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Treating Anxiety With Mindfulness: An Open Trial of Mindfulness Training for Anxious Children

Randye J. Semple, PhD
Elizabeth F. G. Reid, MS
Lisa Miller, PhD
Teachers College, Columbia University
New York, NY

This study is an open clinical trial that examined the feasibility and acceptability of a mindfulness training program for anxious children. We based this pilot initiative on a cognitively oriented model, which suggests that, since impaired attention is a core symptom of anxiety, enhancing self-management of attention should effect reductions in anxiety. Mindfulness practices are essentially attention enhancing techniques that have shown promise as clinical treatments for adult anxiety and depression (Baer, 2003). However, little research explores the potential benefits of mindfulness to treat anxious children. The present study provided preliminary support for our model of treating childhood anxiety with mindfulness. A 6-week trial was conducted with five anxious children aged 7 to 8 years old. The results of this study suggest that mindfulness can be taught to children and holds promise as an intervention for anxiety symptoms. Results suggest that clinical improvements may be related to initial levels of attention.

Keywords: attention; anxiety; children; cognitive therapy; group treatment; psychotherapy; meditation; mindfulness; Mindfulness-Based Cognitive Therapy; stress

Despite the high prevalence of pediatric anxiety disorders, there is little research on the long-term efficacy of psychosocial interventions for anxious children and less information about the clinical effectiveness of treatments as utilized in real-world settings (U.S. Department of Health and Human Services, 1999). Several controlled trials suggest that cognitive-behavior therapy (CBT) may be an effective treatment for some children with anxiety disorders (Flannery-Schroeder & Kendall, 2000; Kendall, 1994; Kendall et al., 1997). Treatment gains from one study were reported as being maintained, on average, more than 3 years later (Kendall & Southam-Gerow, 1996). Although these studies have shown efficacy, others have reported mixed results (Last, Hansen, & Franco, 1998) and questions of whether treatment gains can be sustained (Hayward et al., 2000). Given the inconsistent findings and the prevalence of anxiety in children, it is important to examine component parts and to develop potentially new components of treatment. It seems premature at this stage to rule out research into alternative psychosocial treatments that might enhance existing treatments. One treatment that has shown promise in reducing stress and anxiety symptoms in adults is mindfulness meditation.

Clinical researchers are expressing growing interest in integrating mindfulness techniques into adult treatments for anxiety and depression (e.g., Kabat-Zinn et al., 1992; Linehan, 1987; Segal, Williams, & Teasdale, 2002). As more studies are reported, researchers are refining definitions of mindfulness. Refer to Brown and Ryan (2003) and Kabat-Zinn (2003) for current discussions about the meanings of this word. We use it here to mean, "paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally" (Kabat-Zinn, 1994, p. 4). Mindfulness practices emphasize the observation of internal experiences without distortion from affective, cognitive, or physiological reactivity influencing those experiences. In essence, mindfulness is simply the moment-to-moment practice of clearly discriminating thoughts and emotions from external events (Hendricks, 1975).

Treating Anxiety With Mindfulness

Similar to CBT, practicing mindfulness can teach clients to recognize anxious feelings, clarify repetitive or maladaptive thoughts, minimize avoidant behaviors, and self-monitor one's coping strategies (Roemer & Orsillo, 2002). Mindfulness meditation is also associated with relaxation (Benson, 1975) and stress reduction (Kabat-Zinn, 1990). Unlike CBT, mindfulness training aims to teach a more accepting relationship of one's thoughts, rather than emphasizing the creation of more positive or adaptive thoughts (Roemer & Orsillo, 2002).

It is hypothesized that the primary mechanism of mindfulness is self-management of attention. Repeatedly returning one's attention to a single neutral stimulus (e.g., the breath) produces a stable intrapsychic environment. From this secure foundation of attention, the unremitting arising and fading of thoughts, emotions, and body sensations can be observed in an accepting, non-judgmental manner. Meditation training has also been shown to increase participants' ability to manage a sustained input of information (Semple, 1999; Valentine & Sweet, 1999).

Mindfulness techniques have been effective components of adult treatments for anxiety disorders (Kabat-Zinn et al., 1992; Miller, Fletcher, & Kabat-Zinn, 1995), recurrent depression (Segal et al., 2002), borderline personality disorder (Linehan, 1987), substance abuse (Marlatt, 2002) bulimia nervosa (Kristeller & Hallett, 1999), management of chronic pain (Reibel, Greeson, Brainard, & Rosenzweig, 2001), and for patients coping with cancer (Speca, Carlson, Goodey, & Angen, 2000; Targ & Levine, 2002). Particularly common is the use of Mindfulness-Based Stress Reduction (MBSR) programs (Kabat-Zinn, 1990) in the self-management of stress and stress-related disorders (Anderson, Levinson, Barker, & Kiewra, 1999; Astin, 1997; Reibel et al., 2001; Roth, 1997; Shapiro, Bootzin, Figueredo, Lopez, & Schwartz, 2003; Shapiro, Schwartz, & Bonner, 1998).

There are clinical anecdotes that endorse the benefits of teaching meditation techniques to children (Chang & Hiebert, 1989; Dacey & Fiore, 2000; Fontana & Slack, 1997; Murdock, 1978). However, in spite of the promise of mindfulness training in adult psychotherapies, there have been no studies that extend these findings to children. Limited research has been conducted with children who were not clinically referred. These studies reported reductions in test anxiety (Linden, 1973), increased attention and relaxation (Murdock, 1978), enhanced attention regulation (Rani & Rao, 1996), and reductions in non-attending behaviors (Redfering & Bowman, 1981).

Coleman (1990) evaluated mindfulness with a child clinical population. In a mixed group of children and adolescents, Coleman reported no differences in anxiety reduction between randomly assigned groups practicing progressive muscle relaxation, two different meditative techniques, or just sitting quietly. We note some concerns about the methodology of this study. Participants were 80 clinic-referred children, 8 to 14 years of age. This is a wide age range for one study. No formal diagnoses were made, although Coleman noted that "a large percentage" (p. 116) of the children had been diagnosed with attention deficit disorder and "a number" (p. 133) had been

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Participants

Participants were three boys and
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Design and Procedures

The first and second authors adr
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diagnosed as oppositional or defiant. Three 20-minute sessions were administered for each group. It seems unlikely that effective learning of the various techniques could have occurred during this study for four reasons: (a) there was an inadequate number of sessions to learn and practice the techniques, (b) the length of each session was excessive for children, (c) the limited attentional abilities of "a large percentage" of the sample, and (d) the lack of cooperation or interest from "a number" of defiant children. This study also raises some procedural questions that are addressed in the present study.

Given the promise of adult trials, it seems that, with age-appropriate modifications, mindfulness training can be a worthwhile avenue to explore in the treatment of childhood anxiety. There are two potential benefits of our proposed treatment approach versus existing therapies. First, the delivery of group treatment in a school-based setting is potentially more cost-effective than individualized, clinic-based treatments. Second, as a self-management technique, participants appreciate that they played the critical role in their own therapeutic improvement. This may enhance participants' self-efficacy, which should improve the probability of maintaining any therapeutic gains.

The present study explores the feasibility of extending mindfulness techniques as a potential intervention for childhood anxiety. Although participants were not clinically referred, they passed through a dual screening process intended to select children who were experiencing anxiety associated with significant levels of distress or functional impairment. We hypothesized that a 6-week pilot program of training in mindfulness meditation would prove feasible and acceptable to this small group of anxious children. We expected participation to be associated with reductions in anxiety symptoms assessed via clinical observations, teacher ratings, and self-report measures.

Method

Participants

Participants were three boys and two girls, 7 to 8 years of age, attending an elementary school in Harlem, New York City. All second and third grade teachers at the school made initial nominations based on their observations of anxiety symptoms in their students. These children were then screened and recommended for inclusion in the program by the school psychologist. Informed consent from parents and assent from the children were obtained. Each child received a cartoon sticker at the end of each session to thank them for their participation.

Design and Procedures

The first and second authors administered a school-based intervention in a small group format. The 6-week program was delivered in 45-minute sessions, one session per week. Each participant acted as his or her own control in a within-subjects, pre-post design. Pre-treatment data were collected 4 days before the first session. Outcome data were collected following the sixth session. Sessions were held in a quiet room at the school. Mats were provided for the seated exercises. Incidental materials (e.g., small food items, music CDs, scents and herbs, and a variety of small household objects) were used in the exercises. The first and second authors were the group's co-therapists.

Fundamental concepts and specific techniques were adapted from two adult programs: Mindfulness-Based Stress Reduction (Kabat-Zinn, 1990) and Mindfulness-Based Cognitive Therapy (Segal et al., 2002). Mindfulness training with children trains attention by focusing on body sensations and perceptions. Mindfulness was integrated into simple breathing, walking, gustatory, visual, auditory, olfactory, and tactile exercises. Each session focused on a single modality (kinesthetic, taste, sight, sound, smell, or touch). Simple sensory exercises introduced participants

to the concept of mindfulness and facilitated understanding potential benefits of mindfulness in everyday life. Participants were given instruction, in-session opportunities to practice specific techniques, and weekly home practice exercises. We emphasized learning through experience, rather than via theoretical information. The usefulness of describing rather than labeling or judging was emphasized (e.g., red, soft, or fuzzy versus nice, or pretty).

Appropriate to young children's capabilities, breathing exercises were kept brief. Each session began and ended with three-minute seated breath meditations. Each child then wrote down his or her most pressing worry for that day on a paper, and then threw the paper in a Worry Warts Wastebasket, as a way to get distance from anxious cognitions. Children were given the opportunity to reclaim their worries from the basket at the close of each session. No child chose to do so. Mindful walking exercises can develop one's kinesthetic senses and sense of physical self in relation to the world. Slow walking exercises and short body movement meditations similar to yoga stretches were included in three of the sessions.

Structure of the Sessions

In addition to our personal mindfulness preparation, the room was prepared by marking "personal spaces" on the floor with masking tape. A floor mat and a folder were placed in each space. Folders contained the group rules, three Feely Faces Scales, a sheet of stickers, "worry" paper, and a pencil. "MACK CLUB" signs (Mindful, Aware, and Cool Kids) were placed on the door and at the front of the room. One chair was placed at the back of the room (the children could choose to "sit out" of any activity). The Worry Warts Wastebasket was placed near the door.

We describe a typical session—one focused on Mindful Eating. As children enter the room, they remove their shoes, find their own folders, sit down in their own space, and review the MACK club rules. The co-therapists modeled mindfulness in the moment via their own quiet and attentive behaviors.

- Each child completes the pre-session Feely Faces Scale (see Measures section).
- Each child writes down one of their current worries and, with a small ceremony, throws it in the Worry Warts Wastebasket.
- Short, guided breath meditation (taking three mindful breaths).
- Review and discussion of previous week's home exercises.
- Mindful eating is practiced using a single raisin:

> *This exercise is practice in eating with mindfulness, using all five senses to increase your awareness of the complete experience. I will give each of you an object. Hold this object in your hand. Look at it carefully. When you are ready, I invite you to explore this object with all of your senses. What color is your object? Does it change color at different places? What does the surface texture look like? Does the object look dry or moist? Is the shape even on all sides? Feel your object. Is it soft or hard? Do the ridges form any pattern? Is the texture the same all over the object? How heavy is it? Does it have any smell? Place the object in your mouth. How does your tongue connect with the object? Does it feel different in different parts of your mouth? Is your mouth starting to water in anticipation of eating the object? Is there any taste before you bite into it? Any smell? Does the texture change the longer you hold it in your mouth? I invite you to observe your thoughts and expectations. Are you looking forward to swallowing the object and eating another, or fully enjoying the experience of the one that is now in your mouth? When you are ready, gently bite the object. What are the flavors as they are released from the skin of the object? Do the taste and texture of the inside of the object differ from the outside? Is there a difference in moistness or flavor? Are the sensations different in different parts of your mouth? As you slowly chew the object, note each sensation. As you swallow it, can you feel the sensation as it slides down your throat? Can you follow it all the way down to your stomach? Do you have any leftover sensations in your mouth? Is there a different taste or flavor in your mouth*
> *experience of eating this object*

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Mindfulness in Everyday L

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- Group discussion of mindful eating experience.
- Three-minute seated breath meditation.
- Distribute handouts and discuss home practice exercises for the following week.
- Each child completes the post-session Feely Faces Scale and the Class Satisfaction Scale.
- Children put on their shoes and return to their classrooms.

Mindfulness in Everyday Life

Participants were encouraged to discover their own ways to practice mindfulness at home, which supports the generalization of mindfulness to daily life. To facilitate this, we assigned weekly experiential home practice exercises. In each session, we invited discussion of their daily experiences of mindfulness. For example, the children practiced mindful touch at home:

How does your own skin feel? Explore your own hand. Ask one of your friends or family members if you can touch the skin on their hand and then compare it to your own. How do they feel different? Is one softer than the other? Warm? Cool? Smooth? Rough? Silky? I invite you to close your eyes and feel the different textures of your clothes. Note how your T-shirt feels that may be different from your jeans. How about your sweater or jacket? I invite you to go around your home and touch everyday objects. A tennis ball can feel kind of furry and the side of a pen can feel really smooth. Pillows are often soft and squishy. Are you alert to when you are judging what you touch rather than just observing and describing the object?

Measures

Measures were completed at pretest and posttest. Two self-report instruments supplemented a behavioral rating scale completed by each child's teacher. These three measures were normed and standardized on national samples of children. Results are reported in standardized *T*-scores ($M = 50$; $SD = 10$). Idiographic self-report measures, the Feely Faces Scales, were developed for use in this study.

The Child Behavior Checklist: Teacher Report Form (Achenbach, 1991) consists of 113 problem-behaviors that are rated by teachers. The CBCL-TRF was normed for children aged 5 to 18, and provides data on eight problem scales, five adaptive functioning scales, internalizing scores, externalizing scores, and a total score. The Multidimensional Anxiety Scale for Children (March, 1997) is a 39-item self-report inventory designed for children aged 8 to 19. The MASC provides four factor scores: Physical Symptoms, Social Anxiety, Harm Avoidance, and Separation Anxiety. The MASC also contains an inconsistency index, which provides a measure of report validity. The State Trait Anxiety Inventory for Children (Spielberger, Edwards, Lushene, Montuori, & Platzek, 1973) is a self-administered questionnaire that consists of 40 short self-statements that are rated on a 3-point measure of frequency. The STAIC assesses state anxiety and trait anxiety in children in grades four through six.

The Feely Faces Scales were developed for this program as a means by which young children might evaluate and report their own global mood-state at the beginning and end of each session. We used three Likert-type scales as spot measures. Each scale consisted of a paper drawn with a 5 by 6 grid. Session dates were marked at the bottom of each column. Children chose how many stickers (from 1 = "I don't feel good" to 5 = "I feel great") to place in each day's column to represent how they felt at that moment. Consequently, the children created histograms that graphically represented their subjective sense of well-being. The pre- and post-session scales were each labeled,

"How Do I Feel Right Now?" The Class Satisfaction Scale was labeled, "How Much Did I Like Class Today?" We considered these scales to be transitional exercises that encouraged discussion of changing mood-states.

Results

Because of the small group size, an ideographic approach to data analysis was used. Outcome evaluation was conducted using graphic displays and visual analyses of pre-post changes as reported by the participants and their teachers. Acceptability of the treatment was evaluated by the co-therapists during the in-session group discussions. Informal clinical observations were reported by the school psychologist, who interacted with the children daily. We found that four of the five children responded enthusiastically to the program. Teacher ratings suggest that gains were made for all five children in several areas of adaptive functioning and in reported reductions of total internalizing and externalizing problems (see Figure 1).

We do not report individual results from the self-report anxiety measures (MASC and STAIC) for two reasons. First, contrary to the teachers' reports and our clinical observations, participants reported experiencing little anxiety. With one exception, pretest *T*-scores on the MASC ranged from 33 to 51, while posttest scores ranged from 29 to 57. Elena's pretest scores indicated self-reported anxiety in the clinical range. Her assessment also had an unacceptably high inconsistency index. Pretest *T*-scores on the STAIC ranged from 39 to 54 (state anxiety) and from 35 to 53 (trait

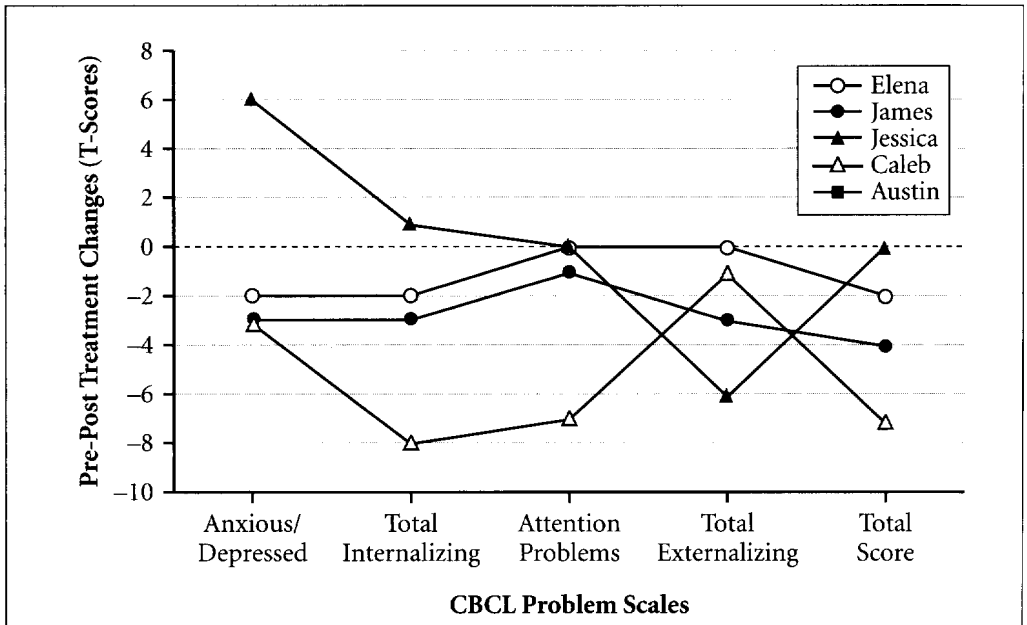

Figure 1. Changes in problem behaviors before and after 6 weeks of mindfulness training. Net changes on subscales of the Child Behavior Checklist–Teacher Report Form (CBCL) are shown in *T*-scores for each participant ($n = 5$). Negative *T*-scores represent reductions in reported symptoms. The broken horizontal line denotes no change. Results indicate a trend toward fewer problem behaviors. A clinically significant reduction in attention problems was reported for Caleb. No posttreatment data were available for Austin.

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anxiety). Posttest *T*-scores on the STAIC ranged from 24 to 63 (state anxiety) and from 41 to 53 (trait anxiety). Glennon and Weisz (1978) suggested that young children may under-report anxiety to obtain favorable evaluations or to avoid treatment. Second, we believe that the measures were not suitable for these children. We had planned this study for participants aged eight to ten, and attending the fourth or fifth grade. However, three of the nominated participants were 7 years old and all five were in either second or third grade. Each child had difficulty understanding some words used on the forms. For example, no child knew the meaning of the words "jittery" or "tense."

In the clinical case reports that follow, each child is briefly described. Teacher observations of each child's class behaviors are followed by clinical observations of behaviors within the mindfulness group. Then, test results are presented for each child. Names and other identifying details about the children have been changed to preserve confidentiality.

Clinical Case Reports

James is an 8-year-old African American boy. He is an only child and lives with his father. His mother had abandoned the family during the previous year. James was described by his teacher as being very bright, intuitively interested in many things, well liked by other children, but very anxious and overly sensitive to criticism. When anxious, he becomes overly talkative and disruptive of classroom activities. Academically, James is performing at or above his grade level in all subjects.

In the group, James initially appeared to be self-confident and assured. However, anxiety was evident in his outbursts of nervous talking and hyperactivity. This happened frequently during the initial assessment and early sessions—less often later in the program. During the first session, James was acutely interested in making sure he understood the "rules" of the group and asked many questions. In this session, he confidently asserted that he had no worries at all.

In the first two sessions, James reported feeling better at the beginning of the session than at session-end. However, his posttest mood ratings increased to the 5-point maximum for three of the last four sessions of the program. His class satisfaction rating, following a "1" for the initial session, averaged 4.8 for the rest of the program. James' CBCL scores indicated clinical levels of anxiety and depression problems and elevated scores on symptoms of externalizing disorders. His posttest CBCL behavioral ratings showed a marked improvement in academic performance (11 T-score points) and a small reduction in symptoms of both internalizing problems (3 T-score points) and externalizing problems (3 T-score points). James' CBCL pretest attention T-score was 51, suggesting average attention capabilities. This is an important difference from the attention level reported for Caleb.

Caleb is an 8-year-old African American boy. He lives with his mother and stepfather, both of whom are unemployed. Caleb's father is deceased. Caleb takes medication and has been hospitalized for severe asthma. He regularly appears at school 1 to 2 hours late. According to his teacher, Caleb has difficulties working independently, is restless, has anxious mannerisms (e.g., fidgeting and nail biting), and tends to wander around the school by himself. He was described as being afraid of making mistakes, easily frustrated, and academically unmotivated. It was noted by his teacher that Caleb was not well liked by his classmates. Academically, he is performing below grade level in all subjects.

In the group, Caleb often asked questions unrelated to the discussion, and some of his verbalizations revealed some loose associations or tangential thought processes. For example, when asked to define "mindful," he began a rambling story about his "cool" uncle whom he admired and wanted to emulate. Throughout the program, Caleb was the only child who

expressed dissatisfaction with the activities of the mindfulness group. However, before the fourth session, while Caleb was being brought from his classroom to the group, four of his classmates clamored to be allowed to join the group and expressed disappointment that they could not participate. In response to one therapist's inquiry, Caleb said that he had been telling his friends all about the group and the fun things that we did every week.

Contrary to Caleb's testimonial to his classmates, subsequent to first session, his posttest mood ratings were consistently "1" and his class satisfaction ratings averaged 1.5 across four sessions. Caleb's CBCL scores indicated clinically elevated levels of both internalizing and externalizing problems. His CBCL pretest attention T-score *was 70, which suggests clinically impaired attentional capabilities. His posttest CBCL behavioral ratings indicated no overall change in academic performance. However, the "working hard" subscale showed a 4-point* T-score *improvement at posttest.* T-scores *for internalizing problems decreased eight points; from a* T-score *of 76 to a* T-score *of 68. Posttest attentional problems showed an improvement of seven* T-score *points. Nominal improvements were reported for externalizing symptoms.*

Austin is a 7-year-old Hispanic boy. Austin lives with his mother, father, and one older sister. His teacher reported that he often seems to be worried and sits by himself with his head down. He sometimes responds to his teacher's corrections with tears or temper tantrums. He was described as being "too fearful or anxious," but was "liked by everyone because his goodness is so apparent." Academically, he is performing at or slightly above his grade level.

Austin's presentation in the group suggested that he is an unhappy and timid child. His sad affect and withdrawn behavior is suggestive of severe anxiety or depression. During the initial sessions, Austin soberly and diligently practiced each of the exercises, but rarely spoke except in response to a direct question. In later sessions, he spontaneously shared some of his home mindfulness experiences with the group. At the third session, Austin appeared with a bruise on his left cheek. One child asked him, "Is your sister in the hospital from the car accident?" He did not reply. During the fourth session, Austin briefly used his mat to wall himself off from the group. Yet, he attentively participated in every exercise.

*Austin's posttest self-reported mood ratings showed minor variability, averaging 4.0 across six sessions. He rated his satisfaction with the class "5" after every session. His internalizing problem scores suggested clinical impairments (*T-score *= 79), while externalizing scores were within normal limits. Austin's* T-score *for attention was 52, indicating average attentional abilities. Unfortunately, we were unable to get a posttest CBCL completed for Austin. However, Austin earnestly participated in all the exercises, began to speak more spontaneously in sessions, shared his home practice experiences, and reported that he "really liked" the mindfulness class. Information obtained from the school psychologist's report and clinical observations suggest that Austin found the program to be interesting and worthwhile.*

Elena is a 7-year-old Hispanic girl. She lives with her mother, father, and one younger sister. Her teacher reported that, academically, she was performing somewhat above her grade level. Elena works very hard, but "seems to think she has to be perfect." She frequently does extra schoolwork independently. She cares for her classmates and is often the "helper" when they are hurt or sad. According to her teacher, Elena worries about her family, worries about pleasing others, and is overly conforming to rules. Her self-reported anxieties were associated with separation issues and of having personal failings.

In the group, Elena was soft-spoken and serious about practicing each exercise. She was eager to participate in the group, and was shy and affectionate with the therapists. She expressed keen interest in the exercises—at one point questioning what happens to the worries from the previous week, "because the wastebasket is empty at every session." During the fifth session, she was bubbling over with suggestions for additional mindful eating exercises.

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Clinical Observations

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Elena reported no variability on her pre- or posttest mood ratings (5 at every session). She also consistently reported maximum scores on the class satisfaction scale. Her pretest CBCL scores indicated borderline clinical levels of anxiety and depression problems and a T-score of 42 (slightly below average) for symptoms of externalizing disorders. Her posttest CBCL showed a 6-point reduction in the "somatic complaints" subscale and a minor (2-point) reduction in anxiety and depression problems. Her attention T-scores were 50 at pretest and unchanged at posttest, indicating average attentional capabilities. Her posttest CBCL score indicated a reduction in Elena's adaptive functioning of seven T-score points, though the posttest score was still higher than the mean for her age (T-score of 55).

Jessica is a 7-year-old Hispanic girl. She lives with her parents and two older brothers. She is performing at her grade level in all academic subjects. Her teacher described her as, "sweet and friendly, cares for others" and "sometimes holds her feelings in."

Although initially shy, Jessica quickly displayed an effervescent personality—usually attentive to the exercises, but occasionally taking extracurricular pleasure in teasing the other children. She reported worrying about being accepted by other children. During the first session, Jessica informed the group that she had some experience with meditation from a karate class. With no prompting, she sat cross-legged and held her hands in a mudra position. During the pre-and posttest assessments, Jessica asked one therapist to read each question aloud to her. Given that she reads at grade level, this request may have reflected her need for attention or low self-efficacy rather than representing a deficit in reading skills.

Jessica's posttest mood ratings showed minor variability, averaging 4.25 across four sessions. She rated her maximum satisfaction with the class "5" after every session except the last, which was rated "3." More than the other children, Jessica expressed sadness at the conclusion of the program and wished that it would continue. Jessica's pretest CBCL ratings suggest that she was nervous and high-strung, somatized her worries, and experienced rapid mood changes. The only pretest score that was near the clinical range was for somatizing complaints. Her pretest internalizing and externalizing problems scores were above her age mean but within normal limits. It was interesting that Jessica's somatizing complaints and total externalizing scores decreased appreciably (12 T-score and 6 T-score points, respectively) by the end of the program. However, Jessica's posttest anxiety and depression rating moved six T-score points higher, into the marginal clinical range. We hypothesized that the mindfulness program may have prompted changes in Jessica's preferred mode of worrying from an externalizing to an internalizing style.

Summary of Case Reports

By the end of six weeks, four of the five children demonstrated enthusiasm and interest in practicing mindfulness and requested that the group continue. The children responded to the question, "how much did I like class today," with an overall mean rating of 4.13 on the five-point "faces" scale. Teachers reported improvements in academic functioning or reductions in clinical symptom scales for four children. Unfortunately, we could not obtain a posttest CBCL teacher report for Austin, who was interested and highly engaged in the program.

Clinical Observations of Mindfulness Training With Children

In the initial session, we explored what mindfulness meant to the children. Elena said she thought that, "mindful is when you really paid attention to something carefully." Austin said that it was when you looked really hard at something. Caleb thought that to be mindful meant to listen carefully and do exactly what his mother told him—so that he wouldn't get into trouble. All

of the children were certain that they were completely aware of everything in their surroundings—until one therapist asked them, "What color are the flowers outside the main entrance of the school?" None of them knew. As the children provided more examples from their own experiences, they gained awareness of how frequently they were not fully aware of their surroundings.

We then began a discussion about worries and all of the children initially claimed that they had no worries. Yet, in this first session, the children's written worries ranged from, "I worry about scary noises when I'm in the dark" to "I worry about dying." Several sessions later, James admitted to the group, "I wouldn't know what to do if I didn't have anything to worry about."

In that first session, James rarely sat still or stopped talking. He claimed that he couldn't sit up, that it wasn't comfortable. Lying down, he put the floor mat over his head. His behavior was disruptive to the other children, who were attending and appeared to be concentrating on the exercises. James and Caleb vied with each other to see who could be the most disruptive as they played off each other's silliness. Near the end of the session, James became upset and cried, apparently in response to being repeatedly asked to stop talking. At that point, Jessica said to him, "I can see that you're not feeling well, James, do you want to talk about it?" He said, "I feel better when I keep it all inside." One therapist observed that it looked like he was keeping a whole lot of things inside and some of it might be bubbling over. He replied, "I'm tough." Moments later, the second therapist approached him and James began to cry, saying that he didn't feel well. He reported feeling sick, but did not want to go to the nurse. It was clear that the initial session did not match James' expectations.

Before the second session, one therapist picked up James from his classroom. While they walked to the group room, she spoke to him about allowing more "space" for all the children to participate in the mindfulness exercises. She explained that the purpose of the program was to learn how to look inward and find the quiet place we all carry inside ourselves so that we might be happier and less worried about things. James replied, "At the first session, I just didn't understand what was expected of me, but now that I understand what the class is about, I'm looking forward to being there." This was a noteworthy insight from a young child about the relationship between expectations and acceptance of events.

In session two, the children practiced mindful seeing by looking at a number of small items on a tray, then closing their eyes and describing the objects. Before this exercise began, James confidently announced that that he could "see everything." By the end of the exercise, he was less certain—having been surprised by the number of items he had "seen" but could not describe. During this exercise, Austin told a story of something he had "seen," but had not remembered. He reported going to a restaurant and "seeing" a huge statue that he had never seen before, although he had walked right by it many times before. He commented, "I must be more mindful now."

In session three, we introduced mindful hearing. The children listened mindfully to bells to try to find the space where the bell sound ends and the silence begins. At the children's request, we repeated this exercise several times. Each time, there was a longer space before someone raised his or her hand to mark the "beginning of the silence." We then listened to short (30-second) segments from different genres of music. The children lay on the floor and moved their hands or feet in time to the music. We asked them to listen to the different instruments and imagine from which part of the world each piece may have come. They giggled at the opera music and were discomfited by the chanting of Tibetan monks. Caleb and James excitedly guessed that one piece was African drum music. Elena was certain that an Indian sitar was a guitar. All five children were eager to share their mindful experiences of each piece of music. They were excited at how very different each sounded, how the different sounds "made" them feel, and yet each piece was still "music."

In session five, James was the only child to offer words that described the scents used in a mindful smell exercise. The other children commented that things smelled "like perfume" or "like garlic," while James used adjectives such as "strong," sweet," and "flowery." The children wondered

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why it was so much harder to describe smells than to describe objects by sight or touch. They found that it was much easier to judge the scents as being "nice" or "not nice" than to describe them. Caleb was quite sullen during the first few minutes of this session. Sitting in the back of the room, he affected disinterest and refused to join the exercises. As one therapist walked around the room with various scents for each child to smell, she included Caleb in the mindful "smelling." Gradually, he sidled up to the front of the room, and was soon sitting next to the second therapist and excitedly working at describing the different scents. At one point, James noted that he does not like garlic and Caleb said he did, which triggered an interesting discussion regarding the nature of preferences being a function of the individual rather than being inherent in the object. Remarkably, at 7 and 8 years old, these children could differentiate and explore subjective judgments versus objective truths.

Summary of Clinical Observations

As a feasibility study, our intention was to explore the potential usefulness of mindfulness techniques for treatment of childhood anxiety. Child participants readily engaged in exploring mindfulness using their various senses to enhance their daily experiences. Teacher ratings were generally favorable—reporting improvements in academic functioning or reductions of problem behaviors. Our clinical observations supported these indications that mindfulness training may hold promise as a treatment component for anxious children.

We learned much about necessary adaptations of existing mindfulness programs for adults. For example, the children spent part of the orientation session asking clarifying questions about the "rules" of the group and seemed to be more comfortable with rules being made explicit (e.g., raising your hand to speak, no talking during the meditations, etc.). This level of direction is rarely necessary when working with adults. To keep young children interested and engaged, components that are extraneous to the effectiveness of mindfulness should be included. For example, the group had a name—the "MACK CLUB" (Mindful, Aware, and Cool Kids). We discovered that the children found it difficult to close their eyes when sitting together. We learned that it was challenging for young children to sit and practice watching their breath for more than three to five minutes (20- to 40-minute seated breath meditation sessions are customary for adults). We concluded that children's mindfulness exercises need to be shorter than those typically offered to adults—gradually increasing the duration with practice. In response to the cognitive-developmental stage of children, mindfulness exercises were more active and sensory focused than those generally offered to adults. Inclusion of the "worry warts wastebasket" was one means of concretizing an abstract concept that young children would not otherwise have comprehended.

Discussion

The open trial reported here examined the feasibility and acceptability of a mindfulness training program for teacher-referred anxious children. The school-based intervention was administered in a small group format by the first and second authors. Specific techniques included short meditative breathing techniques and attention-enhancing exercises in different sensory modes.

We speculated that mindfulness training might be effective for children with internalized anxiety problems. The program was not planned as a treatment for children with attention deficit/hyperactivity disorder or conduct problems, although the school asked us to work with one such child. Nevertheless, at the completion of the program, some improvements were reported for all of the children in at least one area—academic functioning, internalizing problems, or externalizing problems. Most of the children expressed pleasure in being part of the group and requested that the program continue. One child complained that the sessions were "only" once a week. All five

children were able to understand concepts of mindfulness and were able to devise applications of mindfulness in their everyday lives. Three of the children asked if they could make a "worry-warts wastebasket" for their own homes.

Our findings suggest that a base level of attention may help children engage in mindfulness training. We evaluated attention via the "attention problems" scale of the CBCL. Four children with average attention found the program to be interesting and enjoyable. Caleb reported that he disliked the program. Notably, Caleb was the only child who was rated as having attention problems in the clinical range. The differences in attitude between James (average attention) and Caleb (poor attention) were striking, since both children rated high on both internalizing and externalizing problems (see Figure 1). James was a motivated and interested learner while Caleb was not. Curiously, despite his repeated comments about how much he disliked the program, Caleb participated in most of the exercises and provided positive feedback to his classmates about the program. In addition, his CBCL anxiety and depression problem scores and attention score showed improvements at posttest. We suggest that potential relationships between attention and mindfulness merit further study.

There are significant limitations to this study. The clinical observations and rating scales were completed by persons who were aware that the children were participating in a special "relaxation" group. Thus, expectancy effects may have influenced our findings. The CBCL is not generally considered a rigorous measure of academic performance and may reflect only minor variations in reporting. It was unfortunate that the nominated children were younger than we had planned, thus rendering suspect the primary anxiety measures. As an exploratory open trial, no conclusions can be made about treatment efficacy.

Our results offer some indications that mindfulness training with anxious children is feasible and potentially helpful. Further investigation seems warranted to evaluate mindfulness as a treatment component for childhood anxiety disorders, and to better understand the operation of mindfulness in the management of anxiety. Continuing this avenue of research with more rigorous studies of mindfulness training with children may prove worthwhile. Accordingly, we are conducting ongoing research that incorporates what we have learned from the present study in a randomized controlled trial. Based on our understandings thus far, we have chosen to continue our exploration of mindfulness training with larger groups and with slightly older children (aged 9 to 12). The training has been expanded to 12 weeks of 90-minute sessions. Central to this research program, we are now developing and evaluating a manualized program of Mindfulness-Based Cognitive Therapy for Children.

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Offprints. *Requests for offprints should be directed to Randye J. Semple, PhD, College of Physicians & Surgeons, Columbia University, Department of Psychiatry, Division of Clinical and Genetic Epidemiology, 1051 Riverside Drive, Unit 24, New York, NY 10032. E-mail: rjs243@columbia.edu*

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