

Mindfulness-Based Cognitive Therapy for Prevention of Depression Relapse: A Useful Approach for Depressed Patients with Cardiovascular Disease?

Traci R. Stein

Columbia University Medical Center, Division of Pain Medicine

Major depressive disorder (MDD) has a high prevalence rate, particularly in patients with cardiovascular disease (CVD). Furthermore, depression has been associated with increased risk of morbidity and mortality in this population. Regardless of medical status, patients who have had MDD manifest high relapse and recurrence rates, with as much as an 80% likelihood of experiencing another major depressive episode. Mindfulness-Based Cognitive Therapy (MBCT), an approach combining techniques and principals of both cognitive behavioral therapy and Mindfulness-Based Stress Reduction, has been efficacious in reducing depressive relapse and recurrence in preliminary trials. Though MBCT's utility in reducing depression relapse or recurrence in patients with CVD has yet to be examined, the promising findings with other populations, as well as the severity of health consequences for depressed patients who have CVD, suggest this may also be a worthwhile therapeutic approach for those with heart disease.

Depression is a serious and sometimes debilitating illness that continues to be a leading cause of disability in the United States (Murray & Lopez, 1996). Depressive syndromes and major depression are extremely common, with lifetime prevalence rates of major depression estimated to be 20% in women and approximately 10% in men (Kessler et al., 2005; Kessler, McGonagle, Swartz, Blazer, & Nelson, 1993; Steffens et al. 2000). Some researchers have found an almost 3-to-1 female-male ratio of depression (Kessler et al., 1993), as well as a family effect, with rates 2-to-3 times higher in those with a depressed first-degree relative (Klerman & Weissman, 1989). In medically ill patients, particularly those with chronic illnesses, depression is more prevalent, with 8% of those who have a physical illness meeting criteria for major depression and 15% to 36% meeting criteria for another depressive disorder (Feldman, Mayou, Hawton, Ardem, & Smith, 1987). Moreover, depression is particularly tenacious in both older adults and the medically ill, often with incomplete resolution in these populations despite clinical treatment (Irwin, 2002). This paper will describe the prevalence and impact of depression on patients with CVD, provide an overview of the research on Mindfulness-Based Cognitive Therapy (MBCT) with other patient populations, and examine the evidence for using this approach for those CVD patients who have recurrent major depression.

Recurrent Depression in Patients with a History of Major Depressive Disorder

Relapse and recurrence following major depressive disorder (MDD) is common, with the risk of relapse estimated at more than 80% (Teasdale et al., 2000).

This comes at tremendous personal and social costs. It has been theorized that repeated associations between depressed mood and patterns of negative, self-devaluative, hopeless thinking increase vulnerability to relapse (Teasdale, 1988, 1997). Specifically, the type of thinking activated by dysphoria is similar to those patterns present during depressive episodes. Easy accessibility of depressing thoughts, memories, and attitudes during periods of low mood activates feedback loops in the body associated with depressive states (Segal, Williams, & Teasdale, 2001). Furthermore, a ruminative response style, characterized by the tendency to prolong sad feelings (Nolen-Hoeksema & Morrow, 1991), has been linked to relapse and recurrence. Although patients may dwell upon negative feelings in an effort to understand their emotions, this tendency is associated with a decreased, rather than increased, ability to restore more positive mood states (Lyubormirsky & Nolen-Hoeksema, 1995). Finally, with repeated episodes of depression, less stress is required to provoke relapse (Post, 1992).

Depression and Cardiovascular Disease

Depression is prevalent among patients with cardiovascular disease. Estimates of major depressive disorder (MDD) among patients with acute coronary syndromes have ranged from 15-25% (Glassman et al., 2002; Januzzi, Stern, Pasternak, & DeSanctis, 2000). Furthermore, patients undergoing cardiac surgery often experience depression as a side effect of the procedure itself, although the reasons for this are not well understood at present (Cay & O'Rourke, 1992). Postoperative anxiety and depression occur in about 25% of patients who undergo coronary artery bypass graft (CABG) surgery. Depression also varies along the recovery trajectory. Timberlake et al. (1997) found that 37% of their CABG patients were

Correspondence: Traci Stein, Division of Pain Medicine, Columbia University Medical Center, 622 West 168th Street, PH-5, New York, NY 10032 or ts2007@columbia.edu

depressed preoperatively. At 8 days, this figure had risen to 50%, but by 8 weeks it had decreased to 24%, and at 12 months was 23%. Those CABG patients who were depressed preoperatively had higher levels of postoperative mood disturbance than those who were not depressed prior to the procedure. Although postoperative rates of depression decreased over time, the 12-month rates of depression were higher among patients with cardiovascular disease than in the general population. Thus, it appears that depression in this population is both prevalent and enduring.

Although a number of studies have documented the link between depression, anxiety, and other emotional states and heart disease, evidence for the relationship between depression and cardiovascular outcomes has been stronger than for other mood states in predicting additional cardiac events (McCrone, Lentz, Tarzian, & Perkins, 2001). The first research by the medical community regarding the link between depression and mortality was in the early 20th century (Malzberg, 1937, as cited in Glassman & Shapiro, 1998, p.4). In this study, the mortality rate of depressed, hospitalized patients was compared to that of the general New York state population. Though the rate for depressed inpatients was elevated, as were the rates for those in the general population who had cardiovascular and infectious diseases, the study confounded the effect of depression with chronic institutionalization. Thus, the link between depression and mortality was neither taken seriously, nor explored further until investigators revisited this issue in the late 1970s (Glassman & Shapiro, 1998). At this time, using data from a national registry, Danish researchers identified individuals with either unipolar or bipolar depression. When they examined the causes of death, they noticed a 50% increase in deaths from cardiovascular disease in depressed individuals as compared with the Danish general population (Weeke, Juel, & Vaeth, 1987). A subsequent study by the same researchers explored the question of whether the use of tricyclic antidepressants, which had been in common use since the time of the Maltzberg study, were associated with the increased mortality in this group. Both the sparse literature available at the time and the results of this study revealed that treatment with tricyclic antidepressants and lithium was associated with reduced, rather than increased, mortality in this population. This further supported the link between depression and health outcomes (Glassman & Shapiro, 1998; Week et al., 1987).

For patients with cardiovascular illnesses, the impact of depression on health functioning is significant, and can produce impairments in measures of physical functioning, pain, general health, and decrements in emotional health. Although these impairments may decrease in severity over time, there may be residual disability due to the chronic and recurrent nature of the disorder (Blazer, 2002). Epidemiologic data highlight the negative impact of certain psychiatric disorders on the development of, and prognosis in, coronary artery disease (CAD; von Kanel, Mills, Fainman, & Dimsdale, 2001). For these patients, the consequences of being depressed are particularly severe, as

several studies have revealed a link between depression and increased morbidity and mortality from CAD and poorer outcomes following coronary events (Hemingway & Marmot, 1999; Irwin, 2002). Specifically, depressed CAD patients face higher readmission rates and poorer quality of life in the first year after a cardiac event (Pignay-Demaria, Lesperance, Demaria, Frasure-Smith, & Perrault, 2003). Furthermore, the risk of cardiac death in the six months after an acute myocardial infarction is approximately three-to-four times greater in depressed than nondepressed patients (Connerney, Shapiro, McLaughlin, Bagiella, & Sloan, 2001; Frasure-Smith, Lesperance, & Talajic, 1993, 1995). These health risks remain even after controlling for known physiological risk factors, including smoking (Glassman & Shapiro, 1998; Pignay-Demaria et al., 2003), and the increased risk of cardiac mortality for depressed CAD patients may persist even 18 months after cardiac surgery (Frasure-Smith et al., 1995).

Despite the clear association between depression and poorer outcomes in patients with cardiovascular disease, few patients who are depressed after serious cardiac events, including myocardial infarction, receive treatment for their depression (Carney & Jaffe, 2002). Because of the cardiotoxicity associated with older antidepressants, and because heart disease is still a standard exclusion criterion in clinical trials of antidepressants, little is known about the safety and efficacy of newer antidepressants in this population. To date, selective serotonin reuptake inhibitors (SSRIs), which have not been shown to have cardiotoxic effects in healthy depressed patients, have not been adequately studied in patients with cardiovascular illness (Roose, 2003). This has contributed to their relatively sparse use in this population (Carney & Jaffe, 2002). Although psychotherapy is considered to be a safe and efficacious alternative to antidepressants, it is also currently underutilized among cardiac and other types of medically ill patients. This is possibly due in part to varying availability and insurance coverage (Carney & Jaffe, 2002). The challenge for health care providers continues to be how to address the problem of depression and its attendant physical health risks in a way that is palatable to patients, minimally invasive, and cost-effective.

Treatments for Major Depressive Disorder

Pharmacotherapy and Cognitive Behavioral Therapy

At present, maintenance pharmacotherapy is both the most widely used and most validated approach in the prevention of relapse, although recent studies suggest maintenance psychotherapy may also be effective (Teasdale et al., 2000). Specifically, cognitive behavioral therapy (CBT) administered during depressive episodes appears to be effective in reducing subsequent relapse and recurrence (Teasdale et al., 2000). Studies comparing the outcome of patients who recovered following treatment with antidepressant medications (from which they were

subsequently withdrawn) to that of patients treated with CBT have found lower rates of relapse in the CBT group (Evans et al., 1992; Shea et al., 1992; Teasdale et al., 2000). This reduction in relapse/recurrence is most likely accomplished through the development of skills and fostering of changes in thinking that protect against future depression. Thus, CBT may be a valuable prophylactic treatment for major depression.

Most recently, patients with depression have been successfully treated with a combination of pharmacotherapy during the acute phase and subsequent psychological interventions following recovery. Teasdale and colleagues (2000) sought to examine whether a strategy combining acute pharmacotherapy with psychological prophylaxis in the form of a group skills-training approach would provide an efficacious and cost effective relapse prevention alternative. The group skills-training approach they used, known as Mindfulness-Based Cognitive Therapy (MBCT), combines principles of cognitive therapy and a form of attentional control, otherwise known as “mindfulness” training, developed by Kabat-Zinn and colleagues (1990) at the University of Massachusetts Medical Center.

Mindfulness-Based Cognitive Therapy

Mindfulness-Based Cognitive Therapy is a manualized group skills-training program that integrates aspects of CBT for depression (Beck, Rush, Shaw, & Emery, 1979) and Mindfulness-Based Stress Reduction (MBSR; Kabat-Zinn, 1990; Kabat-Zinn et al., 1992). The latter approach teaches patients in remission to observe thoughts, feelings, and bodily sensations in a de-centered, non-judgmental manner, and view them as mental events, rather than identifying with them or viewing them as necessarily factual. The program also teaches patients to disengage from dysfunctional, automatic cognitive routines as a way to reduce future risk of depressive relapse and recurrence. Since the emphasis is not on changing one’s thoughts, the techniques can be applied with patients in the remitted state (when it may not be necessary to “change” cognitions).

MBSR has been efficacious in reducing both psychological and physiological symptoms, including anxiety (Kabat-Zinn, et al., 1992), chronic pain (Kabat-Zinn, Lipworth, & Burney, 1985), psoriasis (Kabat-Zinn et al., 1998), fibromyalgia (Kaplan, Goldenberg, & Galvin-Nadeau, 1993), and more recently, reducing both state and trait anxiety in women with breast cancer (Tacon, Caldera, & Ronaghan, 2004). Only one study has examined whether MBSR would be beneficial for CAD patients, however. Tacon and colleagues (2003) assessed whether MBSR would reduce anxiety in women with heart disease. In their trial, 18 women with documented CAD were randomly assigned to either a wait-list control group or an eight-week MBSR program that included didactic, inductive, and experiential components (yoga, meditation, and the body scan) as per Kabat-Zinn (1990). The researchers measured state and trait anxiety, emotional control (as measured by the degree to

which one suppresses negative feelings, rather than observing them in a detached way), and health locus of control (e.g., reactive, reflective, or suppressive). Significant between group differences were observed for state anxiety, emotional control, and reactive coping. Specifically, women in the MBSR group experienced significant decreases in state anxiety, decreased tendency to suppress the expression of negative emotions, and decreased use of impulsive, reactive coping as compared to controls. A key limitation of this study was the small, homogeneous sample (comprised of mostly White, middle class women), which limits the generalizability of its findings.

Similar to MBSR, MBCT is delivered by an instructor in eight weekly, 2-hour group training sessions that involve homework in the form of listening to guided imagery and performing unguided awareness exercises designed to facilitate present-moment, non-judgmental awareness. Participants learn to observe thoughts, feelings, and bodily sensations in a de-centered manner. Practicing various exercises helps participants integrate these skills into daily life (Teasdale et al., 2000). In contrast to the habitual patterns of cognitive-affective processing employed by patients with recurrent depression, patients learn to develop a more aware, less judgmental, “mindful” mode of being.

Like CBT, MBCT attempts to foster a greater awareness of thoughts and feelings, examines the role that thoughts have in triggering mood, and aims to cultivate understanding of how depressive thinking patterns and worry promote depression. MBCT also teaches participants to identify warning signs of impending declines in mood (Mason & Hargreaves, 2001). Unlike CBT, however, MBCT does not explicitly suggest changing thoughts or set out to identify depressive schema, as the skills taught encourage awareness of feelings, regardless of whether or not these are characterized by depression.

MBCT for Prevention of Depression Relapse

In the first multicenter trial of MBCT, Teasdale and colleagues (2000) randomized 145 patients who were in remission or recovery from major depression as defined by the Diagnostic and Statistical Manual of Mental Disorders (3rd ed.; DSM-III-R; American Psychiatric Association, 1987) to receive either treatment as usual (TAU) or TAU plus MBCT for a period of eight weeks and follow up for a period of one year. To meet entry criteria, patients had to have been treated with a recognized antidepressant medication, but be off medication and in recovery/remission at the time of baseline assessment and for at least the preceding 12 weeks. This is in contrast to the standard approach of introducing therapy during the course of medication withdrawal. At baseline, patients had to have a Hamilton Rating Scale for Depression (HRSD; Hamilton, 1960) score of less than 10 for inclusion. Patients were stratified on two variables: recency of recovery from the last episode of MDD (up to 12 months vs. 13-24 months prior to

randomization) and the number of previous episodes of MDD (two vs. three or more).

Although MBCT did not reduce the risk of recurrence to that of what would be expected in a “normal” (not previously depressed) sample, the investigators found that patients with three or more previous episodes of MDD treated with at least four of the eight sessions of MBCT experienced relapse/recurrence rates that were reduced by half during the course of the follow up period. This finding was both statistically and clinically significant, and this reduction in depression was independent of medication use. Notably, MBCT did not significantly reduce risk of depression in patients with two or fewer previous depressive episodes.

In a recent study by Ma and Teasdale (2004), as in the study by Teasdale et al. (2000), recovered, recurrently depressed patients were randomized to TAU or TAU plus MBCT. The findings from the previous study were replicated, with relapse rates reduced from 78% to 36% in patients with three or more depressive episodes. The authors found that MBCT was most effective in preventing relapses not preceded by life events. Notably, relapses were more often associated with significant life events in the two-episode group than in the three-or-more episode group, suggesting that these groups represented two distinct populations.

Although the above studies have shown MBCT to be a useful approach for reducing depressive relapse, and patients with cardiovascular illnesses have both high rates of depression and severe, negative health effects as a result, a review of the literature revealed only one study of MBCT with patients diagnosed with a vascular (but not cardiac) health problem. In this study, Moustgaard (2005) examined whether MBCT would reduce depression and anxiety and improve quality of life in 23 patients who had suffered a stroke. Participants were assessed at baseline, after completion of the nine-week program, and three months after the conclusion of the intervention. MBCT was associated with a significant improvement between baseline and completion on measures of depression, anxiety, and quality of life, and these changes were maintained at follow up. Among the limitations of this study were the small sample size and lack of a control group.

Possible mechanisms of action of MBCT

In a study of autobiographical memory, Williams and colleagues (2000) found that MBCT reduced recovered depressed patients’ general memory, suggesting that the encoding and retrieval of personal events can be altered by this treatment approach, and that MBCT’s effects are partly cognitively mediated. Teasdale (1999) has suggested that a theoretical cognitive framework called Interacting Cognitive Subsystems (ICS; Teasdale & Barnard, 1993) may explain MBCT’s effects. The assumption of this framework is that knowledge and experience are contained in qualitatively different forms. For individuals who are prone to depression,

generic, richly elaborated schematic models contain global negative beliefs about the self and other depression-related thoughts and feelings. When these are triggered, a “depressive interlock” occurs in which sensory feedback from the body and cognitive feedback in the form of thoughts maintain depressed affect (Mason & Hargreaves, 2000).

MBCT – A Potential Treatment for Depressed Patients with Cardiovascular Disease?

There is preliminary evidence that MBCT is an effective treatment for patients with recurrent MDD and clear evidence of the need for additional treatments for depressed patients who have heart disease. However, a review of the literature revealed no studies of MBCT with depressed patients who had a comorbid cardiac illness, and only one small study with stroke patients. Depression has been demonstrably linked with poorer health outcomes, including increased mortality, in patients with cardiovascular ailments. Considering both the insufficient data on the safety of antidepressants for this patient population and the tendency toward relapse/recurrence in patients with MDD, it seems clear that more research on potentially beneficial psychotherapeutic approaches for those with heart disease is warranted. Given the evidence for MBCT’s efficacy in reducing depressive relapse in non-cardiac patients, future research should explore whether this therapeutic approach might be useful for recovered, depressed patients with cardiovascular illnesses.

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