residual symptoms between acute episodes of depression, MBCT resulted in a significant improvement in BDI scores, and a strong trend for improvement in rumination symptoms. In a particularly noteworthy study,[34] when MBCT was compared directly with CBT in a sample of currently depressed subjects, there was a substantial drop in BDI of both groups that persisted at 12 months following therapy (with CBT, BDI scores dropped from 36 to 19, whereas with MBCT scores dropped from 32 to 19). Of note, MBCT was equally effective for people with fewer than 3 episodes in this study.

Treatment of TRD

TRD may be defined as failure to fully remit with adequate doses and durations of 2 or more AD trials, and may comprise 50% of people suffering from depression.[35] In practice, this treatment population has often gone through multiple rounds of medication trials and psychotherapy and is clinically challenging. There are often few pharmacologic alternatives available, and there is a risk of therapeutic nihilism on the part of patient and provider alike. Moreover, the cycle of lack of response to supposedly effective medications may confirm the patient's view that depression is an intrinsic property of the self, reinforcing negative beliefs about the world and the future.[36] The patient with TRD may thus pose a dilemma for traditional CBT, with its emphasis on challenging and changing dysfunctional beliefs: a lifetime of treatment failures, depressive symptoms, and the ensuing social, occupational, and interpersonal setbacks may—from the view of a patient with TRD—all be solid evidence of their defective nature. The accepting stance of MBCT, which emphasizes identifying thoughts as thoughts but

without needing to change them, may provide an alternate approach for this challenging population.

To date, the studies that reported on using MBCT in TRD have been small pilots, albeit encouraging. In 1 uncontrolled study of 50 with patients with recurrent or chronic depression in a depressed episode, mean BDI dropped from 24 to 14. Almost 70% of this sample had a previous course of CBT and about 75% of participants were on ADs at study entry.[37] A second non-RCT of MBCT for TRD reported a drop in mean BDI from 24 to 15, a 29% remission rate, and 38% response rate (as measured by a more than 50% reduction in BDI score); there was also significant improvement on anxiety measures.[38] A preliminary study[39] that did not specifically include TRD, but included patients with active symptoms of more than 2 years' duration, reported BDI scores in the MBCT group that dropped from 29 to 18, with a response rate of 37%, while there was virtually no change in the TAU group, and only 1 of 15 control subjects responding. The 3 studies above reported good tolerability, with low dropout rates,[37,39] and no evidence that MBCT was problematic even for the most symptomatic patients.[38] Currently, a large RCT evaluating MBCT, compared with an active control condition, in TRD is under way.[36]

MBCT and Suicide

The chronic, intermittently suicidal patient poses a unique clinical challenge. Despite high risk of repetition, people making suicidal gestures often do not display profound hopelessness and impaired problem solving once the acute crisis has passed. This presents a paradox that recalls aspects of recurrent depression in remission: while "cognitive factors predict depression and suicidality, they are inaccessible out of episode" as the "dysfunctional attitudes and negative patterns of thinking that are central to depressive thinking normalize as mood improves."[40, p 204] Assessment of the suicidal patient in MBCT reveal both the challenge and the promise of this modality. Patients who are suicidal have shown higher dropout rates from MBCT trials,[28] and no clear effect on direct measures of suicidal ideation.[39] Conversely, patients with suicidal thoughts started treatment with higher baseline BDI scores that significantly decreased with treatment.[37] Patients with suicidal ideation that dropped out of an MBCT trial displayed a significant worsening in interpersonal problem solving effectiveness after acute induction of a negative mood state.[41] The authors conclude that while

> individuals with high levels of cognitive reactivity, brooding and depressive rumination may find it particularly difficult to engage with MBCT, . . . they are likely to have the most to gain from the development of mindfulness skills if they remain in class.[41, p 10]

A large RCT is under way comparing MBCT specifically adapted for people who become suicidal when depressed and an active psychotherapeutic control.[42]

MBCT for Anxiety Disorders

There is strong theoretical rational for the application of MBCT to anxiety. As worry is by nature future-oriented and involves avoidance of undesired outcomes, training in present-moment awareness may provide an alternate way of being with worry and anxiety.[43] There have been some early trials of MBSR in anxiety disorders[44] but only recently has MBCT specifically been adapted for anxiety disorders, with the psychoeducational portion being modified to the target population. A small initial pilot study[45] showed significant improvements in multiple measures of worry and anxiety, with 5 of 12 subjects improving from moderate-to-severe scores to minimal on the Beck Anxiety Inventory. Another study[46] of MBCT in subjects with persistent symptoms of GAD or panic after at least 6 months of pharmacotherapy, reported significant improvements in measures of anxiety, rumination, worry, and sleep quality. The single controlled study[47] of MBCT for patients with panic or GAD who had completed at least 6 months of prior pharmacotherapy compared MBCT to an anxiety education program. There were significant improvements in anxiety measurers in the treatment group, with a substantial number achieving remission, while there were minimal changes in the psychoeducation group.

MBCT for BD

Four studies have reported results on subjects with BD, either as a subset of a larger sample[37,48] or as pilot studies of MBCT in BD.[49,50] In the small number of subjects involved, MBCT appears to improve depressive symptoms and anxiety, with no increases in manic symptoms. However, these preliminary studies were not of sufficient duration to address the impact of MBCT on mood cycling or medication needs.

Recommendations and Conclusion

While further studies aim to expand the range of conditions to which MBCT may be applied, the current data suggests that MBCT represents a useful modality for patients with recurrent depression. Its established efficacy in relapse prevention has significant public health potential. Patients with a highly reactive style—particularly those with a history of suicidality—may need extra support in completing the treatment course but may find it particularly helpful. Beyond relapse prevention, MBCT appears to be quite tolerable, and shows promise of being beneficial to actively depressed patients, even where previous treatment interventions have failed. While data on anxiety disorders are much more preliminary, there are compelling theoretical reasons to consider MBCT as an adjunctive therapy, especially as more targeted adaptations are refined and studied.

For patients who are unwilling to continue with ADs for relapse prevention or would like to taper off medications, MBCT may be offered as a viable alternative to ongoing pharmacotherapy. Conversely, the principles of MBCT may also complement psychopharmacology. By facilitating acceptance of what is in the present and that a person suffers from depression as a disease, and then helping patients to distinguish their thoughts, judgments, and opinions of medications as such, medication compliance may be enhanced in at-risk people.

Table 2 List of mindfulness resources		
Website	URL	Description
Mindfulness-Based Cognitive Therapy	http://www.mbct.com	Provides information on MBCT for patients, in addition to maintaining a growing list of centres and clinicians practicing MBCT in a clinical or research context.
The University of Massachusetts Medical School, Center for Mindfulness	http://www.umassmed.edu/cfm/home/index.aspx	Provides information on MBSR and other resources related to mindfulness, including professional trainings and retreats. Also offers a worldwide search function for identifying local MBSR practitioners who have complete Center for Mindfulness trainings.

For clinicians working in large urban areas, referral to an active MBCT group is ideal. However, in the absence of a local group, the authors of the original MBCT protocol have also published a book for the lay audience, which is accompanied by a CD with audio instructions for mindfulness practices.[5] Clinicians interested in the clinical practice of mindfulness can pursue training in MBCT, at numerous workshops, or, for a personal experience, in MBSR, which are both widely available (Table 2).

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