Mr. A, age 45, reports irritability, loss of interest, sleep disturbance, increased self-criticism, and decreased self-care during the last month after a promotion at work. He has a history of 3 major depressive episodes, 1 of which required hospitalization. For the last 2 years his depressive symptoms had been successfully managed with escitalopram, 10 mg/d, plus bupropion, 150 mg/d. Mr. A wants to discontinue these medications because of sexual dysfunction. He asks if nonpharmacologic strategies might help.

One option to consider for Mr. A is mindfulness-based cognitive therapy (MBCT), which was originally developed to help prevent depressive relapse. MBCT also can reduce depression and anxiety symptoms. More recently, MBCT was shown to help individuals discontinue antidepressants after recovering from depression.

Regular mindfulness meditation has been shown to result in structural brain changes that may help explain how the practice effectively addresses psychiatric symptoms (Box, page 40). With appropriate training, psychiatrists can help patients reap the benefits of this cognitive treatment.

What is mindfulness meditation?
Meditation refers to a variety of practices that intentionally focus attention to help the practitioner disengage from unconscious absorption in thoughts and feelings. Unlike concentrative meditation—in which practitioners focus attention on a single object such
Mindfulness for depression

How mindfulness attunes the brain to the body

Regular mindfulness practice has been shown to increase cortical thickness in areas associated with attention, introspection, and sensory processing, such as the prefrontal cortex and right anterior insula. This supports the hypothesis that mindfulness is a way of attuning the mind to one’s internal processes, and that this involves the same social neural circuits involved in interpersonal attunement—middle prefrontal regions, insula, superior temporal cortex, and the mirror neuron system. \(^6\)

Amygdala responses. Mindfulness improves affect regulation by optimizing prefrontal cortex regulation of the amygdala. Recent developments in understanding the pathophysiology of depression have highlighted the lack of engagement of left lateral-ventromedial prefrontal circuitry important for the down-regulation of amygdala responses to negative stimuli. Dispositional mindfulness is associated with greater prefrontal cortical activation and associated greater reduction in amygdala activity during affect labeling tasks, which results in enhanced affect regulation in individuals with higher levels of mindfulness. \(^8\)

Left-sided anterior activation. Other researchers have examined mindfulness’ role in maintaining balanced prefrontal asymmetry. Relative left prefrontal activation is related to an affective style characterized by stronger tendencies toward positive emotional responses and approach/reward oriented behavior, whereas relative right-sided activation is associated with stronger tendencies toward negative emotional responses and avoidant/withdrawal oriented behavior.

One study found significant increases in left-sided anterior activation in mindfulness-based stress reduction participants compared with controls. \(^6\) Similarly, in a study evaluating the effect of mindfulness-based cognitive therapy (MBCT) on frontal asymmetry in previously suicidal individuals, MBCT participants retained a balanced pattern of prefrontal activation, whereas the treatment-as-usual group showed significant deterioration toward decreased relative left frontal activation. These findings suggest a protective effect of the mindfulness intervention. \(^6\)

Mindfulness is nonjudgmental; each thought, feeling, or sensation is acknowledged and accepted as is. \(^1\)

Mindfulness-based interventions

Buddhist and Western psychology inform the theoretical framework of most mindfulness-based clinical interventions, such as:

- acceptance and commitment therapy (ACT)
- dialectical behavioral therapy (DBT)
- mindfulness-based stress reduction (MBSR)
- MBCT.

Because mindfulness is only 1 of several components of ACT and DBT, this review focuses on MBCT and MBSR, in which teaching mindfulness skills is the central focus of treatment.

MBCT and MBSR. MBCT incorporates many aspects of the manualized MBSR treatment program developed for managing chronic pain. \(^5\) MBSR is devoted almost entirely to cultivating mindfulness through:

- formal mindfulness meditation practices such as body scan (intentionally bringing awareness to bodily sensations), mindful stretching, and mindfulness of breath/body/sounds/thoughts
- informal practices, including mindfulness of daily activities such as eating. \(^1\)

Source: For references to studies described here, see this article at CurrentPsychiatry.com

Clinical Point

Mindfulness is nonjudgmental; each thought, feeling, or sensation is acknowledged and accepted as is.
MBSR typically involves 8 to 10 weekly group sessions of 2 to 2.5 hours with 10 to 40 participants with heterogeneous or homogenous clinical presentations. At each session, patients are taught mindfulness skills and practices. Typically, a full day of meditation practice on a weekend follows session 5 or 6. Participants also engage in a daily meditation practice and homework exercises directed at integrating awareness skills into daily life.

Meta-analytic and narrative reviews generally support MBSR’s efficacy for a wide range of clinical presentations, including improved quality of life for chronic pain and cancer patients. Variability in the methodologic rigor of clinical trials of mindfulness-based interventions—such as lack of active control groups and small sample sizes—limits the strength of these studies’ conclusions, however.

MBCT integrates the mindfulness training of MBSR with cognitive therapy techniques (Table 1) to prevent the consolidation of ruminative, negative thinking patterns that contribute to depressive relapse. These cognitive therapy techniques include:

- psychoeducation about depression symptoms and automatic thoughts
- exercises designed to demonstrate the cognitive model
- identifying activities that provide feelings of mastery and/or pleasure
- creating a specific relapse prevention plan.

In addition, MBCT introduces a new informal meditation—the 3-minute breathing space—to facilitate present-moment awareness in upsetting everyday situations.

### Evidence supporting MBCT

Evidence supporting MBCT comes from randomized, controlled trials (RCTs) and uncontrolled trials (Table 2, page 46).
Mindfulness for depression

Clinical Point
MBCT was shown to reduce depressive symptoms, anxiety, and risk of depressive relapse

A systematic review of RCTs supported using MBCT in addition to usual care to prevent depressive relapse in individuals with a history of ≥3 depressive episodes. Since that review was published, a large RCT (123 patients) comparing antidepressant medication alone to antidepressants plus adjunctive MBCT with support to taper/discontinue antidepressant therapy found:

- MBCT comparable to maintenance antidepressant medication in preventing depressive relapse for individuals with ≥3 depressive episodes
- no difference in cost between these 2 treatments.

In this study, MBCT was more effective than maintenance pharmacotherapy in reducing residual depressive symptoms and in improving quality of life; 75% in the MBCT group discontinued antidepressants. MBCT is included in the United Kingdom’s National Institute for Clinical Excellence Clinical Practice Guidelines for Depression for prevention of recurrent depression.

RCTs and uncontrolled studies have shown that MBCT reduces depressive symptoms, anxiety, and risk of depressive relapse

### Table 2
Evidence of reduced depressive symptoms, anxiety with MBCT

<table>
<thead>
<tr>
<th>Study</th>
<th>Patients</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Randomized controlled trials</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kuyken et al, 2008[12]</td>
<td>123 patients with recurrent depression treated with antidepressants received maintenance antidepressants alone or adjunctive MBCT with support to taper/discontinue antidepressant therapy</td>
<td>Adjunctive MBCT was as effective as maintenance antidepressants in reducing relapse/recurrence rates but more effective in reducing residual depressive symptoms and improving quality of life; 75% in the MBCT group discontinued antidepressants</td>
</tr>
<tr>
<td>Kingston et al, 2007[13]</td>
<td>19 outpatients with residual depressive symptoms following a depressive episode assigned to MBCT or treatment as usual</td>
<td>MBCT significantly reduced depressive symptoms, and these improvements were maintained over a 1-month follow-up period</td>
</tr>
<tr>
<td>Williams et al, 2008[14]</td>
<td>14 patients with bipolar disorder who had no manic episodes in the last 6 months and ≤1 week of depressive symptoms in the last 8 weeks</td>
<td>MBCT resulted in a significant reduction in anxiety scores on the BAI compared with wait-list controls</td>
</tr>
<tr>
<td><strong>Uncontrolled trials</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eisendrath et al, 2008[15]</td>
<td>15 patients with treatment-resistant depression (failure to remit with ≥2 antidepressant trials)</td>
<td>MBCT significantly reduced anxiety and depression; increased mindfulness and decreased rumination and anxiety were associated with decreased depression</td>
</tr>
<tr>
<td>Finucane and Mercer, 2008[16]</td>
<td>13 patients with recurrent depression or recurrent depression and anxiety</td>
<td>MBCT significantly reduced depression and anxiety scores on BDI-II and BAI</td>
</tr>
<tr>
<td>Kenny and Williams, 2007[17]</td>
<td>46 depressed patients who had not fully responded to standard treatments</td>
<td>MBCT significantly reduced depression scores</td>
</tr>
<tr>
<td>Ree and Craigie, 2007[18]</td>
<td>26 outpatients with mood and/or anxiety disorders</td>
<td>MBCT significantly improved symptoms of depression, anxiety, stress, and insomnia; improvements in insomnia were maintained at 3-month follow-up</td>
</tr>
</tbody>
</table>

BAI: Beck Anxiety Inventory; BDI-II: Beck Depression Inventory; MBCT: mindfulness-based cognitive therapy
and anxious symptoms in individuals suffering from mood disorders. In an open-label pilot study of MBCT’s efficacy in reducing depressive symptoms in patients with treatment-resistant depression and ≥3 depressive episodes, 61% of patients achieved a post-MBCT Beck Depression Inventory-II (BDI-II) score <14, which represents normal or near-normal mood (mean BDI-II scores decreased from 24.3 to 13.9; effect size 1.04). 17

**Mindfulness for other psychiatric conditions.** A review by Toneatto and Nguyen 21 of MBSR in the treatment of anxiety and depression symptoms in a range of clinical populations concluded that the evidence supporting a beneficial effect was equivocal. On the other hand, several uncontrolled studies and 1 RCT indicate that mindfulness-based treatments can reduce symptoms in other psychiatric conditions, including eating disorders, 22 generalized anxiety disorder, 23 bipolar disorder, 24 and attention-deficit/hyperactivity disorder. 25 Many of these studies were developed to target mood and anxiety symptoms by linking mindfulness and symptom management; this differs from MBSR, which focuses on stress reduction. Methodologically rigorous studies are necessary to evaluate mindfulness-based treatments in these and other psychiatric conditions.

**CASE CONTINUED**

**Explaining the potential benefits**
You inform Mr. A that MBCT has been shown to improve acute mild-to-moderate depressive symptoms, may decrease his risk of depressive relapse by 50%,26 and could help him discontinue his medications. 12 He asks how mindfulness exercises will help his symptoms.

**How mindfulness works**
The assumption that increased mindfulness mediates treatment outcomes has been addressed systematically only recently, following the development of operational definitions of mindfulness and self-report mindfulness measures, including the:

- Mindful Attention Awareness Scale (MAAS) 27

- Five Facet Mindfulness Questionnaire (FFMQ) 12
- Toronto Mindfulness Scale (TMS). 26

Uncontrolled studies using these measures demonstrated that self-reported mindfulness increased following MBSR 26,29 and MBCT 15,18 in individuals with general stress, anxiety disorder or primary depression, cancer, chronic pain disorder, diabetes, and multiple sclerosis. Accumulating evidence from 1 RCT 30 and 2 other uncontrolled studies 28,31 demonstrates that mindfulness is associated with symptom reduction following MBSR.

Researchers have begun to focus on how mindfulness skills reduce symptoms. Baer9 proposed several mechanisms, including:

- cognitive change
- improved self-management
- exposure to painful experiences leading to reduced emotional reactivity.

Cognitive change—also called meta-cognitive awareness—is the development of a “distanced” or “decentered” perspective in which patients experience their thoughts and feelings as “mental events” rather than as true, accurate versions of reality. This is thought to introduce a “space” between perception and response that enables patients to have a reflective—rather than a reflexive or reactive—response to situations, which in turn reduces vulnerability to psychological processes that contribute to emotional suffering. Some preliminary evidence suggests that MBCT-associated increases continued on page 53
addition, monitoring of orthostatic vital signs should be considered in elderly patients for whom orthostatic hypotension is of concern [see Warnings and Precautions (5.3) in full PI]. Concurrent use with Furosemide in Elderly Patients with Dementia-Related Psychosis In two of four placebo-controlled trials in elderly patients with dementia-related psychosis, a higher incidence of mortality was observed in patients treated with furosemide plus oral risperidone when compared to patients treated with oral risperidone alone or with oral placebo plus furosemide. No pathological mechanism has been identified to explain this finding, and no consistent pattern for cause of death was observed. An increase of mortality in elderly patients with dementia-related psychosis was seen with the use of oral risperidone regardless of concomitant use with furosemide. RISPERDAL® CONSTA® is not approved for the treatment of patients with dementia-related psychosis. [See Boxed Warning and Warnings and Precautions]

DRUG ABUSE AND DEPENDENCE: Controlled Substance: RISPERDAL® CONSTA® (risperidone) is not a controlled substance.

Abuse: RISPERDAL® CONSTA® has not been systematically studied in animals or humans for its potential for abuse. Because RISPERDAL® CONSTA® is to be administered by health care professionals, the potential for misuse or abuse by patients is low.

Dependence: RISPERDAL® CONSTA® has not been systematically studied in animals or humans for its potential for tolerance or physical dependence.

OVERDOSE: Human Experience: No cases of overdose were reported in premarketing studies with RISPERDAL® CONSTA®. Because RISPERDAL® CONSTA® is to be administered by health care professionals, the potential for overdose by patients is low. In premarketing experience with oral RISPERDAL®, there were eight reports of acute RISPERDAL® overdose, with estimated doses ranging from 20 to 300 mg and no fatalities. In general, reported signs and symptoms were those resulting from an exaggeration of the drug’s known pharmacological effects, i.e., drowsiness and sedation, tachycardia and hypotension, and extrapyramidal symptoms. One case, involving an estimated overdose of 240 mg, was associated with hypotension, hypokalemia, prolonged QT, and widened DRS. Another case, involving an estimated overdose of 36 mg, was associated with a seizure. Postmarketing experience with oral RISPERDAL® includes reports of acute overdose, with estimated doses of up to 300 mg. In general, the most frequently reported signs and symptoms are those resulting from an exaggeration of the drug’s known pharmacological effects, i.e., drowsiness, sedation, tachycardia, hypotension, and extrapyramidal symptoms. Other adverse reactions reported since market introduction related to oral RISPERDAL® overdose include prolonged QT interval and convulsions. Torsade de pointes has been reported in association with combined overdose of oral RISPERDAL® and paroxetine.

Management of Overdose: In case of acute overdose, establish and maintain an airway and ensure adequate oxygenation and ventilation. Cardiovascular monitoring should commence immediately and should include continuous electrocardiographic monitoring to detect possible arrhythmias. If antiarrhythmic therapy is administered, disopyramide, procainamide, and quinidine carry a theoretical hazard of QT prolonging effects that might be additive to those of risperidone. Similarly, it is reasonable to expect that the alpha-blocking properties of bretamine might be additive to those of risperidone, resulting in problematic hypotension. There is no specific antidote to risperidone. Therefore, appropriate supportive measures should be instituted. The possibility of multiple drug involvement should be considered. Hypotension and circulatory collapse should be treated with appropriate measures, such as intravenous fluids and/or sympathomimetic agents (epinephrine and dopamine should not be used, since beta stimulation may worsen hypotension in the setting of risperidone-induced alpha blockade). In cases of severe extrapyramidal symptoms, anticholinergic medication should be administered. Close medical supervision and monitoring should continue until the patient recovers.

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Useful mindfulness resources for interested patients

Insight Meditation Society: www.dharma.org

Kabat-Zinn J. MBSR meditation CDs/tapes: www.stressreductiontapes.com

Recordings of meditation (dharma) talks: www.dharmaseed.org

Salzberg S, Goldstein J. Insight meditation: an in-depth correspondence course. Louisville, CO: Sounds True, Inc; 2004


in metacognitive awareness reduce risk of depressive relapse.32

Teaching mindfulness

Guidelines for psychiatrists who wish to become MBCT instructors suggest undergoing formal teacher development training, attending a 7- to 10-day meditation retreat, and establishing your own daily mindfulness practice (Table 3, page 47).33 Segal et al also recommend recognized training in counseling, psychotherapy, or as a mental health professional, as well as training in cognitive therapy and having experience leading psychotherapy groups.

The recommendation that a mindfulness teacher should practice meditation derives from the view that instructors teach from their own meditation experience and embody the attitudes they invite participants to practice. In an RCT, patients of psychotherapists in training (PiTs) who practiced meditation had greater symptom reductions than those of PiTs who did not engage in meditation.34

To cultivate your own mindfulness practice, consider enrolling in an MBSR group, participating in an MBCT training retreat (see Related Resources, page 54), or attending a mindfulness meditation retreat.

Although patient access to MBCT and MBSR programs has been increasing, formal MBSR/ MBCT group programs led by trained therapists are limited. Patients can go through an MBSR/ MBCT book with a trained clinician or listen to

continued from page 47

Table 4

Useful mindfulness resources for interested patients

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Mindfulness for depression

Related Resources

- Mindfulness-based cognitive therapy. www.mbct.com; www.mbct.co.uk; www.bangor.ac.uk/mbct.
- Center for Mindfulness in Medicine, Health Care, and Society. www.umassmed.edu/cfm.

Drug Brand Names

Bupropion - Wellbutrin
Escitalopram - Lexapro

Disclosure

The authors report no financial relationship with any company whose products are mentioned in this article or with manufacturers of competing products.

Acknowledgment

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Patients can use mindfulness skills to develop a ‘distanced’ perspective that may reduce psychological vulnerability.

audio recordings with guided meditation instructions. Alternately, they can join a meditation sitting group or an insight meditation correspondence course (Table 4, page 53).

CASE CONTINUED

Daily mindfulness practice

Mr. A enrolls in and completes a group MBCT program. He rearranges his schedule to include 30 minutes of formal mindfulness practice daily. During an office visit after completing the MBCT course, he describes decreased irritability and self-criticism, newfound self-acceptance, an increased ability to tolerate previously distressing affect, and the ability to set realistic expectations of himself, particularly in light of increased responsibilities at work.

He also reports an increased sense of engagement in and reward in his personal life.

Several months later he requests and successfully completes an antidepressant taper and has no recurrence of depressive episodes at 18-month follow-up. He participates in monthly meditation groups to support his home practice.

References


Bottom Line

Mindfulness-based cognitive therapy (MBCT) provides patients with tools to target symptoms such as affect regulation, impulse control, and rumination. Evidence supports using MBCT in addition to usual treatment to prevent depressive relapse and suggests efficacy in improving symptoms of depression and anxiety.