

# Mindfulness-Based Cognitive Therapy for Children: Results of a Pilot Study

**Jennifer Lee, PhD**

*Teachers College, Columbia University*

**Randy J. Semple, PhD**

*University of Southern California*

**Dinelia Rosa, PhD**

*Teachers College, Columbia University*

**Lisa Miller, PhD**

*Teachers College, Columbia University*

The purpose of this study was to evaluate the feasibility, acceptability, and helpfulness of Mindfulness-Based Cognitive Therapy for Children (MBCT-C) for the treatment of internalizing and externalizing symptoms in a sample of nonreferred children. Twenty-five children, ages 9 to 12, participated in the 12-week intervention. Assessments were conducted at baseline and posttreatment. Open trial analyses found preliminary support for MBCT-C as helpful in reducing internalizing and externalizing symptoms within subjects on the parent report measure. The high attendance rate (Intent-to-Treat sample, 78%; Completer sample, 94%), high retention rate (68%), and positive ratings on program evaluations supported treatment feasibility and acceptability. Overall, this pilot study offers feasibility and acceptability data for MBCT-C as a potential treatment for internalizing and externalizing symptoms in children. Further research is needed to test the efficacy of the intervention with a larger sample of children who meet diagnostic criteria for clinical disorders.

**Keywords:** mindfulness; meditation; MBCT; children

In recent years, there has been a growing interest in innovative treatment approaches that address the chronic nature of psychological disorders and relapse (Segal, Williams, & Teasdale, 2002). Mindfulness-based therapeutic interventions promote the use of meditative practices to increase present-moment awareness of conscious thoughts, feelings, and body sensations in an effort to manage negative experiences more effectively. Such alternative approaches expand traditional treatments and offer new strategies for coping with psychological distress.

Mindfulness has been described as “paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally” (Kabat-Zinn, 1994, p. 4). Through the practice of mindfulness meditation, one can develop an intentional awareness of the present experience on a moment-to-moment basis (Goleman & Schwartz, 1976; Kabat-Zinn, 1982; Marlatt & Kristeller, 1999). Teasdale, Segal, and Williams (1995) described the essence of this moment-to-moment

state: “to ‘be’ fully in the present moment, without judging or evaluating it, without reflecting backwards on past memories, without looking forward to anticipate the future, as in anxious worry, and without attempting to ‘problem-solve’ or otherwise avoid any unpleasant aspects of the immediate situation” (p. 33). The practice involves nonjudgmental acceptance such that cognitions, emotions, or body sensations that enter the individual’s awareness are observed without being evaluated or judged.

## MINDFULNESS-BASED COGNITIVE THERAPY

Mindfulness-Based Cognitive Therapy (MBCT) is a manualized treatment that integrates mindfulness techniques and elements of cognitive-behavioral therapy (Segal et al., 2002). MBCT was initially developed as a relapse prevention program to teach formerly depressed individuals skills to protect against future depressive episodes. Through mindfulness training, individuals can learn how to prevent the escalation of negative thoughts into ruminative patterns characteristic of depression, thereby keeping mild states of depression from developing into a major depressive episode.

In a randomized multisite study, Teasdale et al. (2000) investigated the effects of MBCT on rates of depressive relapse in patients whose major depressive disorder had remitted after being treated with medication. Results indicated that for patients with three or more previous depressive episodes, relapse rates were significantly lower for MBCT patients (37% relapsed) than for the treatment-as-usual group (66% relapsed). Ma and Teasdale (2004) conducted a replication study and found similar results. Relapse rates were reduced by half for MBCT patients (36% relapsed) compared to the treatment-as-usual group (78%). Overall, two randomized-controlled trials demonstrated that the MBCT group intervention, initially administered in the recovered state, could significantly decrease risk of future relapse in patients with recurrent major depressive disorder. The investigators concluded that the results from these trials make it a “probably efficacious” treatment among other evidence-based treatments (American Psychological Association, 1995).

The existing research on MBCT has focused on studying treatment effectiveness with adult populations suffering from major depressive disorder. Future research calls for further replication studies, including the investigation of treatment effectiveness with diverse patient populations and those suffering from other psychiatric symptoms. Children represent one population that may benefit from mindfulness-based practices.

## TREATING CHILDHOOD PROBLEMS WITH MINDFULNESS

Numerous clinical case reports suggest that meditation techniques may be useful in treating symptoms of anxiety in school-aged children (Chang & Hiebert, 1989; Dacey & Fiore, 2000; Fish, 1988; Humphrey, 1988; Rozman, 1976; Smith & Womack, 1987). However, there are few published research studies demonstrating the clinical effectiveness of mindfulness practices with children. Linden (1973) studied the effects of meditation training on aspects of cognitive and affective functioning of third-grade children. Linden hypothesized that meditation practice may help children learn to concentrate and alter feeling states by intentionally shifting their attention. Results indicated that children who completed 18 weeks of meditation practice were less anxious about test-taking but that levels of reading achievement were unchanged.

Semple, Reid, and Miller (2005) conducted an open trial pilot study to examine the feasibility and acceptability of a mindfulness training program with children. A 6-week trial was conducted with five anxious children, ages 7 and 8 years old. Results of the study indicated that the program was acceptable to children and feasible to implement in a school setting. Children were able to understand the concept of mindfulness, utilize the techniques taught in the program, and integrate mindfulness into their everyday lives. The authors found preliminary support for the

feasibility and acceptability of treatments utilizing mindfulness approaches, and concluded that mindfulness holds promise as an intervention for childhood anxiety.

Overall, there is a growing body of literature on mindfulness applications with adults, but few studies have investigated the application of mindfulness-based therapies with children. The current study evaluates the feasibility, acceptability, and helpfulness of MBCT-C based on the pilot work of Semple et al. (2005), to reduce internalizing and externalizing symptoms in a sample of school-aged children. The limited research to date supports the likelihood that mindfulness techniques may be an effective cognitive strategy for transforming how children respond to personal difficulties.

## METHOD

### Participants and Procedure

English-speaking children who were between the ages of 9 and 12, or in grades four to six, and enrolled in a remedial reading program in a community-based clinic were invited to participate in the study. Eligibility was determined by the age, grade, and enrollment criteria. There were no clinical inclusion or exclusion criteria. The remediation program for below-grade readers was chosen as the recruitment sample based on its accessibility and the prevalence of school adjustment difficulties within the sample, as determined by the children's need for extra reading support. As a result, the children were not selected as a clinical sample, but rather as an ecologically representative sample of inner-city children with academic problems. The lack of empirical research on MBCT as it applies to children precluded the investigators from administering the intervention to children who met *DSM-IV-TR* (American Psychiatric Association, 2000) criteria for an internalizing or externalizing disorder. As a first attempt to use MBCT-C, the sample consisted of nonreferred children who did not meet clinical criteria. If the program was determined to be feasible, acceptable, and potentially helpful to this sample of school-aged children with reading difficulties, future research may be justified in delivering the intervention to a sample of children who exhibited clinical levels of distress.

The recruitment effort involved an initial mailing and follow-up phone calls to the parents of all eligible children ( $N = 38$ ). Parents were instructed to sign and mail back the informed consent form if they were interested in participating in the research study. A total of 28 consent forms were returned. Three children dropped out after the first assessment due to scheduling conflicts with the Saturday sessions ( $n = 1$ ), exceeding the age requirement ( $n = 1$ ), and parental concerns about the nature of the clinical assessments ( $n = 1$ ). Final enrollment consisted of 25 children. Parents and participants were financially compensated for their participation in the research study.

The community clinic serves a catchment area that includes neighborhoods in Harlem and Washington Heights in New York City. Participants were mostly low-income, minority children, primarily of Hispanic and African American descent. Table 1 shows participant demographics by gender, race/ethnicity, age, and grade, for both the Completers and Intent-to-Treat participants. Completion status was determined by at least 80% attendance, or attendance to 10 or more sessions during the 12-week intervention.

### Design and Procedures

The research study utilized an open trial design, conducted in two phases. All participants ( $N = 25$ ) were matched according to age and gender, and then randomly assigned to one of two groups. Thirteen children participated in the MBCT-C program beginning in November 2002, and 12 children participated in the program beginning in March 2003. For purposes of administering the intervention, groups were further divided in half based on age, in order to keep the

**TABLE 1. PARTICIPANT DEMOGRAPHICS**

	Intent-to-Treat ( <i>N</i> = 25)		Completers ( <i>N</i> = 17)	
	<i>N</i>	%	<i>N</i>	%
Gender				
Female	15	60	9	53
Male	10	40	8	47
Race/ethnicity				
Hispanic	15	60	13	77
African American	7	28	4	23
White	3	12	0	0
Age				
9	7	28	4	24
10	6	24	5	29
11	6	24	5	29
12	5	20	3	18
13	1	4	0	0
Grade				
3	2	8	0	0
4	8	32	6	35
5	8	32	7	41
6	5	20	3	18
7	2	8	1	6

groups at a manageably small number of participants. Children between the ages of 9 and 10 years attended the morning sessions, while children between the ages of 11 and 12 years attended the afternoon sessions. Two instructors (JL, RJS) co-led the treatment sessions, and ran a total of four groups, with six or seven children in each group.

Assessments were conducted in three waves. Assessments at Time 1 provided baseline measures for participants in the immediate arm of the study. Time 2 assessed for treatment effects on participants in the immediate arm as well as baseline measures for participants in the delayed arm of the study. Time 3 assessed for treatment effects on participants in the delayed arm of the study. Data from the two phases of the study were combined and analyzed as a single open clinical trial. Pretest measures taken immediately before participation in the MBCT-C program were compiled for all participants, and posttest measures taken immediately after participation were compiled for all participants. One-tailed dependent sample *t* tests were conducted to test for differences between pretest and posttest on the outcome variables, using an alpha level of .10. Effect sizes were calculated for correlated samples (Dunlap, Cortina, Vaslow, & Burke, 1996). Sample means were imputed for missing data points on the corresponding outcome measures.

### Assessment Measures

The assessment battery, consisting of four standardized measures, was administered at baseline and posttreatment. The assessment sessions were conducted at the community clinic, either in groups or individually, depending on the availability of the participants and their parents. Test administration was conducted by seven trained research assistants who were blind to the group assignment of the participants and the research hypotheses.

**Child Behavior Checklist: Parent Report Form (CBCL; Achenbach, 1991).** The CBCL consists of 113 problem-behavior items and provides subscores for eight Specific Problem Scales, three Competence Scales, a Total Problems Scale, an Internalizing Problems Scale, and an Externalizing Problems Scale. The Internalizing Problems Scale is composed of three separate subscales (withdrawn, anxious/depressed, somatic complaints). The Externalizing Problems Scale is composed of two separate subscales (delinquent behavior and aggressive behavior). Raw scores for each scale are converted to T-scores ( $M = 50$ ,  $SD = 10$ ), based on a national standardization sample of 2,368 children between the ages of 4 and 18. The CBCL is a well-standardized parent-inventory measure with good reliability and validity (Achenbach, 1991). The Internalizing Problems Scale, the Externalizing Problems Scale, and the Total Problems Scale were outcome variables of interest for the present study.

**Multidimensional Anxiety Scale for Children (MASC; March, 1997).** The MASC is a self-report measure that assesses a variety of anxiety dimensions in children and adolescents between the ages of 8 and 19. The measure consists of 39 items, rated on a four-point Likert scale from 0 = "Never true about me" to 3 = "Often true about me." Raw scores are converted to T-scores ( $M = 50$ ,  $SD = 10$ ), based on a standardization sample of 2,698 children between the ages of 8 and 19. The internal consistency of the MASC Total Anxiety Scale is very good, with reliability coefficients ranging between .87 and .89. The test-retest reliability of the MASC was found to be .93 (March, 1997).

**State-Trait Anxiety Inventory for Children (STAIC; Spielberger, Edwards, Lushene, Montuori, & Platzek, 1973).** The STAIC is a self-report questionnaire, for children in the fourth through sixth grades, which measures two separate anxiety constructs: State Anxiety (S-Anxiety) and Trait Anxiety (T-Anxiety). The S-Anxiety scale consists of 20 statements that assess how children feel at a particular moment in time. This scale measures transitory anxiety states that may fluctuate over time, rated on a three-point intensity scale (i.e., Not nervous, Nervous, Very nervous). The T-Anxiety scale consists of 20 statements that assess how children generally feel. This scale measures relatively stable individual differences in anxiety states, rated on a three-point frequency scale (i.e., Hardly ever, Sometimes, Often). The current study focused on S-Anxiety as an outcome variable.

Raw scores are converted to T-scores ( $M = 50$ ,  $SD = 10$ ), based on a standardization sample of 1,554 children enrolled in the fourth, fifth, and sixth grades. Alpha coefficients for S-Anxiety were found to be .82 for males and .87 for females. Test-retest reliability coefficients for the S-Anxiety scale were low as expected (.31 for males and .47 for females) because this scale is influenced by unique situational factors at the time of testing (Spielberger et al., 1973).

**Reynolds Child Depression Scale (RCDS; Reynolds, 1989).** The RCDS is a self-report questionnaire that screens for depressed mood in third- through sixth-grade children. The scale consists of 30 items (e.g., "I feel happy," "I feel like crying") that participants rate on a four-point scale from 1 ("Almost never") to 4 ("All the time"), except for the last item, which is scored on a five-point scale. Total scores range from 30 to 121, with a clinically significant cutoff score of 74. The RCDS standardization sample consisted of 1,620 children in grades three through six. The test-retest reliability has been reported as .85, demonstrating a high degree of stability in children's responses (Reynolds & Graves, 1989). The RCDS instrument also has good concurrent validity and assesses domains of depression typically identified in the depression literature (Reynolds, Anderson, & Bartell, 1985).

## Qualitative Measures

**Participant Evaluation and Questionnaire.** The participant questionnaire evaluates the child's overall experience in the program. The survey consists of 10 close-ended questions rated on a five-point Likert scale (i.e., 1 = Strongly disagree, 5 = Strongly agree). Items include: "I will

continue to use mindfulness techniques in my life, even after the program is over” and “I would recommend this program to my friends.” The questionnaire also includes 10 open-ended questions in the form of sentence completion such as: “The worst part of the program is . . .” and “The best part of the program is . . .”

**Parent Evaluation and Questionnaire.** The parent questionnaire evaluates the parents’ experience of the program and their perception of any behavioral changes in their child. The survey consists of nine close-ended questions that are rated on a five-point Likert scale (i.e., 1 = Strongly disagree, 5 = Strongly agree). Examples of items include: “I would recommend this program to the parents of other children” and “Mindfulness has helped my child at school.” The questionnaire also includes six open-ended questions in the form of sentence completion, such as “The most important thing my child has taken from the program is . . .” and “In the future, I hope that my child . . .”

## Mindfulness-Based Cognitive Therapy for Children Intervention

MBCT-C was developed as a downward extension of the manualized MBCT treatment program for adults (Segal et al., 2002). In the adaptation, several key developmental differences were addressed in conducting psychotherapy with school-aged children. First, children typically have less developed memory and attentional capacities than do adults (Posner & Petersen, 1990; Siegler, 1991), which suggests that they may benefit from shorter, more repetitious therapy sessions. The MBCT program for adults was designed as an 8-week program, with each weekly session lasting 2 hours (Segal et al., 2002). Responding to children’s shorter attention span, MBCT-C was developed as a 12-week program consisting of weekly 90-minute sessions. Learning was also reinforced by a high degree of repetitiveness built into the structure of each session. Each session in the children’s program began with a brief sitting meditation, then a review of the prior week’s session, followed by a group discussion of the home practice exercises. Second, adult forms of psychotherapy depend largely on the individual’s ability to identify and verbalize affective experiences through abstract thinking and logical analysis. Since latency age children have limited capabilities with verbal fluency, abstract reasoning, and conceptualization, they may more effectively engage in psychotherapy when games, activities, and stories are integrated into the treatment protocols (Gaines, 1997; Stark, Rouse, & Kurowski, 1994). Techniques used in the MBCT-C program to enhance mindfulness were designed to be participatory and interactive, offering a wide variety of multisensory experiences. Experiential learning exercises focused on awareness in a specific sensory modality, such as mindful seeing, hearing, touching, tasting, and smelling. Lastly, the MBCT-C program was designed so that the parents of child participants were an integral part of the program. Family involvement in treatment has been found to enhance treatment outcomes, given that children are more embedded within their families compared to adults (Kaslow & Racusin, 1994). The MBCT-C program emphasized the importance of active parental involvement in the program by supporting the child’s home practice exercises, and encouraging mindful speech, intentions, and behaviors at home.

The structure of the MBCT-C program was further adapted to meet the age-specific needs of children. The adult MBCT program typically employs a ratio of 12 participants per instructor. In the MBCT-C program, groups of six to eight children were cofacilitated by two therapists to provide each child with greater individualized attention. Children also earned reward incentives (cartoon stickers) for session attendance and completion of home practice exercises. Furthermore, MBCT-C emphasized the creation of a cohesive, safe, and confidential environment. For children, creating a safe milieu further involved the need for structure. During the first session, the class reviewed the *Rules for Mindful Behavior* (e.g., Act and speak to group members with care and kindness; Raise your hand to share your ideas with the group). These rules were written down, discussed, and made explicit in a manner that is not typically necessary when working with adults.



Similar to the MBCT program for adults, homework was an integral part of the MBCT-C program. Segal et al. (2002) emphasize the importance of the “everydayness” of practice. Incorporating the consistent practice of mindfulness into the children’s daily lives aimed to build continuity and sustain motivation. Each session began with a review of the home practice exercises from the previous week, and time was allotted at the end of each session to introduce and practice the designated exercises for the coming week. The home practice exercises for each week consisted of three to four short exercises that could be completed in about 15 minutes per day, for 6 days during the week. The children were encouraged to record their daily practice in written form on the Home Practice Records that were distributed at the end of each session. Children were also encouraged to invite their parents and siblings to share in these short, repetitive daily mindfulness exercises at home. Attempts were made to measure treatment adherence with the Home Practice Records; however, data was insufficient as numerous records were misplaced by the children between sessions.

Initial sessions of the 12-week intervention focused on orienting the children to mindfulness and developing a community in the service of creating a safe therapeutic environment. Subsequent sessions aimed to teach the core goals of MBCT-C using a multisensory approach. One core goal was to help children become more aware of their thoughts, feelings, and body sensations as separate but interrelated phenomena that interact to influence their perceptions of day-to-day experiences. Another goal of the MBCT-C program was to help children differentiate between judging and describing, in order to develop the ability to describe internal and external events without falling into the automatic tendency to judge the experience as either good or bad. The MBCT-C program also emphasized awareness of the present moment and aimed to help children identify past, present, and future thinking. Through awareness of the present moment, children who tended toward depressive or anxious thinking learned to make a conscious choice to redirect their attention—from past- or future-oriented thinking—back to the present moment. Final sessions focused on integrating mindfulness and acceptance into everyday life. (For further details of the treatment manual, see Semple, Lee, & Miller, 2006.)

## RESULTS

### Helpfulness of Treatment

Preliminary data analyses were conducted to assess for group treatment comparability and treatment contamination. Participants in the delayed arm of the study were not expected to differ significantly on pretreatment variables compared to participants in the immediate arm of the study. Independent samples *t* tests examined pretreatment differences for all dependent variables, and results indicated no significant group differences. Treatment contamination was a potential bias given the recruitment source, but findings suggest that participants in the delayed arm of the study did not benefit from the intervention that was first delivered to participants in the immediate arm of the study.

**Child Behavior Checklist.** A significant reduction in the CBCL Total score was found among the Intent-to-Treat participants,  $t(24) = 2.24, p = .04$ , from pretest ( $M = 53.16, SD = 12.67$ ) to posttest ( $M = 50.28, SD = 11.01$ ). A significant reduction in the CBCL Total score was also found among the Completers,  $t(16) = 2.19, p = .04$ , from pretest ( $M = 56.06, SD = 12.57$ ) to posttest ( $M = 52.35, SD = 10.42$ ).

There was a significant reduction in the CBCL Internalizing Problems score among the Intent-to-Treat participants,  $t(24) = 1.88, p = .07$ , from pretest ( $M = 53.12, SD = 13.54$ ) to posttest ( $M = 49.96, SD = 12.09$ ). However, there was no statistically significant reduction in the CBCL Internalizing Problems score among the Completers,  $t(16) = 1.48, p = .16$ , from pretest ( $M = 55.71, SD = 12.81$ ) to posttest ( $M = 52.82, SD = 10.32$ ).

There was no significant reduction in the CBCL Externalizing Problems score among the Intent-to-Treat participants,  $t(24) = 1.55, p = .14$ , from pretest ( $M = 49.88, SD = 10.37$ ) to posttest ( $M = 48.04, SD = 9.18$ ). However, there was a significant reduction among the Completers,  $t(16) = 1.94, p = .07$ , from pretest ( $M = 53.12, SD = 10.07$ ) to posttest ( $M = 50.41, SD = 8.26$ ).

**Anxiety.** There was no significant reduction in the MASC Total score among the Intent-to-Treat participants,  $t(24) = 1.45, p = .16$ , from pretest ( $M = 49.72, SD = 12.61$ ) to posttest ( $M = 45.28, SD = 13.54$ ). Nor was there a significant reduction among the Completers,  $t(16) = 1.55, p = .14$ , from pretest ( $M = 49.24, SD = 9.64$ ) to posttest ( $M = 45.06, SD = 13.26$ ). For State Anxiety as measured by the STAIC, there was no significant reduction among the Intent-to-Treat participants,  $t(24) = 1.47, p = .15$ , from pretest ( $M = 47.80, SD = 11.22$ ) to posttest ( $M = 44.76, SD = 9.25$ ). There was also no significant reduction among the Completers,  $t(16) = 1.58, p = .13$ , from pretest ( $M = 48.59, SD = 9.96$ ) to posttest ( $M = 44.65, SD = 9.60$ ).

**Depression.** There was no significant reduction in the RCDS Total score among the Intent-to-Treat participants,  $t(24) = 0.79, p = .44$ , from pretest ( $M = 49.80, SD = 11.64$ ) to posttest ( $M = 48.56, SD = 10.69$ ). There was also no significant reduction among the Completers,  $t(16) = 0.95, p = .35$ , from pretest ( $M = 49.12, SD = 9.35$ ) to posttest ( $M = 47.29, SD = 9.79$ ).

The magnitude of treatment effect was calculated using Cohen's  $d$ . Effect sizes are presented in Table 2. Given the somewhat small sample sizes in the current study, the power to detect Cohen's (1988) small, medium, and large effect sizes was computed, and these values are shown in Table 3 for the Intent-to-Treat sample and the Completers. One-tailed tests and an alpha level of .05 were used, and power was extracted from tables provided by Bissonnette (2006). As can be seen, power is low to detect small effects (.25 for Intent-to-Treat participants and .19 for Completers), moderate to detect medium effects (.78 for Intent-to-Treat participants and .62 for Completers), and high for large effects (.98 for Intent-to-Treat participants and .93 for Completers).

## Feasibility of Treatment

The recruitment effort involved an initial mailing and follow-up phone calls to the parents of all eligible children ( $N = 38$ ). A total of 28 consent forms were returned, yielding a 74% response rate. Out of the final enrollment sample ( $N = 25$ ), 68% of participants ( $n = 17$ ) completed the program as defined by attendance to more than 80% of treatment sessions. Thirty-two percent of participants ( $n = 8$ ) did not complete the program. Out of these eight participants, two children terminated prematurely for refusal to participate (one child dropped out after the first session and another child dropped out after two sessions). Another child was removed by the

**TABLE 2. EFFECT SIZES OF OUTCOME MEASURES FOR INTENT-TO-TREAT PARTICIPANTS ( $N = 25$ ) AND COMPLETERS ( $N = 17$ )**

Measure	Scale	Intent-to-Treat		Completers	
		$d$	$r$	$d$	$r$
CBCL	Internalizing problems	.24	.12	.24	.12
	Externalizing problems	.18	.09	.28	.14
	Total	.24	.12	.31	.16
STAIC	State Anxiety	.29	.14	.40	.20
MASC	Total	.34	.17	.35	.17
RCDS	Total	.11	.06	.19	.10

Note.  $d$  = Cohen's  $d$ ;  $r$  = effect size.



**TABLE 3. POWER TO DETECT SMALL, MEDIUM, AND LARGE EFFECT SIZES FOR THE INTENT-TO-TREAT PARTICIPANTS ( $N = 25$ ) AND COMPLETERS ( $N = 17$ )**

Effect Size	Intent-to-Treat	Completers
Small ( $d = .20$ )	.25	.19
Medium ( $d = .50$ )	.78	.62
Large ( $d = .80$ )	.98	.93

*Note.* alpha = .05, one-tailed tests.

parent during the first session because of religious reasons; the parent was concerned that the program would promote beliefs that contradicted the family's fundamental Christian faith. The other five participants who did not reach Completer status had sporadic attendance throughout the 12-week program due to scheduling conflicts with the Saturday sessions and transportation issues. For these five children, the mean number of sessions attended was 7.60 ( $SD = 1.14$ ). The overall attendance rate for all participants in the Intent-to-Treat sample was 78% ( $M = 9.32$  sessions,  $SD = 3.57$ ). Among the Completers, the overall attendance rate was 94% ( $M = 11.29$  sessions,  $SD = 0.77$ ). Forty-seven percent of participants ( $n = 8$ ) attended all 12 sessions, and 35% of participants ( $n = 6$ ) attended 11 sessions.

### Acceptability of Treatment

The program evaluation by the Completers and their parents demonstrated evidence of treatment acceptability based on the positive feedback received about the program. Ninety-four percent of children either "Liked" or "Loved" the MBCT-C program, while 88% of parents rated the MBCT-C program as either "High" or "Very High." Eighty-eight percent of children and 82% of parents endorsed the statement that mindfulness was helpful in the school environment. Fifty-nine percent of children and 71% of parents endorsed the statement that mindfulness was helpful in the home environment. Furthermore, 59% of children indicated that they would recommend the program to their friends, while 100% of parents indicated that they would recommend the program to the parents of other children.

## DISCUSSION

The study findings support MBCT-C as feasible to implement in a clinic setting and as an acceptable form of group psychotherapy for this sample of children from the inner city. The potential helpfulness of MBCT-C was partially supported on the parent report measure in an open trial analysis.

### Helpfulness of Treatment

In a meta-analysis on clinical mindfulness studies with adults, Baer (2003) found an average effect size of  $d = .59$  ( $SD = .41$ ). Cohen (1988) described effect sizes of  $d = 0.2$ ,  $d = 0.5$ , and  $d = 0.8$  as small, medium, and large, respectively. The current study found a small to medium effect size of MBCT-C when delivered as a 12-week intervention.

**Mindfulness and Internalizing Symptoms.** Results of the open trial showed a significant reduction in internalizing symptoms by parent report on the CBCL for the Intent-to-Treat sample. However, these differences disappeared when only those participants who completed the program were considered. The Intent-to-Treat sample ( $M = 53.12$ ,  $SD = 13.54$ ) and the Completer sample ( $M = 55.71$ ,  $SD = 12.81$ ) had slightly elevated means compared to the normative

sample ( $M = 50, SD = 10$ ). Although results found a significant reduction in internalizing symptoms for the Intent-to-Treat sample, the clinical meaning of these results require qualification. Since pretest mean scores were not clinically elevated to begin with, a decrease of approximately three points may not be clinically relevant even with the overall trend of decreased symptoms. Replicating the study using a sample of children who meet diagnostic criteria may demonstrate greater variability when comparing scores from pretest to posttest. Furthermore, there was no adjustment for multiple pairwise comparisons to address increased Type I error rates. The investigators chose not to apply a Bonferroni correction given the small sample size and the exploratory nature of the study. Finally, regression towards the mean is another competing hypothesis that could account for the significant within-subject findings.

For the child-report measures, there were no significant changes in anxiety as measured by the MASC and STAIC, nor was there a significant change in depressive symptoms as measured by the RCDS, for either the Intent-to-Treat participants or the Completers. On the MASC, the Intent-to-Treat sample ( $M = 49.72, SD = 12.61$ ) and the Completer sample ( $M = 49.24, SD = 9.64$ ) had slightly lower mean pretest scores compared to the normative sample ( $M = 50, SD = 10$ ). On the STAIC, the Intent-to-Treat sample ( $M = 47.80, SD = 11.22$ ) and the Completer sample ( $M = 48.59, SD = 9.96$ ) had slightly lower mean pretest scores compared to the normative sample ( $M = 50, SD = 10$ ). As for the RCDS, the Intent-to-Treat sample ( $M = 49.80, SD = 11.64$ ) and the Completer sample ( $M = 49.12, SD = 9.35$ ) had mean pretest scores that were lower than that of the standardization sample ( $M = 56$ ). Possible reasons for these null findings include the small sample size and the restricted range on the outcome measures. The children did not report clinically elevated scores at the beginning of the trial, thereby making it more difficult to detect changes over time.

Although the empirical evidence is limited, there is some anecdotal support that suggests the program was helpful in managing performance anxiety in school. Several children who were particularly anxious about their performance in school discovered that they could use the breathing exercises learned in class to alleviate tension before an exam. One child shared, "It has made me have more confidence in myself. Lately, I have not been nervous or scared of my city-wide test. Long ago, I used to be but not anymore." In the spring semester, many children were faced with the challenge of taking the city-wide exam to demonstrate their competency in English and math. For some, this experience was fraught with much stress and apprehension because of previously unsuccessful attempts at passing and the possibility of having to repeat a grade in the event of failing. In the weeks approaching the city-wide exam, group discussions centered on how the children could apply the techniques they learned in class to help sustain their focus during the test and manage their anxiety to ward off states of distractibility. After the exam, many children reported that they successfully utilized the mindfulness techniques to help maintain concentration and attention while they were taking the test. Several parents also indicated that mindfulness helped their children in the school environment. One parent shared, "The most notable change I have seen in my child is that she has been able to feel more comfortable and tranquil in relation to school-related activities and testing." Overall, qualitative findings suggest that mindfulness interventions aimed at reducing internalizing symptoms in children warrant further investigation.

**Mindfulness and Externalizing Symptoms.** Results of the open trial showed a significant reduction in externalizing symptoms by parent report on the CBCL for the Completer sample but not for the Intent-to-Treat sample. The Completer sample ( $M = 53.12, SD = 10.07$ ) had slightly higher mean scores, while the Intent-to-Treat sample had slightly lower mean scores ( $M = 49.88, SD = 10.37$ ) compared to the normative sample ( $M = 50, SD = 10$ ). As noted above, the significant findings need to be contextualized within the limitations of the sample characteristics.

In a thematic analysis of open-ended responses from the parent questionnaire, the mindfulness program was believed to help children with anger management. One parent stated, "[My child] has been working better [at] managing his anger especially with applying mindfulness during

situations that would normally make him lose control.” One 12-year-old boy stated, “Mindfulness has showed me to control my anger. And not get angry when being teased. I practice my breathing exercise. It helped me cool down and think what can happen before I get in trouble.” Another 12-year-old boy reflected on his experience in the program in the following way: “Mindfulness means being more aware of my actions, and knowing when you are angry so I can stop it from getting too far. I don’t talk back at my teachers or get mad as much as I did in the past. The knowledge I gained is to stop getting so angry. When I do get angry I would realize it and do the breathe-in and breathe-out technique.” As with the previous qualitative findings, mindfulness interventions aimed at reducing externalizing symptoms in children warrant further empirical investigation.

## Feasibility of Treatment

Research has shown that once children are enrolled in mental health services, there is generally a high potential for dropping out. Wierzbicki and Pekarik (1993) found that among children, adolescents, and their families who begin psychological treatment, 40% to 60% terminate prematurely. These rates may be even higher for children and their families who experience stress associated with disadvantaged social, racial, and economic status. In a study by Kazdin (1996), families that dropped out prematurely experienced greater socioeconomic disadvantage, parental stress, and negative life events. Early termination was also greater among children who were ethnic minority group members and who came from single-parent homes.

In light of the preceding discussion, the dropout rate for the current study was expected to be about 50%, yet dropout status was assigned to 32% of the participants ( $n = 8$ ). In addition, the attendance rate of 78% among all participants, and 94% among the Completers, provided further support for treatment feasibility.

## Acceptability of Treatment

Program evaluations were highly positive, as both parents and their children endorsed the benefits of mindfulness training in terms of affective and behavioral outcomes. Clinical observations and anecdotal evidence by parent and child report further support MBCT-C as an acceptable intervention for this sample of school-aged children. One parent shared her thoughts about the overall experience of the program, stating, “Programs such as these motivate me to be a better mother and hope that my children will be successful. I’m happy that my daughter had the opportunity to be part of this research. I know it was a good and safe environment because every week my daughter looked forward to the next session.” Another parent wrote, “I feel honored [my child] was invited to participate in this study. . . . It has made a positive impact on my daughter. I would recommend this program to other parents.” Furthermore, several study participants felt that the worst part of the program was that it was too short and that it was not continuing. One child stated, “When I look back on the past 12 weeks in the program, I feel sad because it passed so fast.” Another child stated, “I really love this program. I wish we could have at least had 20 sessions.”

## LIMITATIONS

The chief limitation of the study involved the general characteristics of the participant sample, which consisted of children exhibiting subclinical levels of internalizing and externalizing symptoms. A significant methodological limitation was the use of clinical assessment measures on a sample of children who did not meet diagnostic criteria for any internalizing or externalizing disorder. The use of clinical assessment measures on a sample of nonreferred children appeared to have contributed to a floor effect, thereby making it more difficult to detect changes over time from baseline to postintervention.

As an exploratory study, another limitation is the small sample size and lack of power to detect effects through a between-group analysis. Without a control group comparison, it is not possible to attribute changes to the effects of the mindfulness intervention. Future replication studies may include a larger sample size to adequately detect between-group differences.

A related limitation is the absence of another group intervention comparison that could assess the nonspecific factors of MBCT-C, such as therapeutic alliance and group support. Over the course of the 12-week program, the groups became highly cohesive as the children developed meaningful relationships with the instructors and each other. Future research efforts may include a comparison condition matched to the MBCT-C treatment condition, such as supportive group therapy, to extricate the specific treatment effects of the mindfulness intervention.

## CONCLUSIONS

Overall, the quantitative data on the helpfulness of MBCT-C in reducing internalizing and externalizing symptoms is limited. However, qualitative findings indicated that the intervention holds potential in the treatment of such symptoms. MBCT-C also appears to be a feasible and acceptable form of group psychotherapy for this sample of school-aged children. From a clinical perspective, nearly all of the children easily grasped the core concepts of mindfulness, readily engaged in exploring mindfulness using the various senses, and found creative ways to integrate mindfulness into their daily lives. Parent and child ratings were highly favorable and suggested that some of the children were better able to manage a variety of problematic behaviors with mindfulness practices.

Further empirical research is needed to test the efficacy of mindfulness paradigms as a treatment for psychological disorders in childhood. As the current study represents an initial attempt to deliver mindfulness meditation to children, the feasibility and acceptability findings demonstrate preliminary support for the conduct of a larger controlled clinical trial using a sample of children who meet *DSM-IV-R* clinical criteria for depressive or anxiety disorders.

## REFERENCES

- Achenbach, T. M. (1991). *Manual for the Child Behavior Checklist: Ages 4–18 and 1991 profile*. Burlington, VT: University of Vermont, Department of Psychiatry.
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text revision). Washington, DC: Author.
- American Psychological Association. (1995). *Template for developing guidelines: Interventions for mental disorder and psychological aspects of physical disorders*. Available from the American Psychological Association, 750 First Street, NE, Washington, DC 20002–4242.
- Baer, R. A. (2003). Mindfulness training as a clinical intervention: A conceptual and empirical review. *Clinical Psychology: Science and Practice, 10*, 125–143.
- Bissonnette, V. (2006). *Statistical power of the t-test for one sample or two related samples*. Retrieved December 21, 2006, from <http://fswweb.berry.edu/academic/education/vbissonnette/tables/pwr1samp.pdf>
- Chang, J., & Hiebert, B. (1989). Relaxation procedures with children: A review. *Medical Psychotherapy, 2*, 163–176.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Dacey, J. S., & Fiore, L. B. (2000). *Your anxious child*. San Francisco: Jossey-Bass.
- Dunlap, W. P., Cortina, J. M., Vaslow, J. B., & Burke, M. J. (1996). Meta-analysis of experiments with matched groups or repeated measures designs. *Psychological Methods, 1*, 170–177.

- Fish, M. C. (1988). Relaxation training for childhood disorders. In C. E. Schaefer (Ed.), *Innovative interventions in child and adolescent therapy* (pp. 160–192). New York: Wiley.
- Gaines, R. (1997). Key issues in the interpersonal treatment of children. *The Review of Interpersonal Psychoanalysis*, 2, 1–5.
- Goleman, D. J., & Schwartz, G. E. (1976). Meditation as an intervention in stress reactivity. *Journal of Consulting and Clinical Psychology*, 44, 456–466.
- Humphrey, J. H. (1988). *Teaching children to relax*. Springfield, IL: Charles C Thomas.
- Kabat-Zinn, J. (1982). An outpatient program in behavioral medicine for chronic pain patients based on the practice of mindfulness meditation: Theoretical considerations and preliminary results. *General Hospital Psychiatry*, 4, 33–47.
- Kabat-Zinn, J. (1994). *Mindfulness meditation for everyday life*. New York: Hyperion.
- Kaslow, N. J., & Racusin, G. R. (1994). Family therapy for depression in young people. In W. M. Reynolds & H. F. Johnston (Eds.), *Handbook of depression in children and adolescents* (pp. 345–363). New York: Plenum Press.
- Kazdin, A. E. (1996). Dropping out of child psychotherapy: Issues for research and implications for practice. *Clinical Child Psychology and Psychiatry*, 1, 133–156.
- Linden, W. (1973). Practicing of meditation by school children and their levels of field dependence-independence, test anxiety, and reading achievement. *Journal of Consulting and Clinical Psychology*, 41, 139–143.
- Ma, S. H., & Teasdale, J. D. (2004). Mindfulness-Based Cognitive Therapy for depression: Replication and exploration of differential relapse prevention effects. *Journal of Consulting and Clinical Psychology*, 72, 31–40.
- March, J. S. (1997). *Multidimensional Anxiety Scale for Children: Technical manual*. Toronto, Ontario: Multi-Health Systems, Inc.
- Marlatt, G. A., & Kristeller, J. L. (1999). Mindfulness and meditation. In W. R. Miller (Ed.), *Integrating spirituality into treatment* (pp. 67–84). Washington, DC: American Psychological Association.
- Posner, M. I., & Petersen, S. E. (1990). The attention system of the human brain. *Annual Review of Neuroscience*, 13, 25–42.
- Reynolds, W. M. (1989). *Reynolds Child Depression Scale: Professional manual*. Odessa, FL: Psychological Assessment Resources.
- Reynolds, W. M., Anderson, G., & Bartell, N. (1985). Measuring depression in children: A multimethod assessment investigation. *Journal of Abnormal Child Psychology*, 13, 513–526.
- Reynolds, W. M., & Graves, A. (1989). Reliability of children's reports of depressive symptomatology. *Journal of Abnormal Child Psychology*, 17, 647–655.
- Rozman, D. (1976). *Meditating with children: A workbook on new age educational methods using meditation* (rev. ed.). Boulder Creek, CA: U Trees Press.
- Segal, Z. V., Williams, J. M. G., & Teasdale, J. D. (2002). *Mindfulness-based cognitive therapy for depression: A new approach to preventing relapse*. New York: Guilford Press.
- Semple, R. J., Lee, J., & Miller, L. (2006). Mindfulness-based cognitive therapy for children. In R. Baer (Ed.), *Mindfulness-based treatment approaches: Clinician's guide to evidence base and applications* (pp. 143–166). San Diego, CA: Elsevier.
- Semple, R. J., Reid, E. F. G., & Miller, L. F. (2005). Treating anxiety with mindfulness: An open trial of mindfulness training for anxious children. *Journal of Cognitive Psychotherapy*, 19, 387–400.
- Siegler, R. S. (1991). *Children's thinking* (2nd ed.). Upper Saddle River, NJ: Prentice Hall.
- Smith, M. S., & Womack, W. M. (1987). Stress management techniques in childhood and adolescence: Relaxation training, meditation, hypnosis, and biofeedback: Appropriate clinical applications. *Clinical Pediatrics*, 26, 581–585.
- Spielberger, C. D., Edwards, C. D., Lushene, R. E., Montuori, J., & Platzek, D. (1973). *State-Trait Anxiety Inventory for Children: Professional manual*. Redwood City, CA: Mind Garden, Inc.

- Stark, K. D., Rouse, L. W., & Kurowski, C. (1994). Psychological treatment approaches for depression in children. In W. M. Reynolds & H. F. Johnston (Eds.), *Handbook of depression in children and adolescents: Issues in clinical child psychology* (pp. 275–307). New York: Plenum Press.
- Teasdale, J. D., Segal, Z. V., & Williams, J. M. G. (1995). How does cognitive therapy prevent depressive relapse and why should attentional control (mindfulness) training help? *Behavior Research and Therapy*, 33, 25–40.
- Teasdale, J. D., Segal, Z. V., Williams, J. M. G., Ridgeway, V. A., Soulsby, J. M., & Lau, M. A. (2000). Prevention of relapse/recurrence in major depression by mindfulness-based cognitive therapy. *Journal of Consulting and Clinical Psychology*, 68, 615–623.
- Wierzbicki, M., & Pekarik, G. (1993). A meta-analysis of psychotherapy dropouts. *Professional Psychology: Research and Practice*, 24, 190–195.

**Acknowledgments.** *The authors are appreciative of funding for this study provided by the Teachers College Dean's Grant for Student Research, a grant from the Center for Integrative Studies, and a grant from NIMH # 5K08 MHO 16749 (Miller).*

*Correspondence regarding this article should be directed to Jennifer Lee, PhD, Department of Counseling and Clinical Psychology, Box 102, Teachers College, Columbia University, 525 West 120th Street, New York, NY 10027. E-mail: jl972@columbia.edu*



Copyright of *Journal of Cognitive Psychotherapy* is the property of Springer Publishing Company, Inc. and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.