Mindfulness-based cognitive therapy (MBCT) was originally developed to prevent depressive relapse and recurrence and has also been widely extended to new patient populations and target problems over the last 14 years. We provide a comprehensive review of this literature, examining the strength of the evidence base for specific populations and target problems and identifying questions for future research to address. Specifically, we review studies addressing the use of MBCT for depressive disorders (prevention of depressive relapse and treatment of residual and current depressive symptoms), the use of MBCT in the treatment or management of other mental disorders (bipolar disorder, anxiety disorders, mixed anxiety and depression symptoms, disordered eating, personality disorders, and psychosis), and the use of MBCT in behavioural medicine contexts. Additionally, we discuss the extension of MBCT during specific developmental periods, like childhood, pregnancy and post-partum, and adult caregiving, and, finally, we address the use of MBCT among clinical health-care providers. In the second section, we review hypothesised mechanisms of change in MBCT and reflect on implications for theories of how MBCT works in the application to various patient populations and target problems. We also consider research addressing active ingredients and what is known about the “dosage” of meditation practice. We conclude with a summary of recommendations for future research.

Key words: mechanisms of action; mindfulness; mindfulness-based cognitive therapy (MBCT); mindfulness meditation; review; treatment studies.

What is already known on this topic
1. Mindfulness-based cognitive therapy (MBCT) is a group intervention delivered over 8 weekly sessions that integrates mindfulness meditation and cognitive-behavioural therapy.
2. Current treatment guidelines specify MBCT as a relapse prevention approach for patients with histories of multiple depressive episodes.
3. Few studies have formally tested mechanisms of change in MBCT.

What this paper adds
1. The application of MBCT has been extended to a wide range of psychiatric populations, behavioural medicine contexts, developmental periods, and clinical healthcare providers.
2. The empirical support for MBCT among novel populations differs by population and target problem. Although recommendations for future research vary by area, comparative trials with active control conditions, comprehensive long-term outcome and mediator measurement, and clear primary and secondary outcomes are needed.
3. It is not yet known what quantity or frequency meditation practice—or what “dosage” of meditation—is necessary for individuals to benefit from the MBCT program.

Mindfulness-based cognitive therapy (MBCT; Segal, Williams, & Teasdale, 2013), which represents a unique integration of mindfulness meditation and cognitive-behavioural therapy (CBT), was first reported in the empirical literature in 2000 (Teasdale et al., 2000). Its original development and investigation were motivated by an understanding of the risk factors for depressive relapse and recurrence and an awareness of the need for more effective options to promote long-term wellness among individuals with histories of recurrent depression (Segal et al., 2013). In the 14 years since the first clinical trial was published, the use of MBCT has been extended to a wide range of patient populations and across diverse delivery formats and settings. Here, we provide a review of this work, based on peer-reviewed studies conducted prior to December 2013 and published in PsychINFO or PubMed. We examine studies investigating the use of MBCT for depressive disorders (prevention of depressive relapse and treatment of residual and current depressive symptoms), other mental disorders (bipolar disorder, anxiety disorders, mixed anxiety and depression symptoms, disordered eating, personality disorders, and psychosis), and use in behavioural medicine contexts. In addition, we discuss the use of
MBCT during specific developmental periods, such as childhood, pregnancy and post-partum, and adult caregiving, and, finally, among clinical health-care providers. Finally, we provide a brief review of the emerging literature examining mechanisms in MBCT and what is known about the “dosage” of meditation practice. We conclude each section and the review with recommendations for future research.

Content, Structure, and Style of MBCT

MBCT (Segal et al., 2013) is delivered across eight weekly group sessions, approximately 2 hr in duration, and an additional 6-hr day-long session of practice. The first four sessions emphasize teaching the foundational skill of mindfulness through the use of formal practices such as the body scan, walking meditation, breath meditation, and gentle yoga stretching, and informal practices such as the 3-min breathing space and mindful eating. Clients are invited to learn through direct experience with practice and via a process of inquiry in which they reflect on direct experience, guided by the instructor. In both guiding practices and inquiry, the instructor models relating to experience in a mindful, self-compassionate, and non-judgemental way. Thus, instructors are strongly encouraged to have their own mindfulness practice as a foundation for teaching. The last four classes focus more explicitly on depression-specific content, including responding effectively to difficult internal experiences, decreasing reactivity to thoughts previously associated with depression, cultivating an understanding of one’s own warning signs of depression, and developing a specific action plan to implement during high risk periods.

Evidence Base for MBCT

Depressive disorders

Prevention of depressive relapse and recurrence. Over the last 14 years, eight randomised controlled trials (RCTs) of MBCT as a preventative intervention for individuals with recurrent depression have been published, comparing the intervention against treatment as usual (TAU; Bondolfi et al., 2010; Godfrin & van Heeringen, 2010; Ma & Teasdale, 2004; Teasdale et al., 2000), waitlist controls (WLC; Britton, Haynes, Fridel, & Bootzin, 2010; Keune, Bostanov, Hautzinger, & Kotchoubey, 2011), maintenance antidepressant medication (mADM; Kuyken et al., 2008), and mADM and placebo (Segal et al., 2010). Additionally, MBCT has been studied in individuals with a history of suicidal depression versus TAU (Barnhofer et al., 2007) and WLC (Crane et al., 2008; Hepburn et al., 2009).

Early studies demonstrated that MBCT significantly reduced relapse over a 1-year follow-up period as compared with TAU among individuals with three or more previous major depressive episodes (MDEs; Ma & Teasdale, 2004; Teasdale et al., 2000). Four subsequent RCTs provided additional evidence of the superiority of MBCT relative to TAU in the prevention of depressive relapse and recurrence in this subpopulation (Bondolfi et al., 2010; Godfrin & van Heeringen, 2010), comparability with the standard of care, mADM (Kuyken et al., 2008), and superiority to placebo among unstable remitters (Segal et al., 2010). In another RCT, MBCT was associated with decreased depressive symptoms, decreased rumination, and increased mindfulness as compared with WLC, but did not stabilise α-asymmetry, which has been related to affective style (Keune, Bostanov, Hautzinger, & Kotchoubey, 2011). Britton et al. (2010) found that MBCT was associated with sleep benefits.

Additional analyses using the samples reported in the eight primary RCT studies suggest that MBCT increased concentration ability (Bostanov, Keune, Kotchoubey, & Hautzinger, 2012), metacognitive awareness (Teasdale et al., 2002) and decentering (Bieling et al., 2012); decreased dysfunctional attitudes (Jermann et al., 2013) and overgenerality in memory (Williams, Teasdale, Segal, & Soulsby, 2000); but did not alter cortisol secretion (Gex-Fabry et al., 2012) and sometimes failed to show reductions in clinician-rated depression severity (Jermann et al., 2013; Williams et al., 2000); Within populations with a history of suicidal depression, MBCT was found to lower depression scores, discrepancies between one’s idealised and actual self (Crane et al., 2008), and self-reported attempts of thought suppression (Hepburn et al., 2009), MBCT, but not TAU, was associated with a stable pattern of α-asymmetry (Barnhofer et al., 2007), but this finding was not replicated in a larger study (Keune, Bostanov, Hautzinger, & Kotchoubey, 2011).

Meta-analytic studies also support the conclusion that MBCT reduces the risk of depressive relapse in individuals who have experienced three or more MDEs (Chiesa & Serretti, 2011; Coelho, Canter, & Ernst, 2013; Fjorback, Arendt, Ornbøl, Fink, & Walach, 2011). Despite this evidence base, important questions remain regarding the degree to which mindfulness practice is an essential component of MBCT. As noted below, MBCT has demonstrated significantly better outcomes as compared with psychoeducational controls for patients with residual depressive symptoms (Chiesa, Mandelli, & Serretti, 2012), anxious patients (Kim et al., 2009), and tinnitus patients (Philippot, Nel, Clauw, de Romrée, & Segal, 2012), but not in a population of caregivers (Oken et al., 2010). Moreover, findings on the correlation between mindfulness practice and clinical outcomes have been mixed, and additional studies are needed to determine the active ingredient status of mindfulness practice and the minimum “dosage” required to achieve clinical benefits (Coelho et al., 2013; Fjorback et al., 2011).

Treatment of residual and current depressive symptoms. Thirteen randomised trials have investigated the usefulness of MBCT for targeting depressive symptoms. One RCT compared MBCT with CBT and reported no significant differences between groups (Manicavasgar, Parker, & Perich, 2011). Another study reported superior performance of MBCT as compared with a psychoeducational control group (Chiesa et al., 2012). Others still made comparisons with TAU or WLC (Barnhofer et al., 2009; Collip et al., 2013; Crane, Winder, Hargus, Amarasinghe, & Barnhofer, 2012; Geschwind, Peeters, Drukker, van Os, & Wichers, 2011; Geschwind et al. 2012; Geschwind, Crane, Barnhofer, & Williams, 2010; Kaviani, Hatami, & Javaheri, 2012; Kaviani, Javaheri, & Hatami, 2011; Shahar, Britton, Sbarra, Figueredo, & Bootzin, 2010; van Aalderen et al., 2012; van den Hurk et al., 2012). In patients with recurrent depression, MBCT was associated with decreased depression symptoms in TAU or WLC controlled studies (Barnhofer et al., 2009; Geschwind, Peeters, Huibers, van Os, & Wichers, 2012; van Aalderen et al., 2012; van
den Hurk et al., 2012). This effect was not dependent on number of previous MDEs in the study by Barnhofer et al. (2009). MBCT reduced anxiety and depression around stressful situations (exam periods) in non-clinical and subclinical populations as compared with WLC (Kaviani et al., 2011, 2012). With respect to additional symptoms, MBCT has been reported to have benefit as compared with TAU or WLC within studies focused on paranoia (Collip et al., 2013), goal specificity (Crane et al., 2012), and memory specificity (Hargus et al., 2010) related to suicidality. Current treatment guidelines specify MBCT as a relapse prevention approach for patients with histories of multiple MDEs (National Institute for Clinical Excellence [NICE], 2009), but increased investigation among patients with residual depressive symptoms may suggest an expansion of indication for vulnerable groups as defined by current symptom profiles.

**Bipolar disorder.** Researchers have proposed that MBCT might also be protective in regard to depressive episodes and symptoms among patients with bipolar disorder. MBCT as a treatment for bipolar disorder has been investigated in three controlled studies (Ives-Deliperi, Howells, Stein, Meintjes, & Horn, 2013; Perich, Manicavasagar, Mitchell, Ball, & Hadzi-Pavlovic, 2013; Williams et al., 2008) and four open trials or clinical audits (Deckersbach et al., 2012; Kenny & Williams, 2007; Miklowitz et al., 2009; Weber et al., 2010). Findings have been mixed across the range of outcomes investigated, including anxiety, depressive symptoms, and mania and hypomania. The most robust effects are evident in studies that measured changes in anxiety symptoms, with four studies reporting positive results on self-rated measures (Ives-Deliperi et al., 2013; Miklowitz et al., 2009; Perich et al., 2013; Williams et al., 2008). This is encouraging given evidence that anxiety may negatively impact the course of bipolar disorder (Gaudiano & Miller, 2005). Results are less robust with respect to depression in bipolar disorder. MBCT has been associated with reductions in depressive symptoms in some studies (Deckersbach et al., 2012; Kenny & Williams, 2007; Miklowitz et al., 2009; Williams et al., 2008), but not others (Weber et al., 2010), including the largest RCT of MBCT in bipolar disorder to date (Perich et al., 2013). Similarly, with respect to changes in mania and hypomania symptoms after MBCT, only one open trial study reported reductions (Miklowitz et al., 2009), and three others (one RCT and two open trials) found no reduction in these symptoms (Deckersbach et al., 2012; Perich et al., 2013). Overall, MBCT is a promising potential treatment for anxiety in bipolar disorder. However, many studies of MBCT for bipolar disorder have used small or heterogeneously defined samples, making it difficult to compare across studies (e.g., Williams et al., 2008). Future studies could test the degree to which MBCT offers advantage compared with other empirically supported treatments for bipolar disorder (e.g., family-focused therapy), which have a strong evidence base (Miklowitz, 2006).

**Anxiety disorders.** Studies have examined the use of MBCT with a broad range of anxiety disorders, including hypochondriasis, panic disorder, generalised anxiety disorder (GAD), social anxiety, and post-traumatic stress disorder (PTSD), with mixed results.

MBCT may be a useful treatment for reducing health anxiety in hypochondriasis. MBCT significantly improved health anxiety, disease-related thoughts, somatic symptoms, and mindfulness in a small, uncontrolled trial of individuals with hypochondriasis (Lovas & Barsky, 2010). Qualitative evidence is consistent with acceptability and satisfaction among this population (Williams, McManus, Muse, & Williams, 2011). In an RCT conducted by McManus, Surawy, Muse, Vazquez-Montes, and Williams (2012), MBCT plus TAU was associated with greater reductions in health anxiety symptoms and hypochondriasis diagnoses compared with TAU alone.

MBCT as an adjunctive treatment to pharmacotherapy was associated with reduced anxiety and depression symptoms in an open trial of panic disorder patients (Kim et al., 2010), a controlled study with an active education control of panic disorder and GAD patients (Kim et al., 2009), and an open trial of GAD patients (Evans et al., 2008). However, MBCT has not demonstrated outcomes equivalent to CBT for GAD, and while MBCT was associated with reduced worry in an uncontrolled study, worry levels did not achieve standard recovery criteria (Craigie, Rees, Marsh, & Nathan, 2008). Similarly, Piet, Hougaard, Hecksher, and Rosenberg (2010) reported positive findings for MBCT in the treatment of social anxiety, but noted that CBT is likely more efficacious for this population. Finally, MBCT was acceptable as a treatment for PTSD among military veterans and was associated with significant PTSD symptom severity reductions post-intervention as compared with TAU in a non-randomised trial (King et al., 2013). MBCT seems acceptable and shows promising clinical outcomes among patients with anxiety disorders, but additional studies are required to test efficacy, particularly relative to more established interventions among these populations.

**Mixed anxiety and depression symptoms and additional mental health disorders.** Some evidence suggests that MBCT is beneficial for heterogeneous psychiatric populations. One meta-analysis demonstrated that mindfulness-based interventions have medium and large effect sizes when treating anxiety and depression symptoms and disorders, respectively (Hofmann, Sawyer, Witt, & Oh, 2010). Two open trial studies that have examined MBCT for groups with anxiety or mood disorders, or both, reported that MBCT was associated with mood and anxiety improvements in addition to increased mindfulness, fewer and less severe perceived life stressors, and reduced insomnia symptoms (Green & Bieling, 2012; Ree & Craigie, 2007). In one study, clinically significant symptom improvements after MBCT were comparable with those seen in CBT in heterogeneous samples (Ree & Craigie, 2007). RCTs with larger samples are necessary to determine whether such findings can be replicated, but initial evidence suggests that MBCT may be useful in clinical practice with clients with heterogeneous psychiatric disorders.

MBCT also has been studied in populations with subclinical disordered eating, psychosis, and borderline personality disorder (BPD). One case study found that MBCT was associated with decreased binge-eating symptoms and increased mindfulness (Bae, Fischer, & Huss, 2005). In a small controlled study, MBCT was linked with significant decreases in symptoms like emotional eating. That study also suggested that increasing
mindfulness of internal experiences and automatic patterns may be useful in populations with disordered eating (Alberts, Thewissen, & Raes, 2012). The only study of MBCT for individuals with psychosis demonstrated improvements in mindful responses to stressful internal events relative to WLC (Langer & Cangas, 2012). In a case study, MBCT, adapted for individual treatment and adjunctive to dialectical behavioural therapy, was efficacious at preventing a relapse of depression for an individual with BPD and recurrent depression (Huss & Baer, 2007). In a pilot quasi-experimental trial of MBCT for patients with BPD, MBCT was acceptable and associated with improved attentional control, but was not associated with improvements in mindfulness, depression, anxiety, dissociation, impulsivity, or experiential avoidance (Sachse, Keville, & Feigenbaum, 2011).

**MBCT in the context of behavioural medicine: Cancer and medical illness.** Some investigators have suggested that MBCT may be useful for medically ill populations given the prevalence of depression among such patients and the focus of MBCT on altering depressogenic cognitive processes. For example, MBCT has been investigated in two RCTs among patients with cancer (Foley, Baillie, Haxter, Price, & Sinclair, 2010) or cancer and severe fatigue (van der Lee & Garssen, 2012). One open trial focused on women with breast and gynaecological cancers (Stafford et al., 2013), and yet another open trial focused on cancer caregivers or individuals with a history of cancer (Sharplin et al., 2010). In these studies, MBCT has been associated with sustainably reduced psychiatric and physical symptoms and increased well-being for individuals affected by cancer. MBCT was associated, over time, with decreased depression, anxiety (Foley et al., 2010; Sharplin et al., 2010), and distress (Foley et al., 2010; Sharplin et al., 2010; Stafford et al., 2013), as well as increased mindfulness (Foley et al., 2010; Sharplin et al., 2010; Stafford et al., 2013). Additionally, MBCT was associated with post-traumatic growth (Stafford et al., 2013) and increased quality of life (Foley et al., 2010). Van der Lee and Garssen (2012) measured only changes in fatigue, well-being, and functional impairment, finding that MBCT bettered the first two, but not the last, outcome.

Among patients with chronic medical problems, MBCT has been studied in an open trial (Bédard et al., 2012), compared with active intervention (Philippot et al., 2012), TAU (Parra-Delgado & Latorre-Postigo, 2013; van Son et al., 2013), and WLC (Rimes & Wingrove, 2013; Thompson et al., 2010). Given the complexity of potential target problems among these populations, studies often examine multiple outcomes. Such studies have achieved mixed results across primary and secondary outcome variables. Regarding depressive status as a primary outcome, there is promise for MBCT improving depressive symptoms in the open trial of patients with traumatic brain injury (TBI; Bédard et al., 2012) and indications of efficacy in the RCT for patients with epilepsy and diabetes (Thompson et al., 2010; van Son et al., 2013). Other studies that included depression, but either did not explicitly identify it as a primary outcome or identified it as a secondary outcome, had mixed results—there was little evidence of benefit among patients with tinnitus and multiple chemical sensitivities (Philippot et al., 2012; Skovbjerg, Hauge, Rasmussen, Winkel, & Elberling, 2012), whereas there was evidence of benefit among patients with fibromyalgia (Parra-Delgado & Latorre-Postigo, 2013). Another pilot study identified fatigue as a primary outcome and noted that MBCT was associated with sustainably lower levels of fatigue as compared with WLC (Rimes & Wingrove, 2013). Van Son et al. (2013) reported that MBCT was associated with greater reductions in stress and anxiety and increases in quality of life than TAU in diabetic individuals, but not changes in glycaemic control or diabetes-specific distress. Qualitative evidence suggests that MBCT may be an acceptable group intervention for Parkinson’s disease and cardiac rehabilitation (Fitzpatrick, Simpson, & Smith, 2010; Griffiths, Camic, & Hutton, 2009). In general, studies suggest that MBCT can be valuably extended to patients in behavioural medicine contexts, but not as a panacea.

The application of MBCT within behavioural medicine contexts is an evolving and active area of research. There are promising results that suggest that MBCT improves mental health symptoms and well-being among a range of medically ill populations, including TBI, cancer, fatigue, and diabetes (Bédard et al., 2012; Foley et al., 2010; Rimes & Wingrove, 2013; van der Lee & Garssen, 2012; van Son et al., 2013). Ongoing research is required to examine the degree to which MBCT is an effective adjunct intervention that may alter the experience of individuals living with illness.

**Developmental extensions.** Some investigators have not focused on expanded target disorders but rather on expansions to target populations as defined by developmental life stages. MBCT has been extended to child populations, with a focus on increasing social-emotional resiliency through bolstering mindful attention (Semple, Lee, Rosa, & Miller, 2009). Results of two studies support the feasibility of this intervention (Lee, Semple, Rosa, & Miller, 2008) and its efficacy in decreasing attention, anxiety, and behaviour problems for especially anxious children (Semple et al., 2009). MBCT also has been studied as an intervention to reduce psychological distress and increase well-being among pregnant women. A controlled pilot study found that MBCT was associated with reduced depression, stress, and anxiety symptoms into the post-partum period and was associated with increased mindfulness and self-compassion over time (Dunn, Hanich, & Roberts, 2012).

Among caregivers of elderly individuals with dementia, one pilot RCT found that both MBCT and an active control education group intervention were associated with significantly lower caregiver stress compared with a respite-only control group, but secondary outcomes of mood, fatigue, self-efficacy, mindfulness, salivary cortisol, cytokines, and cognitive functioning were not decreased in any condition (Oken et al., 2010).

**Health-care providers and students.** MBCT has been taught to health-care professionals and students as an intervention to reduce stress and increase clinical skill. Three uncontrolled studies found that MBCT increased some facets of self-reported mindfulness (Collard, Avny, & Boniwell, 2008; Hopkins & Proeve, 2013; Rimes & Wingrove, 2011), enhanced clinical practice and self-compassion, and decreased rumination and negative affect post-intervention (Rimes & Wingrove, 2011). However, MBCT was not associated with significant changes in
satisfaction with life and positive affect in one study (Collard et al., 2008). RCTs are necessary to determine the efficacy of MBCT with respect to emotional well-being and clinical skill among health-care professionals.

**Mechanisms of Action**

The number of investigations of mechanisms of change in MBCT has increased in recent years. Such investigations demand a clear theory of the targets of intervention and the processes by which mindfulness practice aims to alter those targets. The specifications of current theories vary in detail across the disorders and populations to which MBCT has been extended. The majority of this work has focused on MBCT for patients with histories of depression, but recent studies have examined mechanisms of MBCT in the extension to patients with bipolar disorder.

Regarding depression prevention, MBCT is theorised to reduce depressive relapse by changing the nature of vulnerable individuals’ relationships to negative thoughts, sensations, and emotions. Specifically, mindfulness is proposed as a way to help people decrease cognitive reactivity to negative emotion through repeated practice with both neutral and affectively triggering content on a regular basis (Segal, Williams, & Teasdale, 2013). As a result, many investigators have focused on potentially mediating processes of mindfulness skill and rumination. Most studies to date have relied on self-report methods for indexing such processes, although a few have incorporated behavioural tasks as well.

In a clinical audit of MBCT for depressive relapse prevention, rumination was negatively correlated with mindfulness and positively correlated with self-reported depressive symptoms (Mathew, Whitford, Kenny, & Denson, 2010). In another study, self-reported mindfulness improved significantly over the course of MBCT and post-treatment levels predicted future depressive relapse (Michalak, Heidenreich, Melbert, & Schulte, 2008). Other studies have suggested that self-reported mindfulness mediates the effect of MBCT on depressive symptoms (Batink, Peeters, Geschwind, van Os, & Wichers, 2013; Kuyken et al., 2010; Shahar et al., 2010). MBCT and CBT have been associated with similar decreases in rumination that predicted post-intervention depression scores (Manicavasagar, Perich, & Parker, 2012). Reductions in depressive symptoms after MBCT have been mediated by reductions in rumination (Michalak, Holz, & Teismann, 2011; van Aalderen et al., 2012) and brooding (Shahar et al., 2010). Notably, in the RCT conducted by Kuyken et al. (2010), individuals who had received MBCT were more cognitively reactive to an experimental sadness induction than those who had received mADM, but this relationship did not predict later depressive severity or relapse risk for the MBCT group as it did the mADM group. The mindfulness change over treatment did not moderate the relationship between cognitive reactivity and depressive outcome, but self-compassion did. Other studies reported that mindfulness (Manicavasagar et al., 2012), rumination, and mindful attention did not improve in MBCT (Jermann et al., 2013). Others still found that rumination (Batink et al., 2013) and three of four self-reported mindfulness skills did not mediate change in depressive symptoms (van Aalderen et al., 2012).

Recent explorations have focused on the processes by which MBCT might alter cognitive processes in bipolar disorder, given the disorder’s characteristic cognitive and attentional deficits (Howells, Ives-Deliperi, Horn, & Stein, 2012; Stange et al., 2011). MBCT was followed by decreased attentional dysfunction as measured by electroencephalography in a small sample (Howells et al., 2012), and improvements in working memory, spatial memory, mindfulness, and verbal fluency that corresponded to activations in the medial prefrontal cortex—associated with cognitive flexibility—in a functional magnetic resonance imaging study (Ives-Deliperi et al., 2013). MBCT may be a useful adjunctive treatment to improve cognition in bipolar disorder, but in general, insufficient attention has been paid to mechanisms by which MBCT may confer benefit for these patients.

**Active Ingredients and Dosage**

The degree to which mindfulness practice is an active ingredient of MBCT is unknown. Although mindfulness practice is assigned for home practice each day and the majority of each session focuses on the mindfulness component, there are other potentially active ingredients, including cognitive behavioural and psychoeducational strategies and group support. As reviewed above, the few studies that have used comparisons with active controls have yielded mixed findings. In a recent meta-analysis, the mindfulness experience of both the instructors and the participants were found to be predictive of positive outcomes in mindfulness-based interventions (Khoury et al., 2013). Some studies report that regularity of mindfulness practice post-MBCT (Mathew et al., 2010; Munshi, Eisendrath, & Delucchi, 2013) is related to depression outcome in the long term, and others have suggested that it is frequency of practice during MBCT—specifically, three times a week or more—that relates to depression and anxiety symptoms a year after intervention (Perich, Manicavasagar, Mitchell, & Ball, 2013). The dosage question—how much mindfulness meditation is required for benefit—demands more empirical attention.

**Conclusion**

Over the last 14 years, MBCT has been applied to diverse populations and target problems. There is good cause for enthusiasm about the potential of MBCT to offer mental health benefit across a range of disorders and populations. Specifically, research supports the use of MBCT for preventing depressive relapse among individuals with a history of three or more previous MDEs and has been recommended as a guideline-based intervention for this population (NICE, 2009). Thirteen RCTs also have been conducted for individuals with current or residual depression, and although more preliminary, such work suggests that MBCT reduces residual depressive symptoms and warrants further study, particularly in comparisons with other empirically supported treatments for depression. There is mixed evidence supporting the use of MBCT among patients with bipolar disorder, with the most robust effects on anxiety symptoms. However, such studies include small and heterogeneous samples and require replication. The few studies examining MBCT in anxiety disorders are positive, but in most cases, no
more than one RCT has been conducted in each anxiety disorder and investigators have questioned the degree to which MBCT may outperform a standard intervention such as CBT. Similarly, the use of MBCT for disordered eating, psychosis, and preventing depression in BPD has been examined in single studies in most of these populations—while findings are promising, available data are limited. In behavioural medicine, MBCT has been associated with a range of benefits, like reduced depression and fatigue, across several trials. MBCT has also been linked with positive outcomes at different developmental life stages and in health-care providers and students in a small number of studies.

It will be valuable for future MBCT researchers to use more rigorous methods with respect to research design and analytic approach. RCTs using active control conditions, adequate power, and comprehensive long-term outcome measurement are necessary. Such studies must also specify primary and secondary outcomes so that results can be interpreted more easily within and across trials. It will be important for future studies to compare MBCT with standard psychological or pharmacological treatments for target disorders, helping to inform the field about the clinical significance of gains in MBCT and the degree to which it provides incremental efficacy over existing treatments. Such comparisons also provide a context for testing theoretical models about the proposed targets of intervention with MBCT and the processes by which such targets are modified. Such comparisons must be guided by specific models of psychopathology and may help clarify mixed findings to date across populations (e.g., the robust effects on residual depressive symptoms among populations with histories of depression but inconsistent effects among patients with bipolar disorder).

We have learned a great deal in the last 14 years about the use of MBCT and its extension across broad populations, and the authors look forward to the next 14 years addressing these and related questions. Such work will help to clarify our understanding of the possibilities of MBCT as a treatment and its core mechanisms of change. This research will guide clinicians as they continue to deliver evidence-based practices to improve their clients’ lives in meaningful, long-lasting ways.

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