Full Length Research Paper

A study of mindfulness practices and cognitive therapy: Effects on depression and self-efficacy

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Despite research findings that Cognitive Therapy (CT) reduces relapse of depression, patients often do have setbacks. Recently, CT researchers have integrated the Eastern meditative practice of mindfulness into cognitive approach. This study was a variation on research on Mindfulness Based Cognitive Therapy (the incorporation of mindfulness and CT) and relapse prevention from depression. Three tracks of participants, mindfulness training (MT), CT and treatment as usual (TAU) were studied to examine relapse rates from depression and the participants' sense of self-efficacy. The MT and CT tracks were added on to a regular outpatient treatment program. Three measures were used: the Beck Depression Inventory, the Mindfulness-Based Self Efficacy Scale and the Generalized Self-Efficacy Scale. Participants were assessed during an initial (pretest, baseline) period and again at a 3-month follow-up. Results reveal a significant decrease in depression and an increase in mindful and generalized self-efficacy in the MT track (N = 33). The results also showed a significant decrease in depression and mindfulness self-efficacy for the CT track (N = 27), but no significant change in generalized self-efficacy. The TAU track (N = 30) revealed no significant changes in any of the three measures. These trends show promise for relapse prevention of depression and improved sense of self-management through both therapeutic methodologies of mindfulness and cognitive therapy.

Key words: Mindfulness, cognitive therapy, depression, mood disorders, self-efficacy.

INTRODUCTION

Despite research findings that Cognitive Therapy (CT) reduces relapse and reoccurrence of depression (Bockting et al., 2005; Fava et al., 1996; Jarrett et al., 2001; Paykel et al., 1999), patients often do have setbacks. Studies have shown that major depression is a disorder with the risk of chronic incapacity (Kennedy et al., 2003) and repeated relapse to be 80 to 90% (Chen et al., 2006; Judd, 1997). As CT researchers looked at ways to reduce relapse rates, the concept of integrating the Eastern meditative practice of mindfulness into the cognitive approach was explored (Segal et al., 2002). This study tests the efficacy of both mindfulness and cog-

nitive therapy for treating depression and elevating self-efficacy.

Mindfulness

The concept of mindfulness dates back to centuries of the practice of Buddhist philosophy and its training of understanding mental processes. The Buddha's teachings relating to impermanence, dependent origination, non-attachment, acceptance and letting be, and letting go provide an important philosophical and psychological framework and scaffolding for mindfulness practice" (Khong, 2009). Kabat-Zinn (1994), in a more Western psychotherapeutic framework, refers to mindfulness as

"paying attention in a particular way: on purpose, in the present moment, and non-judgmentally". Attention is focused on the immediate experience allowing for increased recognition of the current moment. Training in mindfulness includes focus on the breath, body sensation awareness, and yoga, with the intent to attend to the moment as it is. Practice and incorporation into one's awareness are fundamental.

Clinical applications of mindfulness were already adopted in current psychotherapeutic approaches such as Dialectical Behavioral Therapy for treating borderline personality disorder (Linehan, 1993) and Acceptance and Commitment Therapy (Hayes et al., 1999). A third therapeutic method that incorporated mindfulness is Mindfulness-Based Stress Reduction (MBSR), a program originated for use in pain management (Kabat-Zinn, 1982). MBSR has been subsequently used with multiple chronic illnesses to treat emotional and behavioral disorders (Bishop et al., 2004), anxiety disorders (Roemer and Orsillo, 2002; Roemer et al., 2008), posttraumatic stress disorder (Wolfsdorf and Zlotnick, 2001), substance abuse (Bowen et al., 2006; Marlatt, 2002), eating disorders (Trapper et al., 2009; Telch et al., 2001), fatigue and quality of life in chronic fatigue syndrome (Surawy et al., 2005) and chronic pain (Grossman et al., 2007). The effects of mindfulness meditation and brain functioning have received increased interest in the scientific and clinical communities with improved immune function (Carlson et al., 2007), psychological well-being in healthy adults (Chiesa and Serretti, 2009), enhanced cognitive functioning (Ortner et al., 2007) and positive affect (Davidson et al., 2003). A recent study (Holzel et al., 2011) discussed the correlation between mindfulness practice, neuroplastic changes, and enhanced self-regulation. MBSR was designed as an eight week, two hour per week program (plus final eight hour retreat), which incorporated the following principles and daily practice: automatic pilot, dealing with barriers, mindfulness of the breath, staying present, letting be, cultivating patience and kindness, and thoughts are not facts (Kabat-Zinn, 1994).

A fourth therapeutic method that incorporated mindfulness through MBSR and CT is Mindfulness-Based Cognitive Therapy (MBCT). Texts (Leahey, 2001; Segal et al., 2002) and studies (Hofmann et al., 2010; Ma and Teasdale, 2004; Teasdale et al., 2000) have explored this concept in relation to relapse from depression. MBCT proposed that CT's success in relapse prevention was not from changing the content of depressogenic thinking but from changing the relationship one has with one's own thoughts. The shift came from taking a step back from the negative automatic thought and observing the thought as a passing event, without placing value on it. In depression, self-perpetuating patterns can lead to a spiraling down of the mood and the subsequent onset of a relapse (Ma and Teasdale, 2004). Mindfulness involved moving the focus away from the content to attending to the experience. This training in attention and awareness taught the ability to distinguish between things as they were and our superimposed projections. Reactions were less habitual and automatic with mindfulness training, benefiting those with cognitive vulnerabilities toward rumination and self-critical evaluations. Teasdale et al. (2000) found in their study of recovered recurrently depressed patients that for patients with three or more previous episodes of depression, MBCT significantly reduced the risk of relapse. MBCT has also been shown to be an effective treatment modality for Bipolar Disorder in the reduction of depressive symptoms and suicidal ideation and mildly managing manic symptoms and anxiety (Miklowitz et al., 2009; Williams et al., 2008).

Self efficacy

Self-efficacy has been found to be related to the ability to cope with daily stress and difficult situations. The original concept, as proposed by Bandura (1977), defined self-efficacy as the belief one has about the ability to perform specific tasks and behaviors and feel in control of one's environment. Studies have shown this concept to be associated positively with optimism and self-esteem and negatively correlated with depression, anxiety, irritability, and hopelessness (Caprara et al., 2006; Luszczynska et al., 2004; Schwarzer and Born, 1997). Other studies found positive mood states to correlate with (a) self-efficacy and enhanced performance (Thelwell et al., 2007), (b) a reduction in depressive symptoms (Francis et al., 2007) and (c) anger and negative effect regulation (Lightsey et al., 2011). There are two other conceptions of self-efficacy that differ from Bandura's (1977) definition. First is generalized self-efficacy which is not task specific but focuses on a general belief in one's abilities. Second is mindfulness self-efficacy which has been defined as "ability to maintain non-judgmental awareness during different situations" (Chang et al., 2004). Mindfulness self-efficacy is distinguished from Bandura's concept, which does involve judgmental assessment of one's ability. Chang et al. (2004) found a correlation between reduced perceived stress and enhanced positive states following MBSR training.

Objectives of the study

Although, several studies have looked at the effectiveness of MBCT in relapse prevention of depression (Kenny and Williams, 2007; Kingston et al., 2007), mindfulness and cognitive therapy have not been studied at an intensive outpatient level. Nor have studies specifically compared the effectiveness of mindfulness

training with cognitive therapy for relapse prevention of depression (Hofmann et al., 2010). Is there a significant difference in relapse of depression, a decrease of depressive symptoms, and an increased sense of self-efficacy between patients who have continued to be trained in CT in an aftercare program and patients who have been additionally trained with mindfulness therapy (MT)? How does this compare to the treatment as usual (TAU) track?

MATERIALS AND METHODS

Research setting and design

This study took place within a Cognitive Intensive Outpatient Program (COGIOP) in a large West Coast city. Patients in each of three groups (two aftercare and one control) were followed and assessed for relapse from depression and a sense of self-efficacy at 3, 6 and 12 months following their completion of the COGIOP. The COGIOP was designed to treat mood and anxiety disorders and was often a step down from inpatient hospitalization. The program was 3 h each day, 5 days a week. Typically, patients attended between 20 and 29 sessions. They were trained in the principles of CT in the psycho-educational hour and then involved in a 1 h 45 min group session. Licensed therapists taught patients to be aware of the connection between their thoughts, feelings, and behaviors. The goal was to replace the negative and distorted thoughts with more rational and realistic beliefs through evidence-based inquiry. Thought records were used for this purpose while further self-awareness was enhanced by viewing one's core beliefs (schemas) underlying the development of these thought distortions. Homework such as exposure assignments was discussed in the group therapy. Patients were also trained in principles of relaxation as a means to manage uncomfortable emotional states. This relapse prevention design was a variation in the program where patients were discharged to their outpatient therapist and/or for medication management. The participants attended a 4 week transitional program that was tacked on after the completion of at least 20 treatment days in the COGIOP.

Procedure

Patients volunteered for the study and were randomly assigned to two aftercare or the TAU (the control group) tracks. The first track was the CT relapse prevention path. Patients assigned to this group attended four 3-h treatment sessions that consisted of a continuation of the skills the patient learned while in the COGIOP. There was a similar format consisting of (a) 1 h of psycho-educational material (topics related to cognitive therapy principles and relapse prevention) followed by (b) 1 h and 45 min of group format, which incorporated relapse prevention and homework review and assignments.

The second track (MT) consisted of (a) mindfulness education and practice (2 h) and (b) group therapy (1 h) that incorporated relapse prevention and a discussion of mindfulness practice. All participants in the MT track were trained to engage in daily mindful practice with the use of a 30 min CD consisting of mindful breathing exercises and a body scan, attending to sensations in individual parts of their body and focusing on awareness and being present without judgment. While the foundation of MBSR and MBCT was that patients engage in mindfulness practice for 45 min daily, the population for the COGIOP was seen as less capable in their

ability to take on this requirement due to the acuity of their depressive symptoms. Patients were taught the components of mindfulness such as letting go, automatic thoughts, staying in the present moment, and viewing thoughts as mental events and not as facts. This track was facilitated by therapists trained in mindfulness based interventions, primarily with their own mindful practice.

The control group (TAU) consisted of patients assigned to outpatient follow-up with a therapist and/or medication management with their psychiatrist. Some of the TAU patients self-selected as they were unable to attend the aftercare sessions.

Participants

The participants were 201 patients that came out of an intensive outpatient program for mood disorders and, although these volunteers had improved in functioning, residual symptoms remained. The majority of the sample was on psychotropic medication. All participants in the study had attended the COGIOP for at least twenty treatment days and moved from the full program to the aftercare or TAU group. All were diagnosed with at least one episode of Major Depression or Bipolar Disorder, Currently Depressed, as defined by the American Psychiatric Association (2000) Diagnostic and Statistical Manual-IV-TR. Current levels of depression as measured by the patient on the Beck Depression Inventory (Beck et al., 1996) were less than 20 (out of a total of 63) on discharge from the day program. This cutoff number was used as an indication that the participants were not currently severely depressed and able to concentrate and be focused in the aftercare tracks.

Because the demographic information was collected separately from the assessments, only 82 of the 201 patients were available or responsive to the request for information. Of the 82 respondents, the following data were collected: 45% were between 38 and 52 years of age, 72% were female, 40% were single, 40% were married, 83% were Caucasian, 54% were Christian, and all had at least a high school education with 66% having a bachelor's degree or higher. One hundred percent of the patients were diagnosed with a Mood Disorder (80% diagnosed with Major Depression and 20% with Bipolar Disorder, currently depressed). 56% reported a diagnosis of Anxiety Disorder, 52% percent reported that they had had seven or more bouts of depression prior to the program, 89% percent were still on antidepressant medication after the program, and 9% had been hospitalized since the end of the program.

Measures

The beck depression inventory (BDI)

The BDI is a 21-item self-report measuring characteristic attitudes and symptoms of depression (Beck et al., 1996). Affective, somatic, behavioral, and motivational symptoms of depression (for example, I am so sad or unhappy that I can't stand it, I don't sleep as well as I used to, I cry all the time now, I can't do any work at all) were rated by each patient on a zero (0) to three (3) scale. Total possible scores across all items range from 0 to 63. Participants in the aftercare program were required to begin with a BDI of less than 20. This inventory was completed by each patient at the initial assessment (pretest) and at each 3-, 6- and 12-month assessment.

Mindfulness-based self efficacy (MSE) scales

MSE was developed by Cayoun and Freestun (2004). This 35-item client-related questionnaire assessed one's perceived sense of self-
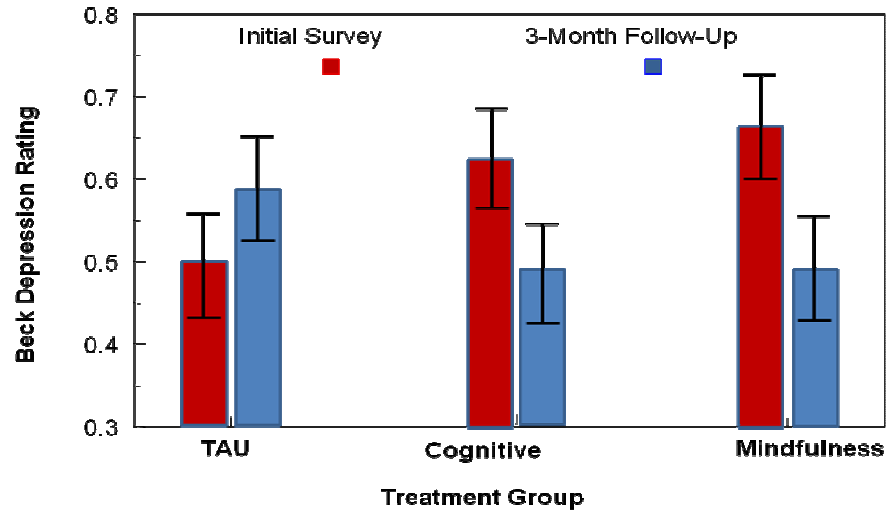
Figure 1. Average responses to the beck depression inventory (BDI) for the initial and 3-month follow-up surveys for the mindfulness training (MT), cognitive training (CT) and treatment as usual (TAU) groups (Note: vertical bars indicate $\pm$ one standard deviation).

efficacy in relationship to the main beliefs of mindfulness practice. The MSE consisted of seven scales: Mindfulness, Cognition, Behavior, Interoception, Affect, Interpersonal, and Avoidance. Respondents evaluated their perceived level of MSE (for example, I am able to think about what I am about to do before I act, I believe I can make my life peaceful, I find it difficult to accept unpleasant experiences) based on a 5-point scale, ranging from 0 (not at all) to 4 (completely). Scores indicated poor, weak, moderate, or good sense of mindfulness self-efficacy after adjusting the scale to accommodate reverse-scored items. All 35 items were completed by each patient at the initial assessment and at each of the following 3-, 6- and 12-month assessments.

The general self-efficacy (GSE) scale

The GSE scale was developed to assess an individual's perceived sense of self-efficacy (Jerusalem and Schwarzer, 1992). This scale has been found to be related to the ability to cope with daily stress and difficult situations and correlates positively with favorable emotions, optimism, and work satisfaction, while negatively correlating with depression, anxiety, and physical complaints (Luszczynska et al., 2004; Scholz et al., 2002). This is a 10-statement form (for example, I can always manage to solve difficult problems if I try hard enough, It is easy for me to stick to my aims and accomplish my goals) where patients respond on a 4-point scale ranging from 1 (not true at all) to 4 (exactly true). This was completed by each patient at the initial assessment and at each following assessment of 3, 6 and 12 months.

RESULTS

The following results are described for each of the three major measures employed (the BDI, MSE and GSE). Although 201 patients were tested, not all patients completed the three follow-up administrations of the survey measures (3, 6 and 12-months). In some

instances, a patient skipped a follow-up survey (for example, 3-month) but completed subsequent surveys. Some patients also failed to respond to an item on one or more of the measures. The final data set contained all patients who completed the last survey (12-months) and consisted of approximately 30 patients in each treatment group (MT, CT and TAU). In order to maintain a stable set of data, missing values (for example, from patients who missed a survey or skipped a response item) were replaced by using the "Trend" option in the Replace Missing Values (RMV) command in SPSS. Despite this replacement process, the 6- and 12-month data were highly unstable. Consequently, only the pretest (initial assessment) and the 3-month follow-up are reported.

Beck depression inventory

When all 21 items from the initial administration of the BDI were tested for inter-item reliability, the results were very good (Cronbach Alpha Coefficient = 0.86). All 21 items were averaged to form a BDI scale. Descriptive statistics on this scale revealed that the distribution of scores was significantly positively skewed. All analyses were performed on both the original scores and transformed scores, but the analyses were not changed when we transformed the data to eliminate the skew. Therefore, all analyses are reported on the original scores. The average rating for all 21 items of the BDI was computed for initial administration of the assessment and for the 3-month follow-up for each treatment group (MT, CT and TAU), and this information is plotted in Figure 1. As shown in Figure 1, after the initial four-week aftercare program was completed, participants in both the MT (N =
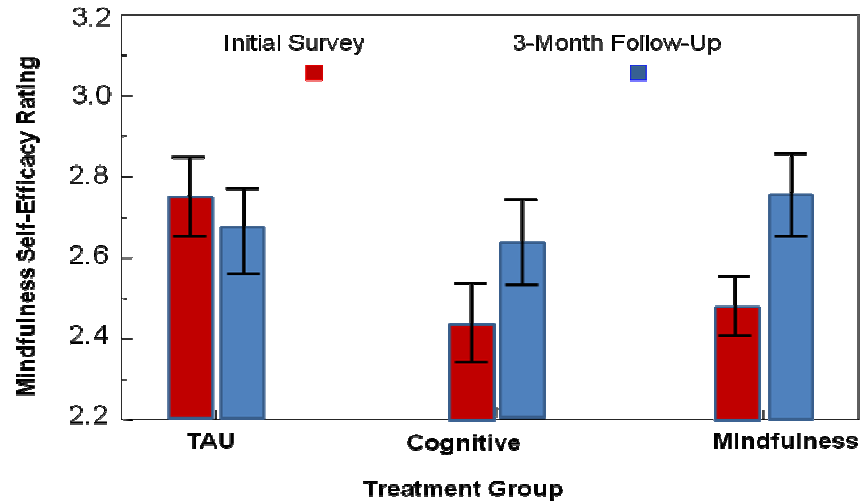
Figure 2. Average responses to the mindfulness self-efficacy scale for the initial and the 3-month follow-up surveys for the mindfulness training (MT), Cognitive training (CT) and treatment as usual (TAU) groups (note: vertical bars indicate ± one standard deviation).

33) and CT (N = 27) tracks showed a decline in reported symptoms of depression. The TAU patients (N = 30) showed an increase in the BDI. We used a 3 × 2 (treatment by assessment) mixed Analysis of Variance (ANOVA). The treatment variable (MT, CT and TAU) was the between-subject variable and Assessment (initial versus three-months) was the within-subject variable. Comparing the BDI ratings for each treatment across the two assessment administrations, the analysis showed a significant treatment by assessment interaction [F (2, 87) = 3.74, $p < 0.05$, MSE = 0.095, Partial Eta Squared = 0.08, Observed Power = 0.76]. Post hoc analysis showed that the difference between the Pretest and the 3-month assessment was significant for the CT group ($p < 0.05$), marginally significant for the MT group ($p < 0.07$), and not significant for the TAU group ($p > 0.16$). No adjustment for Type I error was applied (for example, Bonferroni) because, as many statisticians argue (Cohen and Cohen, 1983; Davis and Gaito, 1984) these adjustments are not required when the omnibus test (F test) is significant.

Mindfulness self-efficacy scale

When all 35 items from the initial administration of the MSE were tested for reliability, (after adjusting for reverse scored items) the inter-item reliability was excellent (Cronbach Alpha Coefficient = 0.91). The average rating for the 35 MSE items (adjusting for items that should have been reverse scored) was computed for each treatment group (MT, CT and TAU) for the initial assessment administration and the 3-month follow-up, and is plotted in Figure 2. As shown in Figure 2, participants in both the MT (N = 33) and CT (N = 27)

tracks showed an increase in their rated MSE compared to the TAU (N = 30) patients, who showed a slight decrease. A 3 X 2 (treatment by assessment) mixed ANOVA was used. Comparing the MSE ratings for each treatment between the two assessment administration, the analysis showed a significant treatment by assessment interaction [F (2, 87) = 5.00, $p < 0.05$, MSE = 0.124, partial eta squared = 0.10, observed power = 0.80]. Post hoc analysis showed that the difference between the Pretest and the 3-month assessment was significant for both the CT and MT groups ($p < 0.05$) but not for the TAU group ($p > 0.36$).

General self-efficacy scale

When all ten items from the initial administration of the GSE were tested for reliability, the inter-item reliability was very good (Cronbach Alpha Coefficient = 0.87). The average rating for all 10 items of the GSE was computed for each treatment group (MT, CT and TAU) for the initial administration of the assessment and the 3-month follow-up, and was plotted in Figure 3. As shown in Figure 3, the participants in the MT (N = 33), and the CT (N = 27) groups showed an increase in their rated GSE. The TAU group (N = 30) showed a slight decrease in their rated GSE. A 3 X 2 (treatment by assessment) mixed ANOVA was used. Comparing the GSE ratings for each treatment between the initial and 3-months assessments, the analysis showed a significant treatment by assessment interaction [F (2, 87) = 3.79, $p < 0.05$, MSE = 0.098, partial eta squared = 0.08, observed power = 0.68]. Post hoc analysis showed that the difference between the Pretest and the 3-Month assessment was not significant
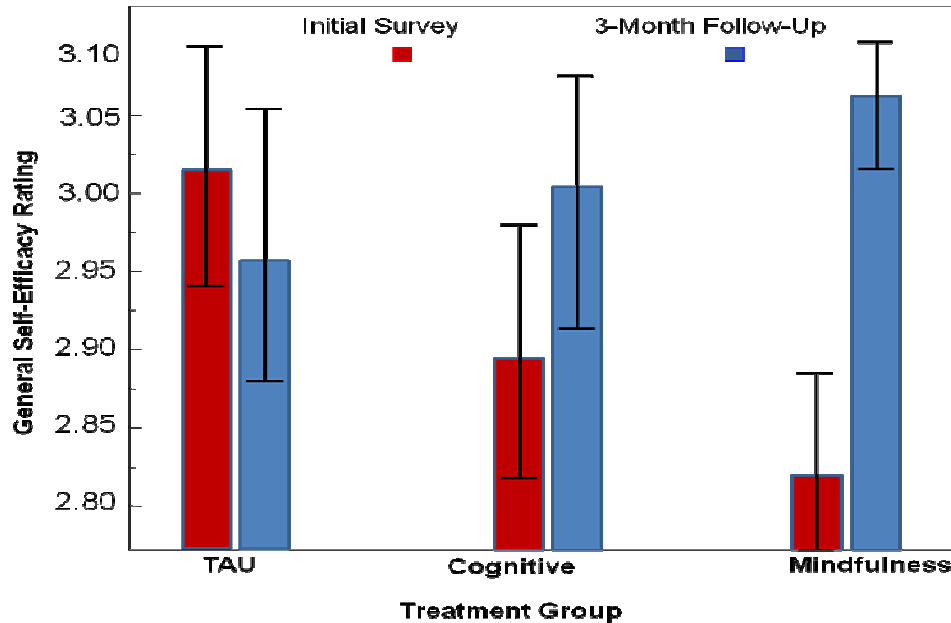
Figure 3. Average responses to the General Self-Efficacy scale for the initial and the 3-month follow-up surveys for the mindfulness training (MT), cognitive training (CT) and treatment as usual (TAU) groups (note: vertical bars indicate $\pm$ one standard deviation).

for the CT and TAU groups ($p > 0.05$), but was significant for the MT group ($p < 0.05$).

DISCUSSION

For participants in the MT and CT tracks, results revealed a general decrease in depression and increase in self efficacy while no significant changes were found in the TAU track. These changes are supportive of the models on self-efficacy and the correlation with depression (Chang et al., 2004; Caprara et al., 2006). The participants that reported an increase in self-efficacy also reported a decrease in depression. Similarly, the mindfulness participants showed a decrease in depression and an increase in self-efficacy. In this study, the CT participants continued to be trained in the cognitive therapy skills with a focus on relapse prevention. They were familiar with the program and the skills and tools they had acquired. The addition of the four weeks of treatment and practice appeared to have made a significant decrease in the participants' subjective level of depression as reported on the BDI. While going from a 5 day a week, 3 h a day program to a once a week, 3 h a day treatment for four weeks, there was a continuity and familiarity with the skills learned. Although the MT track did report a decrease in the BDI, the results were only marginally significant ($p < 0.07$). The MT participants learned a new skill, which in itself can be stressful. The participants engaged in only 30 min of mindfulness exercise daily, because we believed this was

more in line with their level of focus and concentration. However, researchers in both MBSR and MBCT recommend that patients engaged in 45 min of mindful practice over an eight-week training (Kabat-Zinn, 1994; Teasdale et al., 2000). The reduced time in this study may have mitigated against a more robust (and perhaps significant) effect of MT on the BDI.

Following discharge from the treatment program, participants in the TAU track often returned to their workplace and gradually became less focused on treatment. Some continued with outpatient follow-up and some did not which may have contributed to a lack of a decrease in the follow-up BDI's.

It is unfortunate that the 6- and 12-month follow-up data could not be used. We may, however, have qualitative data (to be reported elsewhere) from the participants to report in the future that will reveal how much of the skills learned in the program were continuing to be used at 6 and 12 months.

For the MSE scale, the fact that both the MT and the CT showed an improvement may indicate that the scale itself has much overlap with mindfulness practice and cognitive processes. The way in which individuals perceived stress is part of the training in both of these treatments; the MT patients approached awareness without judgment and the CT patients learned to identify cognitive distortions and reappraise. It is noteworthy that two of the seven scales in the assessment instrument were directly relevant to cognition and behavior (Cayoun and Freestun, 2004).

Surprisingly, the GSE scale was significant for the MT

but not significant for the CT. The GSE is not task specific but related to one's perceived ability to cope with daily stress (Luszczynska et al., 2004). GSE was also related to an individual's personal evaluation and incorporation of external feedback. Because self-efficacy is a dynamic process (that is fluid, changeable, not static, and requiring continual evaluation), this interpretation of one's ability to manage life's stressors may be more related to the cognitive appraisal that is negative or positive. Mindfulness practice was not evaluative; rather, events and thoughts were construed as benign, giving it less of an attitudinal focus. This could be a possible explanation for the significant increase in general self efficacy for the MT but not for the CT. As reported earlier, the TAU track did not show a significant change in their sense of GSE.

There are many variables that could have contributed to the results of this study. One set of variables would be the demographics of the participants. Sue and Sue (2008) found that a client's beliefs, preferences, and values were significant factors in treatment effectiveness. Castro et al. (2007) also showed that treatment outcomes were enhanced by adapting therapeutic factors to unique cultural values. Further studies should look at the influence of gender, age, religion, education, and ethnicity in terms of a decreased level of depression and increased self efficacy in mindfulness and cognitive therapy treatments. We examined some of these demographic relationships in this study, but the reduced sample sizes created low levels of statistical power and so few significant patterns emerged.

A possible inhibiting factor in the study may be related to the fact that the participants were only included if they had a total BDI score of 20 or less. This is a low level of overall depression considering that the highest score is 63. This placed a very low ceiling on the amount of possible improvement. Perhaps the results would be more robust if the cutoff scores were higher to reduce the ceiling effect.

Other studies may want to look at levels of anxiety as related to depression and self-efficacy in mindfulness and cognitive therapy treatment. 56% of the respondents in this study also stated they were diagnosed with an anxiety disorder. How did this impact their responses and the results? Another area of future study would be to separate the responses between those diagnosed with 'major depression' and 'bipolar disorder' to see what the differences may be in responses, as a possible effective treatment for these mood disorders.

In general, the results of this study will be of interest and value to practitioners of cognitive and mindfulness therapy, and their patients. There is good evidence that both of these therapies can lower depression and elevate self-efficacy. The pattern of results shows promise for relapse prevention of depression and improved self-esteem and self-management. Future studies should

attempt to establish more long term effects (6 to 12 months), and should explore a variety of demographic relationships so therapies can be individually and uniquely designed for a diverse population.

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