

## Mindfulness-based cognitive therapy for generalized anxiety disorder

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### Abstract

While cognitive behavior therapy has been found to be effective in the treatment of generalized anxiety disorder (GAD), a significant percentage of patients struggle with residual symptoms. There is some conceptual basis for suggesting that cultivation of mindfulness may be helpful for people with GAD. Mindfulness-based cognitive therapy (MBCT) is a group treatment derived from mindfulness-based stress reduction (MBSR) developed by Jon Kabat-Zinn and colleagues. MBSR uses training in mindfulness meditation as the core of the program. MBCT incorporates cognitive strategies and has been found effective in reducing relapse in patients with major depression (Teasdale, J. D., Segal, Z. V., Williams, J. M. G., Ridgeway, V., Soulsby, J., & Lau, M. (2000). Prevention of relapse/recurrence in major depression by mindfulness-based cognitive therapy. *Journal of Consulting and Clinical Psychology*, 6, 615–623). *Method:* Eligible subjects recruited to a major academic medical center participated in the group MBCT course and completed measures of anxiety, worry, depressive symptoms, mood states and mindful awareness in everyday life at baseline and end of treatment.

*Results:* Eleven subjects (six female and five male) with a mean age of 49 (range = 36–72) met criteria and completed the study. There were significant reductions in anxiety and depressive symptoms from baseline to end of treatment.

*Conclusion:* MBCT may be an acceptable and potentially effective treatment for reducing anxiety and mood symptoms and increasing awareness of everyday experiences in patients with GAD. Future directions include development of a randomized clinical trial of MBCT for GAD.

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### 1. Introduction

Generalized anxiety disorder (GAD), characterized by long-term, intense, and excessive worry, is a chronic,

relatively common disorder with high rates of comorbidity (Brown & Barlow, 1992). The estimated lifetime prevalence rate for GAD is 5.7% (Kessler, Berglund, Demler, Jin, & Walters, 2005), and the diagnosis is associated with considerable distress and impairment in social and occupational functioning (Maier et al., 2000).

Cognitive behavior therapy (CBT) has been found to be efficacious in the treatment of GAD (Borkovec &

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Ruscio, 2001; Borkovec, Newman, Lytle, & Pincus, 2002; Butler, Fennell, Robson, & Gelder, 1991; Ladouceur et al., 2000). Borkovec and Ruscio (2001) point out the typical CBT approach for GAD involves training clients to detect internal and external anxiety cues and to employ strategies to manage the psychological and somatic symptoms. While CBT is effective in treating the disorder, GAD nonetheless remains the least successfully treated of the anxiety disorders (Brown, Barlow, & Liebowitz, 1994). Ninan (2001) points out that nearly twice as many patients in treatment for GAD achieve partial remission as those who achieve full remission and indicates the persistence of residual symptoms in many who respond to treatment.

Roemer and Orsillo (2002) provide a conceptual understanding of integrating mindfulness and acceptance-based perspectives to the extant models and treatment of GAD. Mindfulness, moment-to-moment non-judgmental awareness, is cultivated through the regular practice of mindfulness meditation and emphasizes an open awareness to the contents of the mind. Roemer and Orsillo (2002) point out that since the nature of worry is future directed, training in present-moment mindful awareness may provide a useful alternative way of responding for individuals with GAD. Astin (1997) suggests that the techniques of mindfulness meditation help the person to develop a stance of detached observation towards the contents of consciousness and may be a useful cognitive behavioral coping strategy.

The mindfulness-based stress reduction (MBSR) program developed by Jon Kabat-Zinn and his colleagues (Kabat-Zinn, 1990) at the University of Massachusetts Medical School helps individuals develop mindfulness through intensive training in mindfulness meditation. MBSR is an intensive, structured, client-centered approach that has been used successfully in a range of clinical settings, hospitals and schools. MBSR is integral to mindfulness-based cognitive therapy (MBCT; Segal, Williams, & Teasdale, 2002) which has been found useful for the prevention of relapse in depression (Teasdale et al., 2000). Some other cognitive behavioral psychotherapies, such as dialectal behavior therapy (Linehan, 1993) and acceptance and commitment therapy (Hayes, Strosahl, & Wilson, 1999), include mindfulness and acceptance strategies. Currently, there are a few non-randomized trials of MBSR for anxiety disorders (Kabat-Zinn et al., 1992; Miller, Fletcher, & Kabat-Zinn, 1995) that suggest intensive training in mindfulness meditation may be helpful in reducing anxiety. In a recent open trial of acceptance-based behavior therapy for GAD, Roemer

and Orsillo (2007) found that patients who received a treatment combining CBT and learning and practicing mindfulness and acceptance-based strategies experienced significant reductions in symptoms and improvement in quality of life.

However, a recent report published by the Cochrane Collaboration (Krisanaprakornkit, Krisanaprakornkit, Piyavhatkul, & Laopaiboon, 2006) raises a question as to the feasibility and acceptability of meditation based treatments for GAD. This report focused only on randomized clinical trials investigating the effectiveness of meditation for anxiety disorders. Only 2 of 50 studies, one involving transcendental meditation and the other utilizing kundalini yoga, met the rigorous inclusion criteria. Drop out rate was quite high in both studies and could suggest that the intensity and adherence to practicing regular meditation in individuals suffering from anxiety disorders may be of significant consideration. The authors concluded that the small number of studies did not permit conclusions to be drawn on the effectiveness of meditation for anxiety disorders and suggested that more trials are needed.

One rationale for testing new treatments for GAD is related to the fact that despite effective therapies, the persistence of residual GAD symptoms in treatment responders is a problem. Conceptually, it makes sense that the development of mindfulness in individuals with GAD would be beneficial since a mindful state of being captures a quality of consciousness that is characterized by a clarity and vividness of current experience (Brown & Ryan, 2003). Nonetheless, practice of mindfulness meditation is demanding for anyone and may present particular challenges to individuals with GAD whose contents of mental consciousness are for most of the time oriented away from present moment to moment awareness.

The purpose of the study was to investigate whether an open trial of an 8-week group mindfulness-based cognitive therapy program that focused on intensive training in mindfulness meditation and integrated principles of cognitive behavior therapy would be an acceptable and effective treatment for patients suffering from GAD.

## 2. Method

### 2.1. Participants

Participants were recruited to this academic medical institution via posted notices around the hospital and letters sent to the faculty. A clinical psychologist or

psychiatrist screened interested subjects for inclusion and exclusion criteria. Inclusion criteria were (a) 18–80 years of age, (b) English speaking, (c) medically stable, (d) met criteria for GAD determined by the modified version of the Structured Clinical Interview for DSM IV (First, Spitzer, Gibbon, & Williams, 1997). Since the ability to maintain attention on a particular focus is central to the mindfulness practices taught in the classes, patients with co-morbid current major depression, substance abuse and/or dependence and psychosis were excluded from the study because to the likelihood of a compromised ability to sustain concentration. Patients with current suicidal and/or homicidal ideation and dissociative states were also excluded from the study.

## 2.2. Procedure

At baseline and end of treatment eligible subjects completed self-report measures of anxiety, worry, depressive symptomatology and mindful awareness. Subjects met for eight consecutive weeks for 2 h in a group format. A clinical psychologist who had completed an internship in MBSR at the University of Massachusetts Medical School and had several years experience leading MBSR groups led the 8-week group. The group format was developed as an educational intervention and was consistent with the MBSR groups developed by Jon Kabat-Zinn and his colleagues which concentrates on intensive training in mindfulness meditation including body scan meditation, sitting meditation and gentle, hatha yoga (Kabat-Zinn, 1990). Participants were also introduced to mindful eating and walking. Each session followed an agenda and focused on specific formal and informal mindfulness-based stress reduction techniques. For example, the first class included a brief sitting meditation, introduction of group members, discussion of group guidelines, rules and homework, a mindful eating exercise and practice of the body scan meditation. Cognitive exercises such as observing the association between worried thoughts, mood and behavior were introduced by the leader in group sessions and subjects had the opportunity to practice the techniques in the form of homework assignments conducted during the course of the week. The group format is ideal for small and larger discussions related to meditation practice and creating mindful awareness in everyday life. Subjects were given guided meditation CDs and were asked to practice the formal meditation practices at least 30 min every day and to record their practice. At the end of the 8-week course, subjects completed self-report measures.

## 2.3. Measures

### 2.3.1. Beck Anxiety Inventory (BAI)

The BAI (Beck & Steer, 1990) is a 21-item scale that was developed to address the need of an instrument that would reliably discriminate anxiety from depression while displaying convergent validity. Each item on the scale describes a symptom of anxiety. The respondent is asked to rate how much he or she has been bothered by each symptom over the past week on a 4-point scale ranging from 1 to 3. The items are summed to obtain a total score that can range from 0 to 63. The scale obtained high internal consistency and item-total correlations ranging from .30 to .71 (median = .60) and studies have demonstrated its convergent and discriminant validity.

### 2.3.2. Beck Depression Inventory-II (BDI-II)

The Beck Depression Inventory-Second Edition (BDI II; Beck, Steer, & Brown, 1996) is a 21-item scale and one of the most widely used self-report measures of depression. The psychometric properties of the original BDI are well established, and the BDI-II also appears to be psychometrically strong.

### 2.3.3. Penn State Worry Questionnaire (PSWQ)

The PSWQ (Meyer, Miller, Metzger, & Borkovec, 1990) is the measure most frequently used to assess pathological worry in both clinical and non-clinical populations. The PSWQ is a 16-item inventory designed to capture the generality, excessiveness and uncontrollability of pathological worry. It has been shown to correlate predictably with several psychological measures related to worry and has been found to possess high internal consistency and good test–retest reliability.

### 2.3.4. Profile of Mood States (POMS)

The POMS (McNair, Lorr, & Droppleman, 1971) is a 65-item, standardized instrument widely used for screening six mood factors including “tension-anxiety.” The internal consistency of the scale ranges from .84 to .95 in psychiatric outpatients and has been shown to demonstrate external validity.

### 2.3.5. The Mindfulness Attention Awareness Scale (MAAS)

The Mindfulness Attention Awareness Scale (MAAS; Brown & Ryan, 2003) is a 15-item, 7-point scale (1 = almost always; 6 = almost never) self-report instrument with a single factor and has been validated in college, working adult and cancer patient populations.

Higher scores reflect higher levels of dispositional mindfulness. Sample items from the MAAS include, “I find it difficult to stay focused on what’s happening in the present,” “I rush through activities without being really attentive to them.”

### 2.3.6. AMNART

The AMNART (Grober & Sliwinski, 1991) is a word-reading test for estimating pre-morbid ability. It requires the oral reading of 45 words that are phonetically irregular. The scores have been found to correlate highly with vocabulary size and overall IQ, as well as years of education and social class while age, gender and ethnicity do not affect performance.

### 2.4. Statistical methods

Means and standard deviations were computed for pre- and post-BAI, PSWQ, POMS, BDI, and MAAS for the total group. Due to the small sample size, non-parametric statistics were applied to the data. Wilcoxon Signed Ranks Test (paired comparisons baseline to end of treatment) was conducted for all self-report measures.

## 3. Results

### 3.1. Demographic characteristics

Of 36 subjects who were screened for the study, 12 met inclusion criteria and participated in the study. Eight patients were excluded due to co-morbid major depression. Several patients screened either did not meet criteria for GAD or were no longer able to commit to the 8-week program once the group was scheduled. One subject was excluded from the final data analysis because of the onset of a medical problem during the 8-week trial. Results are reported on the 11 subjects (6 female and 5 male) with a mean age of 49 (range = 36–72) who completed the study. This was a highly educated group with the mean number of years of education = 17 years (range = 16–20) and mean AMNART score = 36.8 (S.D. = 6.6) indicating a high level of reading fluency. All subjects met full criteria for GAD.

### 3.2. Self-report measures

Results (see Table 1) demonstrated that the subjects as a group at baseline exhibited moderate levels of anxiety as measured by the BAI, a pathological degree of worry as measured by the PSWQ, significant levels of anxiety and tension as measured by the POMS and mild levels of depressive symptomatology as measured by

Table 1

Summary of scores on outcome measures at baseline and post-intervention

Measure	Baseline		Post-intervention		Z-score
	Mean	S.D.	Mean	S.D.	
BAI	19.00	13.7	8.91	7.8	−2.5**
PSWQ	60.82	11.0	48.82	6.95	−2.98**
POMS tension– anxiety	16.9	8.2	9.7	6.7	−2.3*
BDI	13.80	7.9	8.82	8.5	−1.4*
MAAS	3.68	.66	4.2	.58	−1.8

Note: BAI, Beck Anxiety Inventory; PSWQ, Penn State Worry Questionnaire; POMS, Profile of Mood States; BDI, Beck Depression Inventory; MAAS, Mindfulness Attention Awareness Scale. Higher scores on the BAI, PSWQ, POM and BDI indicate greater psychological distress. Higher scores on the MAAS indicate increased mindful awareness.

\*  $p < .05$ .

\*\*  $p < .01$ .

the BDI. Baseline mindful awareness of day-to-day experiences as measured by the MAAS were significantly lower than a normative sample: GAD mean score = 3.68 (S.D. = .66); normative sample mean score = 4.22 (S.D. = .63),  $p < .006$ .

There were statistically significant reductions in the BAI, PSWQ, POMS and BDI from baseline to end of treatment. In terms of the clinical meaningfulness of these findings (see Jacobson & Truax, 1991 for discussion), five subjects (45%) dropped from a clinically significant score (moderate–severe) on the BAI to the non-clinical range (minimal). Three of five subjects (60%) who exhibited clinical levels of depressive symptomatology on the BDI pre-treatment dropped to the non-clinical range post-treatment. Also, five patients (45%) with clinically significant scores indicative of pathological worry on the PSWQ (see Fresco, Mennin, Heimberg, & Turk, 2003 for clinical ranges) pre-treatment dropped below the cutoff range for pathological worry post-treatment. Three subjects with clinically meaningful POMS tension–anxiety scores pre-treatment dropped to the non-clinical range post-treatment. A statistical trend was detected on the MAAS from baseline to end of treatment suggesting an increase in mindful states in day-to-day life.

## 4. Discussion

Results from this small open trial of MBCT for GAD demonstrate that subjects in the study, as a group, experienced a significant decrease in their anxiety, tension, worry and depressive symptoms following an 8-week group mindfulness based course. Also, patients

who exhibited clinically significant symptoms of measures of anxiety, worry and depressive symptomatology experienced a drop in their symptoms comparable to those of a non-clinical population. While there was a mean increase in mindful awareness in everyday life pre- to post-intervention, this difference did not reach statistical significance. The lack of significance, which may be related to the small sample size, was disappointing given the intense training in mindfulness. Nonetheless, it is important to point out that the group as a whole had significantly lower scores in mindful awareness at baseline compared to a normative sample and that they became as mindful as a normative sample following the course.

It appears that a mindfulness-based therapeutic approach is also a feasible and acceptable treatment for individuals with GAD since all the subjects admitted to the study participated and completed the 8-week group treatment. The authors excluded one subject's data from the results secondary to the development of a medical problem. For humanitarian reasons she was allowed to continue in the group since that was her desire. Additionally, the authors collected anecdotal data regarding the subjects' perception of their experience and the majority reported positive changes from subtle to significant (e.g., increasing mindfulness while eating, improved marital relationship, better awareness of the self, gaining acceptance of self and emotions). Also several of the subjects stated they felt better and reported that they had received something of "lasting value" by participating in the course.

While reductions in anxiety and improvement in mindful awareness and mood states present as intriguing data, the authors nonetheless caution against over-interpretation of the results given the fact that this was a small, non-randomized, cross-sectional trial. Furthermore, these findings may not generalize to either individuals with GAD who also often suffer from major depression and/or the general population since this was highly educated, self-selected sample. For the future, randomized clinical trials are warranted to further explore the potential efficacy of mindfulness based approaches for GAD.

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