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Children with generalized anxiety disorder: developing a mindfulness intervention

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CHILDREN WITH GENERALIZED ANXIETY DISORDER:
DEVELOPING A MINDFULNESS INTERVENTION

by

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CHILDREN WITH GENERALIZED ANXIETY DISORDER: 
DEVELOPING A MINDFULNESS INTERVENTION

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ABSTRACT

Generalized Anxiety Disorder (GAD) is one of the most common and impairing childhood anxiety disorders, impacting over 10% of children with an average age of onset at 8.5 years. GAD in childhood increases the risk for developing additional anxiety and depressive disorders, academic and social difficulties, and, if left untreated, continuity into adulthood. While treatments incorporating mindfulness techniques have been shown to be efficacious among adults, relatively few studies have examined the efficacy of these techniques in the treatment of children. Mindfulness skills may be able to target maladaptive cognitive patterns by teaching children more flexible ways of thinking and viewing the world and providing children additional coping skills that may positively impact their overall functioning long-term. The aim of the present study was to develop and provide preliminary evaluation of a mindfulness-based intervention for GAD in school-aged children.

Four children aged 9 to 12 with a principal diagnosis of GAD completed an open trial pilot phase of a 6-session individual format mindfulness intervention. Each session emphasized mindful awareness of breath, body, and thoughts, and involved child and parent participation. An additional twelve children were randomized to either an
immediate treatment (n = 6) or a waitlist (i.e., delayed treatment; n = 6) condition during the course of a randomized waitlist-controlled clinical trial. Measures were administered at pre-waitlist (if applicable), post-waitlist/pre-treatment, post-treatment, and eight weeks following treatment to assess overall program satisfaction and changes in symptoms and diagnosis.

Overall, treatment dropout was low, and families reported high satisfaction with treatment. Relative to waitlist, children in the immediate treatment group evidenced significant difference in mean change scores on Clinical Global Improvement Severity score and Child Behavioral Checklist Internalizing and Anxiety Problems scales. Effect size statistics indicated very large effect sizes between the waitlist and immediate treatment groups for change in GAD Clinical Severity Rating, child self-report of worries, and mindfulness ability, despite non-statistical significance.

Overall, the intervention demonstrated feasibility, acceptability, and preliminary evidence of potential efficacy even in this small pilot study. Effect size estimates suggest a larger randomized clinical trial is warranted to fully evaluate treatment efficacy.
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<th>Description</th>
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<tr>
<td>ADIS-IV-C/P</td>
<td>Anxiety Disorders Interview Schedule, Child and Parent Versions</td>
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<td>CAMM</td>
<td>Child and Adolescent Mindfulness Measure</td>
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<td>CARD</td>
<td>Center for Anxiety and Related Disorders</td>
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<td>CBCL</td>
<td>Child Behavior Checklist</td>
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<td>CBT</td>
<td>Cognitive Behavioral Treatment</td>
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<td>CGAS</td>
<td>Children’s Global Assessment Scale</td>
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<td>CGI-I</td>
<td>Clinical Global Impression – Improvement</td>
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<td>CGI-S</td>
<td>Clinical Global Impression – Severity</td>
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<td>CSR</td>
<td>Clinical Severity Rating</td>
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<td>d</td>
<td>Cohen’s d</td>
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<td>DSM-IV</td>
<td>Diagnostic and Statistical Manual of Mental Disorders, 4th Edition</td>
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<td>F/U</td>
<td>Follow-up</td>
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<td>GAD</td>
<td>Generalized Anxiety Disorder</td>
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<tr>
<td>IE</td>
<td>Independent Evaluator</td>
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<td>IT</td>
<td>Immediate Treatment Condition</td>
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<tr>
<td>k</td>
<td>Kappa</td>
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<tr>
<td>M</td>
<td>Mean</td>
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<tr>
<td>MASC</td>
<td>Multidimensional Anxiety Scale for Children</td>
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<tr>
<td>MBCT</td>
<td>Mindfulness-Based Cognitive Therapy</td>
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<tr>
<td>MBCT-C</td>
<td>Mindfulness-Based Cognitive Therapy for Children</td>
</tr>
<tr>
<td>MBSR</td>
<td>Mindfulness-based Stress Reduction</td>
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<tr>
<td>MCQ-C</td>
<td>Metacognitive Questionnaire for Children</td>
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<tr>
<td>OCD</td>
<td>Obsessive-Compulsive Disorder</td>
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<td>Pre-Tx</td>
<td>Pre-treatment</td>
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<tr>
<td>Abbreviation</td>
<td>Full Form</td>
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<tr>
<td>Post-Tx</td>
<td>Post-treatment</td>
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<tr>
<td>PSWQ-C</td>
<td>Penn State Worry Questionnaire for Children</td>
</tr>
<tr>
<td>$r$</td>
<td>Pearson’s r</td>
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<tr>
<td>SD</td>
<td>Standard Deviation</td>
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<tr>
<td>SSRI</td>
<td>Selective Serotonin Reuptake Inhibitors</td>
</tr>
<tr>
<td>$t$</td>
<td>T statistic for a t-test</td>
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<td>WL</td>
<td>Waitlist Condition</td>
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Introduction

Generalized Anxiety Disorder in Youth

Generalized Anxiety Disorder (GAD) is one of the most common and impairing childhood anxiety disorders. According to the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision* (DSM-IV-TR; American Psychiatric Association, 2000), GAD is characterized by excessive, difficult-to-control anxiety and worry about a number of events and activities. This worry must occur for more days than not for a period of at least 6 months. In addition, the worry is accompanied by various physiological symptoms, such as muscle tension, restlessness/feeling keyed up or on edge, difficulty concentrating/mind going blank, being easily fatigued, irritability, and sleep disturbance. In children, the diagnosis only requires at least one physiological complaint to be present as opposed to at least three symptoms in adults.

According to epidemiological research, over 10% of children meet criteria for a clinical level of GAD, with an average age of onset at 8.5 years (Keeton et al., 2009). Anxiety disorders in children have been associated with increased risk for the development of additional anxiety and depressive disorders in adolescence and adulthood (United States Department of Health, 1999). Children with GAD are also at risk for developing academic and social difficulties and, if left untreated, GAD can continue into adulthood (Keeton et al., 2009). In fact, 12.8% of adults meet criteria for GAD in their lifetime (Ruscio et al., 2007).

Although worry is a normative part of childhood development, the presence of excessive worry may be an indicator of a clinical presentation of GAD. A study examining differences between worry in children with GAD and a normative sample
indicated children with GAD report an average of six worries versus the control group, which endorsed an average of one worry (Silverman, La Greca, & Wasserstein, 1995). In addition, several studies have found that children with GAD endorsed a higher number of worries when compared to children with other anxiety disorders; that is, they endorsed more domains of worry (Tracey, Chorpita, Dovern, & Barlow, 1997; Weems, Silverman, & La Greca, 2000). Specifically, Layne, Bernat, Victor, and Bernstein (2009) found that children with GAD, when compared to a nonclinical sample of children and children with another anxiety disorder, reported higher rates of worry in the domains of health, performance, and family. In addition, compared to children without GAD, those with GAD endorsed more associated symptoms of worry, such as “restlessness/difficulty relaxing” when worrying. Finally, studies have indicated that GAD in childhood is highly comorbid with other disorders; specifically, other anxiety and depressive disorders (Layne, Bernat, Victor & Bernstein, 2009; Masi et al., 2004).

Potential for Mindfulness Treatments

GAD, both in youth and adults, is characterized by excessive worry in a number of domains including school or work performance, health and safety of self and others, world affairs, and future events. Indeed, given the future-oriented, ruminative focus of individuals with GAD, mindfulness may be an effective strategy for these individuals to use. Roemer and Orsillo (2002) posit that practicing awareness of the present moment helps patients with GAD to recognize anxious feelings and monitor coping strategies while disengaging focus from future-oriented worries.
Given that cognitive patterns established in childhood may persist into adulthood, the development of a mindfulness-based treatment for chronic anxiety may be particularly beneficial for this childhood population. Mindfulness skills can teach children a more flexible way of thinking and viewing the world. Thus, mindfulness interventions can provide children additional coping skills that may have positive-long term impact for a child’s overall functioning. Mindfulness is an element of Buddhist meditation in which one practices focused, non-judging attention in the present moment. As Kabat-Zinn (1994) writes, “mindfulness means paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally…this kind of attention nurtures greater awareness, clarity, and acceptance of present-moment reality” (p. 4). In other words, mindfulness is defined as having a nonjudgmental awareness and attention to the present and can be achieved through the practice of mindfulness meditation as well as other practices. Through mindfulness, one can learn to be open and accepting of one’s thoughts, both positive and negative, on a moment-to-moment basis. In addition to accepting one’s thoughts, mindfulness encourages a focus on internal sensations and emotions and external stimuli.

A growing body of research has shown that mindfulness interventions may be efficacious in reducing symptoms among adults across a range of problems and disorders including chronic pain (Kabat-Zinn, 1982; Reibel et al., 2001), anxiety (Kabat-Zinn et al., 1992), depression (Segal et al., 2002; Teasdale et al., 2000), post-traumatic stress disorder (Wolfdorf & Zlotnick, 2001), and eating disorders (Kristeller & Hallett, 1999).

Mindfulness-Based Stress Reduction (MBSR) was developed by Kabat-Zinn
(1982) in a behavioral medicine setting to target patients with chronic pain or stress-related disorders. MBSR was designed as a group intervention conducted over 8-10 weeks and mindfulness exercises emphasized focusing attention on a particular target, such as one’s breathing. Several studies have shown that MBSR improves ratings of pain, and that these improvement ratings were maintained at follow-up (Kabat-Zinn, 1982; Kabat-Zinn et al., 1985; 1987). MBSR has also been shown to reduce symptoms in adults with binge-eating, (Kristeller & Hallett, 1999), generalized anxiety and panic disorders (Kabat-Zinn et al., 1992) in open trials. However, because these did not include control groups, there is a clear need for more rigorous research examining mindfulness-based treatments as compared to control groups, such as treatment as usual.

Mindfulness-Based Cognitive Therapy (MBCT) was developed by Segal and colleagues (2002) and integrates mindfulness techniques with cognitive-behavioral therapy components. MBCT was initially developed as an 8-week group intervention to prevent relapse of major depression in adults (Teasdale et al., 1995). Indeed, Teasdale and colleagues (2000) conducted a randomized controlled trial and found that MBCT significantly reduced rates of relapse of recurrent depression in adults. It has been suggested that the process of examining thoughts in a nonjudgmental way may interrupt the ruminative cognitive pattern that can be common for individuals with depression (Teasdale, 1999; Teasdale et al., 1995).

Moreover, a growing body of research suggests that mindfulness-based treatment is efficacious in reducing anxiety symptoms in adults with GAD (Evans et al., 2008; Craigie et al., 2008; Roemer et al., 2008). Specifically, Roemer and colleagues (2008)
conducted a randomized controlled trial examining a mindfulness-based behavioral therapy for adults with GAD compared to a waitlist control group. Patients were seen individually over 16 sessions. Results indicated that, compared to the control group, patients reported significantly reduced GAD and depressive symptoms, both on clinician-rated and self-rated measures, at both 3- and 9-month follow-up evaluations. While treatments incorporating mindfulness techniques have been shown to be efficacious in the adult literature, to date, relatively few studies have examined the efficacy of these techniques in the treatment of children.

Applications of Mindfulness Treatments for Childhood Anxiety Disorders

Although cognitive-behavioral treatment (CBT) research suggests that 60-90% of children report a reduction in clinically significant anxiety symptoms (Barrett et al., 2001), little is known about the 10-30% of children who do not respond to traditional CBT. While studies have shown that CBT is effective in reducing GAD symptoms, approximately 50% of children still report clinically significant GAD symptoms after treatment (Payne, Bolton, & Perrin, 2010). Moreover, most studies evaluate the treatment of GAD among other anxiety disorders and, to date, few have specifically focused on GAD (Suveg et al., 2009). Thus, mindfulness treatment research for children diagnosed with GAD fills an important gap.

Preliminary evidence for childhood mindfulness-based treatments for anxiety is promising (see Table 1). Liehr and Diaz (2010) conducted a pilot study comparing a mindfulness intervention to a health education intervention in 18 children ages 7-12 with depressive and anxiety symptoms, in which more than half of the sample were children
from Caribbean and Central American countries. Children were randomly assigned to an
intervention group. The mindfulness intervention curriculum was designed by
Mindfulschools.org and focused on teaching mindful awareness to breath, body,
movement, and generosity. The health education intervention consisted of educating
children regarding the importance of activity, eating healthy, and stress management.
Both interventions consisted of ten 15-minute classes conducted daily for 2 weeks.
Results indicated that children in the mindfulness intervention group reported lower
levels of both depressive and anxiety symptoms post-treatment when compared to
children in the health education intervention group. Although the study included a small
sample size and a non-clinical sample, it provides promise for the use of mindfulness
skills in reducing anxiety symptoms in children.

Biegel, Brown, Shapiro, and Schubert (2009) conducted a randomized clinical
trial comparing MBSR to treatment as usual in adolescents (ages 14-18) recruited from a
hospital child and adolescent outpatient clinic. The MBSR intervention consisted of eight
weekly classes focused on formal mindfulness practices such as body scan, sitting and
walking meditations, and Hatha yoga. The MBSR program was adapted to be
developmentally appropriate for adolescents so meditation practices were shortened from
45 minutes to 20-30 minutes in length and the daylong retreat was removed from the
program. Prior to treatment randomization, youth were identified as having a mood
disorder (n = 50), anxiety disorder (n = 31), and other disorder (n = 25) using DSM-IV
criteria, although a clinician-rated clinical interview was not conducted and no
information was provided on specific diagnoses. At post-treatment, participants in the
MBSR condition, compared the control group, reported significantly lower levels of depressive, anxiety, and somatization symptoms. While this study provides support for using mindfulness interventions in treating youth anxiety, the sample included youth with a range of diagnoses, making it difficult to generalize these findings to youth with a specific primary anxiety diagnosis.

Semple, Reid, and Miller (2005) conducted an open trial examining the feasibility and acceptability of a downward adaptation of MBCT for children with anxiety (MBCT-C). MBCT-C includes several modified components of MBCT for adults in order to consider developmental limitations, including children’s limited capacity for attention and abstract thinking. In order to address these issues, MBCT-C was designed as a 6-week school-based intervention conducted to a group of five children ages 7-8, and included exercises incorporating different senses, such as seeing and hearing. In examining open-ended responses from a parent questionnaire, results of their study provided preliminary indication that the children were able to understand the concept of mindfulness and practice mindfulness techniques taught during the intervention. However, Semple and colleagues did not formally measure degree of change in mindfulness ability in these children. Lee, Semple, Rosa, and Miller (2008) built upon Semple and colleagues’ pilot data by testing the feasibility and acceptability of MBCT-C for internalizing and externalizing symptoms in children. In this study, MBCT-C was administered in a group format over a 12-week period for twenty-five children ages 9-12, with six or seven children in each group. Results indicated a reduction in internalizing and externalizing symptoms on a parent report measure. However, there was no
significant change in anxiety on a child self-report measure. Moreover, the authors note that prior to treatment, children exhibited subclinical levels of internalizing and externalizing symptoms, contributing to a floor effect and, therefore, limiting the generalizability of the findings. Finally, Semple, Lee, Rosa, and Miller (2010) expanded upon their previous work by conducting a small randomized trial of MBCT-C for inner-city children struggling with academic problems. Specifically, an education psychologist referred children having reading difficulties to the program. In addition, twenty-one of the 25 children were ethnic minorities. Although results indicated a decrease in child self-report and parent report of anxiety symptoms, similar to their previous studies, Semple and colleagues did not use any clinician-rated measures of anxiety and children did not report clinically elevated anxiety symptoms prior to treatment. Although showing promise for the feasibility and acceptability of MBCT-C with ethnically diverse children, there were several limitations in these studies. First, in both studies, MBCT-C was delivered to a nonclinical sample of children, restricting the range and severity on outcome measures. As Lee and colleagues (2008) noted, because children initially reported sub-clinical levels of anxiety, it was more difficult to measure symptom change over time. Second, study outcomes were assessed only through child self-report and parent report measures. There were no clinician-rated measures of symptom outcome. Third, Lee and colleagues did not compare their treatment to a control condition, thereby limiting the conclusions that can be drawn, specifically, whether the treatment was responsible for symptom change over time. Moreover, while Semple and colleagues did compare MBCT-C to a control group, results indicated that comparable improvements in
anxiety symptoms were reported across groups and therefore the intervention could not be attributed as the sole cause of anxiety reduction. Further research is clearly needed to examine whether MBCT-C and other mindfulness-based interventions are efficacious for children with elevated anxiety symptoms and for those with specific childhood anxiety disorders, such as GAD.

*Cognitive Development and Metacognition*

It has been suggested that two cognitive abilities are needed in order for an individual to have the capability to worry (Vasey, 1993): (1) the ability to anticipate future events and (2) the ability to go beyond is what is observable to predict catastrophic outcomes. According to Piaget’s (1970) model of cognitive development, middle childhood is a developmental period in which children start to form more complex ideas about the future and can ruminate on different possibilities for a given event or situation. In fact, a study by Muris and colleagues (2002) examining the relationship between anxiety and cognitive development in children ages 4-13 found that although children at all ages reported fears and worries, they became more frequent as children passed the conservation task, which occurs during Piaget’s Concrete Operational Stage, between the ages of 7 and 11. This finding suggests that as cognitive maturation increases, children have increased ability to predict and expand upon possible threatening outcomes.

Along with cognitive maturation, children begin to develop the ability for metacognitive thinking (Kuhn, 1999). The concept of metacognition was first formulated by Flavell (1979) and is often defined as “thinking about thinking.” Wells (2004) defined metacognition as “the cognitive processes, strategies, and knowledge that are involved in
the regulation and appraisal of thinking itself” (p. 167). More specifically, Brown and colleagues (1983) defined metacognition broadly to include: (1) introspective knowledge about one’s cognitive states and abilities and their operation, (2) the ability to use metacognition to achieve goals, and (3) cognitive monitoring of thoughts (i.e., the ability to read one’s own mental state). In other words, metacognition is the ability to examine your thought processes as a mental activity.

*The Metacognitive Model, GAD, and Mindfulness Treatments*

Research has shown that mindfulness-based treatment with adults has been associated with increases in metacognitive awareness (Teasdale et al., 2002). More specifically, research has found that adults with GAD tend to view their worries as uncontrollable (Wells, 1995). Wells and Carter (1999, 2001) have developed a metacognitive model that explains how beliefs about these worries (worry about worry) influence the development and maintenance of anxiety disorders. Specifically, Wells and Carter (1999) posit that individuals with GAD “hold rigid positive beliefs about the usefulness of worrying as a coping strategy…[and] also hold negative beliefs and appraise worrying as uncontrollable and dangerous. This combination of cognitions and associated responses leads to an increased frequency and generality of worrying … characteristic of GAD” (p. 585). Not only do individuals with GAD hold *positive* beliefs that worrying is a useful coping strategy, these individuals also hold *negative* beliefs regarding worrying at the same time, which posit that worrying is uncontrollable and dangerous. Wells posits that these negative beliefs about worry are unique to individuals with GAD. In other words, they are also worrying about their worrying, which Wells
defines as negative meta-worry. It is this negative meta-worry that is more problematic than positive meta-worry, or believing worrying is a useful coping strategy (Wells & Carter, 1999). Metacognition, then, could be viewed as both a potential mediating and moderating factor in the relationship between treatment and anxiety reduction.

Research has shown that, compared with younger children, adolescents have increased and more advanced metacognitive abilities. (Bacow et al., 2008; Flavell, Green, & Flavell, 1998; Ormond et al., 1991). Simons, Schneider and Herpertz-Dahlman (2006) conducted a small pilot study examining the effects of Metacognitive Therapy in adolescents with Obsessive-Compulsive Disorder (OCD). They found that youth who were encouraged to accept their worried thoughts reported a reduction in OCD symptom severity. That is, youth were taught to treat their worried thoughts as mental events that did not require further processing as opposed to regarding their worried thoughts as fact. In this way, they were able to attribute less value to their worry. They were taught to simply notice their worried thoughts and then let them go.

Research examining mindfulness and its relationship with increased metacognitive capabilities in children is still emerging and there is partial support for the downward extension of the metacognitive model of GAD to children and youth, though findings have been mixed when comparing differences in metacognitive ability between anxious and non-anxious youth. For example, some studies have found that clinically anxious children report more negative beliefs about their worry (negative meta-worry) when compared to their normal counterparts (Cartwright-Hatton et al., 2004) while other studies have shown that there is no difference (Bacow et al., 2009). Additionally, results
have been mixed regarding age and gender differences as well. Specifically, Cartwright-Hatton and colleagues did not find any age or gender differences, while Bacow and colleagues found that adolescents reported greater awareness of their thoughts than children and adolescent girls scored higher on the total index scale of the Metacognitions Questionnaire for Children (MCQ-C) when compared to adolescent boys. Thus, although this research area is young (Ellis & Hudson, 2010), understanding the relationship between children’s worry and their metacognitive processes may provide a significant contribution to future treatment research. Accordingly, a secondary and exploratory goal of this proposal is to further understand the role metacognition may play in the relationship between mindfulness abilities and symptoms of GAD in children.

**Present Study**

Therefore, given that initial research in the field has shown promise for mindfulness-based interventions developmentally adapted for children, it seems logical as a next step to develop a child-focused, individually delivered mindfulness-based intervention targeting GAD in a clinical sample of school-aged children. Research indicates that interventions for child anxiety disorders can be effectively delivered in both individual and group formats. However, an individual-based intervention has a number of potential advantages. First, it allows the treatment to be more easily tailored to the child’s developmental level. Second, it is likely to enhance portability of the treatment to numerous community settings where it may be difficult to coordinate group interventions and where individual treatment is the typical format. Third, the effects of individual versus group treatments for child anxiety have been shown to be largely equivalent in
terms of post-treatment outcome (Liber et al., 2008; Flannery-Schroeder, Choudhury, & Kendall, 2005). Finally, research on adult mindfulness- and acceptance-based interventions has efficaciously used an individual treatment format (Roemer et al., 2008; Roemer & Orsillo, 2007). Thus, the present study focused on developing a developmentally sensitive, individually-delivered mindfulness-based treatment for youth with GAD.

Aims of the Present Study

Given the promising results of previous mindfulness research for children, the current research aimed to evaluate the feasibility, acceptability, and efficacy of a six-week mindfulness treatment program for GAD for children ages 9 to 12 through 2 studies. The overall aims of the current study were as follows:

Aim 1 (Study 1): To gather data on the feasibility and acceptability of the intervention and refine the treatment during an open trial pilot testing phase. During this phase, 4 children, including 2 girls and 2 boys, and their parents participated in the intervention.

Aim 2 (Study 2): To conduct a small waitlist-controlled trial comparing the newly refined intervention to a 6-week waitlist control group; and to assess the feasibility, acceptability, and clinical utility of the newly developed intervention. During this phase, 12 children, including 6 girls and 6 boys, and their parents participated in the intervention.

Aim 3 (Exploratory): To examine the impact of mindfulness strategies on children’s metacognitive capacities, specifically the relationship between metacognition,
mindfulness ability, and anxiety symptoms. Children’s level of metacognitive ability was measured by the Metacognitions Questionnaire for Children (MCQ-C).

Hypotheses

The specific hypotheses of the present study are as follows:

Aim 1, Hypothesis I: Both children and their parents will report high levels of satisfaction with the intervention, as measured by a treatment satisfaction questionnaire, indicating treatment feasibility and acceptability.

Aim 2, Hypothesis I: Children receiving the intervention will display significantly greater improvements than those in the waitlist condition, as measured by higher CGAS ratings and lower GAD severity and greater improvement ratings (CGI-S and CGI-I).

Aim 2, Hypothesis II: Children receiving the intervention will display significantly greater improvements than those in the waitlist condition on secondary measures of child symptoms (e.g. parent report of internalizing symptoms, self-report of anxiety), as measured by lower scores at post-treatment compared to post-waitlist.

Aim 2, Hypothesis III: Children will maintain treatment gains as evidenced by secondary measures of child symptoms at 8 weeks following intervention completion.

Aim 2, Hypothesis IV: Children receiving the treatment will display significantly greater improvement from pre-treatment to post-treatment as measured by lower severity ratings of GAD diagnosis (ADIS-IV-C/P) when compared to children in the waitlist condition from pre-waitlist to post-waitlist/pre-treatment.
Aim 3, Hypothesis I: Children will show increases in metacognitive awareness at post-treatment compared to their pre-treatment scores, as measured by the MCQ-C Cognitive Monitoring Subscale.

Aim 3, Hypothesis II: Children will show increases in mindfulness ability at post-treatment compared to their pre-treatment scores, as measured by the Child Acceptance and Mindfulness Measure (CAMM).

Aim 3, Hypothesis III: Metacognition will be associated with children’s mindfulness ability and GAD symptoms at all time points as illustrated through cross-sectional analyses in that higher levels of metacognitive abilities, as measured by the Cognitive Monitoring subscale of MCQ-C, will be significantly correlated with higher levels of mindfulness ability, as measured by the CAMM, at post-treatment and follow-up. In addition, we hypothesize that higher levels of mindfulness ability will be associated with lower levels of worry, as measured by the PSWQ-C, at post-treatment and follow-up. Finally, we hypothesize that following the intervention, children will report less negative beliefs about worry (negative meta-worry), as measured by the Negative Beliefs about Worry subscale of the MCQ-C.

Method

The first step of this project was to develop and manualize a mindfulness-based intervention for children using adult mindfulness treatments as a model. Specifically, several adaptations were included to ensure that the proposed treatment was developmentally sensitive and appropriate for children ages 9-12. Treatment development considerations included shorter treatment sessions as compared to adult mindfulness
treatments; mindfulness activities that are more concrete and focused on each of the senses, including mindful breathing, mindful walking, mindful eating, mindful listening, mindful touching, and mindful smelling; and the use of concrete examples and games to engage and assist children in understanding the material at an appropriate cognitive level. Additionally, parental involvement was encouraged; specific psychoeducational components for parents were included, and sessions were designed so that, at the end of each session, children were invited to teach their parents the mindfulness exercise learned in session. Thus, parents participated with and encouraged the child at home when practicing the mindfulness exercises. This was a particularly important component, as studies of youth with anxiety disorders indicate that during this developmental period, family involvement in treatment may enhance outcomes (Hudson & Rapee, 2005).

The proposed research occurred over two phases (Study 1 and Study 2). In both phases, participants were children between the ages of 9 and 12 years, who experienced symptoms associated with GAD, and their parents. In addition, participants were on the waitlist for the Child and Adolescent Fear and Anxiety Treatment Program through the Center for Anxiety and Related Disorders (CARD) at Boston University. Following an initial assessment, participants who meet diagnostic criteria for a principal diagnosis of GAD (Clinical Severity Rating [CSR] of 4 or above) were eligible to participate in the treatment program. The nature of the intervention and the specific treatment components were described to each family prior the initial assessment to ensure each family’s motivation for and commitment to a work-intensive, skills-based intervention.
Participants

Approval for this research study was obtained from the human subjects research Internal Review Board at Boston University. Sixteen children (aged 9 to 12) with a principal diagnosis of GAD were enrolled in the study. Four participated in the open trial while twelve were randomized to either the immediate treatment (n = 6) or waitlist (i.e., delayed treatment; n = 6) condition. Sixteen participants (n = 4 for the open trial phase, n = 6 for immediate, and n = 6 for waitlist condition) entered the treatment phase and fifteen participants completed the intervention. The one participant who terminated early did so due to maternal health issues after completing three sessions, and post-treatment and follow-up data were collected. The study CONSORT diagram highlighting the between-subjects design is presented in Figure 1. The mean age of study participants was 10.44 (SD = 1.09). The sample was primarily Caucasian (87.5 %) and Non-Hispanic (100%).

Children previously enrolled in CBT were eligible to participate as long as the generalized anxiety symptoms were still deemed clinically significant (as indicated by a clinical severity rating on the Anxiety Disorders Interview Schedule, Child and Parent Versions (ADIS-IV-C/P; Silverman & Albano, 1997) of 4 or greater, as described below in the Measures section). Participants on psychotropic medication were included if they were willing to maintain a constant dose throughout the treatment program and met standard Center for Anxiety and Related Disorders (CARD) requirements for medication stabilization prior to their initiation of services (described below in detail in the Inclusion/Exclusion criteria section). This requirement was instituted to avoid possible
confounding effects on outcome of altering medication status during treatment. Three
participants were concurrently taking psychotropic medications (18.75%), including
selective serotonin reuptake inhibitors (SSRIs; n = 2; 12.5 %) and stimulants (n = 1; 6.25
%); in all three cases parents reported that medication and dosage was maintained
throughout the study.

Inclusion and exclusion criteria. Selection of our inclusion criteria were designed
to enhance development of a specific treatment protocol for GAD in late childhood/early
adolescence and to ensure that medication usage does not threaten our ability to
determine the impact of our psychosocial intervention. All patients must have met the
following criteria to be eligible for study participation: (a) The child received a principal
anxiety disorder diagnosis of GAD assigned at pre-treatment, based on DSM-IV criteria.
This diagnosis was derived from the Anxiety Disorder Interview Schedule for DSM-IV,
Child and Parent Versions (ADIS-IV C/P; Silverman & Albano, 1997), and reflected a
clinical severity rating of 4 or above (see description of ADIS-IV in measures section);
(b) The child was between the ages of 9 and 12 years; (c) At least one parent or caregiver
was available to accompany the child to all assessment and treatment sessions; (d) If the
child was on benzodiazepines, there must be a 1-month stabilization period, and if the
child was on SSRI’s or Tricyclics, a 3-month stabilization period prior to the initial
diagnostic assessment (this was a requirement of all children referred to our program and
reflects a long-standing policy for both adult and child studies of psychological
treatments). During this stabilization period and throughout the course of the child’s
participation in the study, the child must have remained on a constant dose of any anti-
anxiety or anti-depressant medications. If the child was not on medication at the start of the study, he or she must have remained off anti-anxiety or anti-depressant medication throughout the course of the study. As anticipated, there was a low rate of medication use in this age group. To maximize the generalizability of this study, participants were only excluded for conditions that would limit their ability to participate in the treatment program, or limit our ability to interpret our results. Children with comorbid diagnoses were not excluded from the study unless they met any of the following exclusion criteria because of the ethical implications of requiring such individuals to refrain from additional treatment during the program and the questionable efficacy of providing such individuals with abbreviated clinical service duration. Exclusion criteria were: (a) Positive diagnosis of pervasive developmental disorder, neurological disease, mental retardation, or current suicidal ideation; (b) Positive diagnosis of bipolar disorder or psychotic disorders; (c) Anxiety or mood symptoms which appeared to be primarily due to a medical/physical condition, as determined through the review of a medical information form and clinical interview, because alternative treatment would be clinically indicated; (d) Unavailability of at least one parent or caregiver with whom the child is living to bring the child to treatment; (e) Refusal of the parent(s) or child to accept stabilization of medication (see criterion d in inclusion criteria; in our experience we have never had families refuse to accept medication stabilization criteria); (f) Children whose parents presented with any condition such as mental retardation, that would limit their ability to read or understand the treatment; (g) Children and parent(s) who did not speak English. However, no parents were excluded for any of these reasons. Children previously enrolled in a cognitive
behavioral treatment at CARD or elsewhere were eligible to participate as long as the GAD symptoms were still deemed clinically significant (indicated by a GAD diagnosis with a severity rating in the clinical range). If needed, permission was obtained to contact any previous clinician where the latter criteria were unclear. However, participants who were seeking any additional type of psychosocial treatment agreed to refrain from receiving additional psychosocial treatment sessions during the 6-week mindfulness treatment in order to measure whether the proposed treatment was responsible for change in anxiety symptoms.

Procedure

Recruitment of participants. Participants and their parent(s) were recruited through referrals to CARD. Informed consent and assent were obtained prior to study enrollment.

Research design. Study 1 was an open trial, including four participants who received immediate treatment, while Study 2 utilized a minimal contact waitlist-controlled trial design with twelve participants recruited and randomized to either the immediate treatment (n = 6) or waitlist condition (n = 6). Those randomized to the waitlist condition then completed treatment after six weeks. The full assessment battery (described below) was administered at pre-treatment/pre-waitlist, post-waitlist (if applicable), post-treatment, and eight-weeks following treatment to assess symptom change. In addition, at the post-treatment time point, a treatment satisfaction questionnaire was administered. Independent Evaluators (IE) conducted all assessments after the pre-treatment/pre-waitlist time points. The IEs were advanced graduate students
in a clinical psychology Ph.D. program and one Ph.D.-level psychologist who were otherwise uninvolved in the study.

Measures

Primary Outcome Measures

Clinician-rated measure of clinical status. The Anxiety Disorders Interview Schedule, Child and Parent Versions (ADIS-IV-C/P; Silverman & Albano, 1997) was administered during the intake appointment to youth who were referred to CARD for diagnosis of DSM-IV anxiety, mood and externalizing disorders of childhood. The child was seen first, followed by the parent(s), and composite diagnoses were formed using specific guidelines (Silverman & Nelles, 1988). Diagnoses assigned a clinical severity rating (CSR) of 4 or above on an 8-point scale, based on a clinician-rated consensus of parent and child reports, were considered to be clinical diagnoses. Interrater reliability of the ADIS-IV-C/P at CARD was estimated on a weekly basis, and the ADIS-IV-C/P has demonstrated good interrater reliability (r = .98 for the ADIS-C; r = .93 for the ADIS-P) and test-retest reliability (k = .76 for ADIS-C; k = .67 for ADIS-P; Silverman & Eisen, 1992; Silverman et al., 1988). Children recruited from CARD were offered participation in the study if they had a diagnosis of GAD at a clinical level of severity (i.e. CSR of 4 or higher). While the full ADIS-IV-C/P was used in the present study during the intake assessment, a shorter version (Mini ADIS-IV-C/P) was administered to children and their parents at the post-waitlist (if applicable), post-treatment, and follow-up assessment points. The Mini-ADIS-IV-C/P contains select subsections of the ADIS-IV-C/P and takes approximately one hour to administer, whereas the complete ADIS-IV-C/P takes
approximately three hours.

Measure of functional impairment. Overall improvement and functional impairment was measured using the Children’s Global Assessment Scale (CGAS; Schaffer et al., 1983). The CGAS assesses overall general functioning for a specified time period by selecting the lowest level which describes the child’s functioning on a continuum of health-illness on a 100-point scale. CGAS score ranges are as follows: 100-91 indicates “superior functioning,” 90-81 indicates “good functioning in all areas,” 80-71 indicates “no more than slight impairment in functioning,” 70-61 indicates “some difficulty in a single area but generally functioning pretty well,” 60-51 indicates “variable functioning with sporadic difficulties or symptoms in several but not all social areas,” 50-41 indicates “moderate degree of interference in functioning in most social areas or severe impairment of functioning in one area,” 40-31 indicates “major impairment in functioning in several areas and unable to function in one of these areas,” 30-21 indicates “unable to function in almost all areas,” 20-11 indicates “needs considerable supervision,” and 10-1 indicates “needs constant supervision.” The CGAS was completed by the clinician only and higher ratings indicate more superior functioning. Studies have used a cut-off score of > 70 to indicate a “non-case” meaning not clinical (Schorre & Vandvik, 2004).

Global severity/improvement. Overall severity and improvement was measured using the Clinical Global Impression Scale (CGI; Guy, 1976). The CGI assesses overall clinical severity (CGI-S) and improvement (CGI-I), each on a 7-point scale (lower values reflect lower severity and greater improvement). At pre-treatment, only severity was
rated, and in later assessments both severity and improvement were rated. CGI is frequently used in clinical trials to evaluate outcome. Scores of 1 (very much) or 2 (much) on improvement and/or < 3 (borderline to not at all ill) on severity are typically considered acceptable response to acute treatment.

*Child report measure of worry.* The *Penn State Worry Questionnaire for Children* (PSWQ-C; Chorpita et al., 1997) is a 14-item self-report measure that assesses degree of excessive, generalized, and uncontrollable worry in children and adolescents. A total score is computed ranging between 0 and 42, with higher scores reflecting a stronger tendency to worry. Raw scores are then converted to T-scores (M = 50, SD = 10). The PSWQ-C has demonstrated good psychometric properties, including high internal consistency, high convergent validity, good discriminant validity, and excellent reliability in a clinical sample (Chorpita et al., 1997; Pestle, Chorpita, & Schiffman, 2008).

*Secondary Outcome Measures*

*Parent report of internalizing symptoms.* The *Child Behavior Checklist* (CBCL; Achenbach & Edelbrock, 1983) is a 113-item parental report measure designed to assess a broad range of children’s and adolescents’ behavioral and emotional functioning. In addition to Internalizing, Externalizing, and Total Problems scales, this questionnaire measures the following syndromes: Anxious/Depressed, Attention Problems, Rule-Breaking Behavior, Social Problems, Somatic Complaints, Thought Problems, and Withdrawn/Depressed. The CBCL also has six DSM-oriented scales: Affective Problems, Anxiety Problems, Somatic Problems, Attention-Deficit/Hyperactivity Problems, Oppositional Defiant Problems, and Conduct Problems. It has demonstrated high test-
retest reliability and been shown to distinguish between clinical and non-clinical samples of adolescents (Achenbach & Edelbrock, 1979; Cohen et al., 1985). Raw scores are converted to T-scores ($M = 50$, $SD = 10$), based on a standardization sample of 2,630 children between the ages of 4 and 18. The CBCL is a well-standardized measure with good reliability and validity (Achenbach, 1991). The following CBCL scales were used in the current study: Internalizing and Anxiety Problems.

*Child report measure of anxiety.* The Multidimensional Anxiety Scale for Children (MASC; March et al., 1997) is a self-report measure that assesses symptoms of anxiety in children ages 8-18. The MASC consists of 39 anxiety-related statements and yields four scales: Physical Symptoms, Harm Avoidance, Social Anxiety, and Separation/Panic. Raw scores are converted to T-scores ($M = 50$, $SD = 10$), based on a standardized sample of 2,638 children between the ages of 8 and 19. The MASC has shown robust psychometric properties in clinical, epidemiological and treatment studies. Three-week test-retest reliability for the MASC is 0.79 in clinical samples and 0.88 in school-based samples (March et al., 1997).

*Child report of metacognition.* The Metacognitions Questionnaire for Children (MCQ-C; Landon, Pincus, Ehrenreich, & Brody, 2009) is a recently developed self-report measure of metacognition in children and adolescents ages 7 to 17. The MCQ-C consists of 24 questions that measure four metacognitive processes: (1) positive meta-worry (or positive beliefs about worry, such as “If I worry about things now, I will have fewer problems in the future”); (2) negative meta-worry (or negative beliefs about worry, such as “If I worry a lot, I could make myself sick”); (3) superstitious, punishment and
responsibility (SPR) beliefs (such as “If I couldn’t be in control of what I think, I would fall apart”); and (4) cognitive monitoring (or awareness of one’s thoughts, such as “I pay a lot of attention to the way that I think”). The MCQ-C total score ranges from 24 to 96 by summing the scores of all items. Subscale scores are obtained by adding up each item in a particular scale. Higher scores on the total scale is evidence of greater levels of general metacognitive awareness and processes. Because of the recent development of the MCQ-C, there is limited data on its psychometric properties, including reliability and validity. The MCQ-C was adapted from the adolescent version (MCQ-A; Cartwright-Hatton et al., 2004) to be used for both children and adolescents. Bacow and colleagues provided preliminary data on internal consistency for the total scale and the four subscales, with coefficient alphas of 0.87 for the total scale; 0.86 for Positive Meta-Worry; 0.75 for Negative Meta-Worry; 0.75 for Cognitive Monitoring; and 0.64 for Superstition, Punishment, and Responsibility Beliefs. For the clinical sample, which included youth ages 7-17 with a primary anxiety diagnosis, coefficient alphas were 0.89 for the total scale, 0.89 for Positive Meta-Worry, 0.74 for the Negative Meta-Worry, 0.69 for SPR Beliefs, and 0.75 for Cognitive Monitoring. The MCQ-C also demonstrated some concurrent validity in that the measure was found to be positively correlated with the PSWQ-C. However, Bacow and colleagues were unable to demonstrate adequate criterion validity on this measure given that they found non-anxious children scored higher on cognitive monitoring than children diagnosed with anxiety disorders. Another study by Smith and Hudson (2013), also using the MCQ-C measure, found that children with and without anxiety reported similar number of superstition, punishment and
responsibility beliefs and a similar level of cognitive monitoring. Although this study found that cognitive monitoring was positively associated with anxiety symptoms, the authors noted that this scale does not necessarily aim to distinguish monitoring of anxious or intrusive thoughts, but rather just the ability to monitor and report on their thoughts. Thus, the cognitive monitoring scale may be a measurement for general metacognitive awareness. On the other hand, Smith and colleagues found that the MCQ-C demonstrated criterion validity in that clinically anxious children scored higher on both positive and negative meta-worry beliefs than non-clinically anxious children. For the current study, we were most interested in the Cognitive Monitoring and Negative Meta-Worry subscales.

*Child report of mindfulness ability.* The Multidimensional Anxiety Scale for Children (MASC; March et al., 1997) is a self-report measure that assesses symptoms of anxiety in children ages 8-18. The MASC consists of 39 anxiety-related statements and yields four scales: Physical Symptoms, Harm Avoidance, Social Anxiety, and Separation/Panic. Raw scores are converted to T-scores \((M = 50, SD = 10)\), based on a standardized sample of 2,638 children between the ages of 8 and 19. The MASC has shown robust psychometric properties in clinical, epidemiological and treatment studies. Three-week test-retest reliability for the MASC is 0.79 in clinical samples and 0.88 in school-based samples (March et al., 1997).

*Treatment Satisfaction*

*Treatment Satisfaction.* Parent- and child-rated satisfaction with the treatment program was assessed using a treatment evaluation measure that was created by the PI.
See Appendix B for the measure. The measure has a total of 12 items using a 5-point Likert scale. Items 1-12 assess how helpful they thought treatment was, how satisfied they were with the treatment, and how useful learning the mindfulness skills were. Item 11 assesses whether the parent or child felt that the parent’s involvement in treatment was inadequate and item 12 assesses the desired level of involvement. Total scores range from 11-55 when including only items 1-11. In addition to the 12 items, there were additional open-ended questions asking for feedback from parents and children assessing factors, such as the most and least helpful parts of treatment, any part they would want to change, whether the parent wished to be more or less involved in treatment, and a space for any other feedback. There were high correlations between parent and child report on items assessing whether the child’s anxiety improved ($r = .71, p = 0.002$) and recommending the treatment to others ($r = .53, p = 0.036$).

*Intervention Phase*

Following the pre-treatment/post-waitlist assessment, participants entered the intervention phase. All treatment sessions were conducted by Priscilla Chan (PI; principal investigator). All sessions were held at Boston University’s CARD. All participants and their parent(s) were informed that participation was voluntary and that withdrawal from the study in no way impacted their future care at CARD or elsewhere.

*Description of the intervention.* The AWARE Program (“Approaching Worries Actively through Reflection and Experience,” see Appendix A for the manual) utilizes empirically-based mindfulness principles for the treatment of anxiety, tailored specifically to meet the developmental needs of participants. The essential components of
mindfulness used in the current intervention included psychoeducation; awareness to breath, body, and thoughts; and relapse prevention. Concrete exercises were used to teach mindful awareness of the present moment by utilizing the six senses, such as eating/taste, hearing/sound, touching, and movement. Parents were invited at the end of each treatment session, so that the child could teach his/her parent the mindfulness skill learned. Table 2 outlines session components and activities.

Total duration of treatment was six sessions over approximately a six-week period. The intervention relied on child engagement both in and out of session and parental involvement in weekly practices. Each session was structured in the same way while allowing the therapist flexibility to adapt session content based on the child’s needs. The beginning of each session involved checking in with the child and reviewing the mindfulness practice he/she had engaged in during the previous week. The majority of the session focused on teaching a new mindfulness skill and allowing time for both the therapist and child to engage in in-vivo practice of the skill. The end of session included inviting the parent back into session so that the child and therapist could teach the new skill to the parent along with assigning mindfulness practice for the upcoming week. In addition, time was spent discussing how the mindfulness skills were applicable for each child’s anxiety concerns. More specifically, the first session focused on psychoeducation including learning about the nature of anxiety, the concept of mindfulness, and teaching breath awareness. Sessions two to five focused on learning mindfulness through specific concrete exercises focused on the five senses and including mindful eating, listening, touching, and movement. The last session focused on termination, reviewing skills
learned, and discussing a relapse prevention plan. The PI was the primary therapist and supervision was provided by a Ph.D.-level clinician, who co-authored the protocol, as needed over the course of the treatment sessions.

*Data Analytic Strategy for Study 1*

A case-series design was implemented with assessments occurring at pre-treatment, post-treatment, and eight weeks following treatment to examine symptom reduction and maintenance of treatment gains over time.

*Data Analytic Strategy for Study 2*

Outcome variables were first evaluated for normality and the presence of univariate outliers. Next, in order to determine the success of randomization, the two conditions were compared with respect to demographic variables and pre-treatment/pre-waitlist outcome measures using t-tests and Fisher’s exact test.

The effect of treatment in comparison to waitlist was examined for both primary and secondary outcome measures. To do so, we used independent-samples t-tests to assess for the effect of treatment condition. For each outcome variable separately, scores at post-assessment (i.e., post-treatment for the immediate treatment group and post-waitlist for the control group) were predicted by treatment condition, with pre-treatment/pre-waitlist scores included as a covariate. We then compared scores at pre- and post-assessment points for each condition using paired samples t-tests.

To assess whether treatment gains were maintained over time as well as the intervention’s impact on anxiety comorbidity, the data was collapsed across immediate treatment and waitlist groups. This pooling of data is consistent with previous clinical
trials of both individual (Kendall, 1994; Kendall et al., 1997; Pincus, Ehrenreich-May, Whitton, Mattis, & Barlow, 2010) and group (Silverman et al., 1999) CBT child anxiety. We then conducted paired t-tests to determine differences between time points across the entire sample.

To assess treatment satisfaction across all participants in both Study 1 and Study 2, a mean satisfaction score was computed using the Treatment Satisfaction Measure. Finally, to assess the changes in functional impairment over time, we conducted paired-samples t-tests on the CGAS using the full sample.

Missing data existed across assessments points. Given the preliminary nature of the current study and the small sample size, we have chosen to keep the missing data as “missing” and use available data for analyses, resulting in different n’s per analysis. We have declined to use the intent-to-treat design or data imputation methods, such as last observation carried forward, which is common for clinical trials, given that it would have skewed the data analysis and interpretation causing to misleading results (Mazumdar, Liu, Houck, & Reynolds, 1999).

Results

Study 1

The mindfulness treatment program was pilot tested on four participants, aged 9 to 11, each with a principal diagnosis of GAD. All four participants were Caucasian and none were taking any psychotropic medication during treatment. Two participants had received previous psychological treatment; however, all participants met clinical diagnostic criteria for GAD prior to enrollment in the study. First, changes in diagnostic
status will be discussed, including comorbid diagnoses. Second, changes in functional
impairment as measured by the CGAS, CGI-S, and CGI-I scores will be discussed. Third,
changes in parent- and child-report of anxiety symptomatology as measured by the CBCL
Internalizing and Anxiety Problems subscales and PSWQ-C and MASC total scores will
be reviewed. Fourth, changes in mindfulness ability and metacognitive level from pre- to
post-treatment will be examined. Fifth, a qualitative description of each participant’s
clinical presentation and treatment outcome will be presented.

*Diagnostic Status*

Table 3 displays the diagnostic status of each participant at pre- and post-
treatment and at an 8-week follow-up. Treatment gains were evidenced through changes
in diagnostic status across all participants. At post-treatment, three participants no longer
met clinical criteria for a diagnosis of GAD and by follow-up, all four participants no
longer met criteria for a clinical diagnosis of GAD. Although not specifically targeted
during treatment, reductions in severity of comorbid diagnoses were observed and by
follow-up, only one participant met criteria for a clinical-level diagnosis.

*Functional Impairment, Clinical Global Severity, and Clinical Global Improvement*

Table 4 displays each participant’s CGAS score as well as the CGI-S and CGI-I scores
across all three time points. Three participants’ CGAS scores improved following the
intervention and at the follow-up, while one participant’s score remained relatively
consistent. It was this participant who continued to meet clinical diagnostic criteria for
Social Phobia at post-treatment and follow-up, although he no longer met clinical
diagnostic criteria for GAD at the same assessment points. Similarly, the same three participants showed improvements in overall clinical severity (CGI-S) and improvement (CGI-I) scores while the other participant’s scores did not change over time.

Child and Parent-Report of Anxiety Symptomatology

Table 5 outlines changes in T-scores on the CBCL Internalizing and Anxiety Problems subscale, PSWQ-C, and MASC Total scale across all three time points. All four participants had pre-treatment CBCL Internalizing and Anxiety Problems subscale T-scores in the clinical range and, at the post-treatment, two participants remained at the clinical level for both CBCL subscales. By the follow-up assessment, these same participants received a borderline clinical T-score on both CBCL subscales. The other two participants had T-scores in the normative range.

On the PSWQ-C, one participant had a T-score in the clinical range and one participant had a T-score in the high average range, while the other two children reported scores in the normative range at pre-treatment. At post-treatment, all children reported scores in the normative range, which were maintained at follow-up.

On the MASC, three participants reported scores in the normative range at pre-treatment, which were maintained at the post-treatment and follow-up assessments. One participant reported a pre-treatment score in the high average range, which maintained throughout the remaining assessment points.

Child Report of Mindfulness Ability and Metacognition Awareness

Table 6 outlines changes in total scores on the CAMM and MCQ-C across all three time points. Regarding the CAMM, three participants’ total scores remained
relatively consistent over the three assessments while one participant showed increases in total score, possibly indicating increases in mindfulness awareness. Similarly, all four participants’ total scores on the MCQ-C remained relatively consistent. Of note, as discussed previously regarding the metacognitive model of GAD, three participants’ score on the Negative Meta-Worry subscale (see Table 7) decreased over time, possibly indicating decreases in negative beliefs of worry, which typically distinguish people with GAD compared to other anxiety disorders. One participant’s negative meta-worry decreased at post-treatment, but increased at the follow-up.

*Qualitative Description, Treatment Course, and Outcome by Participant*

*Participant 1.* Participant 1 was an 11-year-old Caucasian female who was assigned a principal diagnosis of GAD (CSR = 6). Prior to treatment, Participant 1 worried about doing well in school, small events that happened in the past, being perfect, the health and safety of her family members, and general events going on in the world. For example, she worried about doing well in school despite receiving positive feedback from teachers. She also worried significantly about her mother’s health and safety, often asking where her mother would be, or if she would be safe. Additionally, she worried about general events in the world, such as having anxiety over the world ending on New Year’s Day when she heard about the Mayan calendar prediction of the apocalypse in 2012. Participant 1 also received a diagnosis of Social Phobia (CSR = 4) at pre-treatment to account for her persistent fear of social situations in which she may embarrass herself, such as reading aloud in class, starting or joining in on a conversation, using public bathrooms, performing in public, speaking to adults she didn’t know well, and attending
birthday parties. Participant 1 was an active participant throughout the course of treatment, nearly always completing assigned mindfulness practices, only occasionally forgetting to complete homework. In addition, her mother was actively involved in treatment as well and reported engaging in the mindfulness practice with her daughter outside of treatment sessions. Specifically, her mother noted that her daughter “was eager to try the exercises at home and school and was very comfortable talking about her [anxiety].” Participant 1 reported enjoying mindful breathing and touching, but also noted that she had a difficult time engaging in the skills even when she was worried, particularly after school when waiting for her mother or babysitter. She noted that mindful listening was more difficult because she could get more easily distracted and be unfocused. Finally, her mother noted that the 6 week timeframe was short and expected her daughter may need additional time in therapy. Immediately following treatment, Participant 1 continued to meet criteria for a clinical diagnosis of GAD although she had shown some improvement with a reduction of her CSR to a 5. Although both she and her mother reported some reduction in anxiety symptoms and her distress associated with them, Participant 1 continued to have the same domains of worry. Additionally, Participant 1 continued to meet criteria for Social Phobia (CSR = 4), which was not specifically targeted during treatment. From pre- to post-treatment, Participant 1’s CBCL score in the Anxiety Problems T-score decreased from 73 (>97th percentile, clinical range) to 59 (81st percentile). By follow-up, Participant 1 no longer met clinical criteria for GAD (CSR = 2) or Social Phobia (CSR = 3) and her CBCL Anxiety Problems T-score was a 51 (54th percentile).
Participant 2. Participant 2 was a 9-year-old Caucasian male who was assigned a co-principal diagnosis of GAD (CSR = 6) and Social Phobia (CSR = 6). Prior to treatment, Participant 2 reported worrying about doing well in school, performing in sports, and being perfect. For example, he had a difficult time starting school assignments or participating in activities because he did not want to make any mistakes. Consequently, he often did not attempt homework or engage in sports. Additionally, Participant 2 worried significantly about reading out loud in class, participating in gym class, performing in front of others, speaking to adults, and attending social events.

Participant 2 was a reluctant participant in treatment and often had a difficult time reporting on the content of his worries. In addition, Participant 2 had a challenging time understanding parts of mindfulness due to the abstract nature of the concept despite concrete skills being taught. Because of this, his father was usually present during the full session instead of joining at the end. Participant 2’s father actively tried to engage his son in using the mindfulness skills outside of sessions, however, Participant 2 reported frustration on several occasions and his father stated that, at times, Participant 2 would refuse practicing the skills. As a result, one to two sessions included breaking protocol and teaching Participant 2 and his father traditional cognitive-behavioral skills, such as cognitive restructuring and the concept of exposures. In particular, his father noted that his son “shuts down [when anxious] and the [mindfulness] program allowed [them] to go at their own pace.” Overall, participant 2’s parents felt like that program helped them to understand their son better and become more patient with him during times of anxiety. Immediately following treatment, Participant 2 continued to meet criteria for a clinical
diagnosis of Social Phobia (CSR = 6) although his GAD CSR had reduced to a 3, indicating a subclinical diagnosis. It is unclear whether his reduction in GAD CSR may be partly due to the CBT skills also introduced into the treatment. From pre- to post-treatment, Participant 2’s CBCL score in the Anxiety Problems T-score decreased from 73 (>97th percentile, clinical range) to 70 (>97th percentile), however; both scores remained in the clinical range. By follow-up, Participant 2’s GAD CSR decreased to a 2 while his Social Phobia CSR remained the same. His follow-up CBCL Anxiety Problems T-score decreased to 68 (97th percentile), which is in the borderline clinical range.

Participant 3. This participant was a 10-year-old Caucasian female assigned a principal diagnosis of GAD (CSR=4). Participant 3 reported experiencing worry and stress, although at the pre-treatment assessment, she had a difficult time articulating any specific worries. However, she was able to describe the physiological symptoms associated with her anxiety as inclusive of nausea, shakiness, dizziness, grumpiness and feeling overwhelmed. Participant 3 described her worries as most common on stressful school days and, in particular, when she has a large amount of schoolwork to complete. Her worries generally focused on school, homework, and feeling overwhelmed. Participant 3 also reported being nervous to talk about new things and new changes. Although Participant 3 was actively engaged in treatment, she did not want to practice the skills with her mother. She was reluctant to have her mother join in for the last 10-15 minutes of each session. Her mother wanted to respect her daughter’s decision and so did not try to practice the skills together with her daughter. Participant 3 reported consistently practicing the skills. Participant 3’s mother noted that although her daughter was able to
learn the skills effectively, it was harder for her to make the connection between the skills and using them for coping strategies. Following the intervention, Participant 3’s generalized anxiety symptoms were no longer deemed clinically interfering (CSR=3), although based on parent-report, her CBCL Anxiety Problems T-score of 70 (>97\textsuperscript{th} percentile) remained in the clinical range (pre-treatment T-score of 72; >97\textsuperscript{th} percentile). By follow-up, her GAD CSR remained consistent and her CBCL Anxiety Problems T-score decreased to a 67 (96\textsuperscript{th} percentile).

\textit{Participant 4.} Participant 4 was a 10-year-old Caucasian male given a principal of GAD (CSR=6). Participant 4 reported that he experienced worries about death and worrying about family members dying. In addition, he worried about his health and the health of his family members; specifically, worrying about contracting illnesses, such as cancer. Lastly, he worried about current events, such as the energy crisis. His parents reported that they were unable to watch the news because of his anxieties. Participant 4 experienced a number of physical symptoms when worried, such as fatigue, headaches, stomachaches, inability to sit still, weakness in his legs, difficulty concentrating, and trouble sleeping. Participant 4 was also given secondary diagnoses of Social Phobia (CSR=4) and Specific Phobia (CSR=4) of thunderstorms. Participant 4 was both an active and compliant participant throughout the course of treatment, always completing assigned mindfulness tasks outside of session. In addition, his mother was consistently active in engaging and participating in the skills with her son. In particular, Participant 4’s mother was familiar with mindfulness and was eager to learn about the skills as much as her son, which was a notable feature when compared to the other pilot families.
Specifically, Participant 4’s mother reported that she felt like the program gave them hope and she walked away with “valuable information and tools.” In addition, Participant 4 stated he felt the program was “fun and helped his anxiety.” Following the intervention, Participant 4 demonstrated notable reductions in his generalized anxiety symptoms, which dropped four CSR points, and his secondary anxiety diagnoses, which both dropped two CSR points. At the follow-up, he was given a CSR of 1 on both GAD and Social Phobia and a CSR of 2 for his Specific Phobia diagnosis. From pre- to post-treatment, Participant 4’s CBCL score in the Anxiety Problems T-score decreased from 72 (>97th percentile, clinical range) to 55 (69th percentile) into the normative range, while from post-treatment to follow-up, his score dropped to a 51 (54th percentile).

Treatment Satisfaction

Parent- and child-rated satisfaction was assessed using the Treatment Satisfaction measure. Across the 11 items, parents reported a high level of treatment satisfaction on the 1-5 Likert scale \( M = 4.16, SD = .66 \) in addition to children rating high satisfaction \( (M = 4.08, SD = 1.06) \). In addition, qualitative responses provided further support for the intervention. Comments included, “[Treatment was] caring, well paced, descriptive, and very supportive. [Parental] involvement was perfect [for my child] and all the family.” Another parent noted, “What was most helpful about the treatment was the supportive, nonjudgmental approach. Things were explained in a way [my child] could understand without being condescending.” Another parent reported, “[It was a] great experience for each of us. We both learned a lot.” One child commented, “I learned to stay in the moment which kept my mind from wandering off and worrying. I found [the treatment]
helpful. I think my mom was involved the right amount. I liked being able to practice with her sometimes.” Another child noted, “It was fun and helped my anxiety.”

*Summary of Study 1*

Results from the pilot testing phase suggest school-aged children with GAD generally responded positively to the brief 6-week mindfulness intervention. From pre-treatment to post-treatment and 8-week follow-up points, children showed improvements in GAD severity and related anxiety symptomatology, as well as high levels of treatment satisfaction. Treatment gains appeared to strengthen over time so that by the 8-week follow-up point, all four pilot cases no longer met clinical criteria for GAD as assessed by the ADIS-IV-C/P. Furthermore, this pilot testing phase provided strong evidence of treatment feasibility and acceptability as shown by the fact that all four families completed treatment and positively rated the treatment and outcomes. One clinical observation is that children seemed to have more success in treatment when parents were highly involved and supportive both during session and outside of sessions.

*Study 2*

After the open trial pilot testing phase, we conducted a small randomized waitlist-controlled clinical trial with twelve children. Participants were randomized to either the immediate treatment (n = 6) or waitlist condition (n = 6). Those randomized to the waitlist condition completed treatment after the waitlist period following a post-waitlist/pre-treatment evaluation (i.e., six weeks after the first evaluation). First, pre-treatment differences with regard to age, gender, and outcome measures between the waitlist and immediate treatment group will be discussed. Second, between group
comparisons of change scores between the waitlist group (WL) and immediate treatment (IT) group will be discussed. That is, changes in primary outcome measures will be reported followed by results in secondary outcome measures. For each set of between group analyses, we will present comparisons of change scores for the WL group across the waitlist period (i.e., subtracting pre-waitlist scores from post-waitlist/pre-treatment scores) and the IT group across the intervention period (i.e., subtracting pre-treatment scores from post-treatment scores). Third, these between group comparisons will be followed by within group comparisons of changes across treatment by collapsing pre-treatment and post-treatment data for the total sample. Fourth, associations between anxiety symptoms, mindfulness ability, and metacognitive abilities will be presented.

_Preliminary Analyses_

Given the small sample size, as expected, many variables in the sample evidenced non-normality and skewness. Therefore, analyses were run in two ways using the Wilcoxon Signed Rank Test and paired-samples t-tests. The results were the same between both tests so we have chosen to report analyses using paired-samples t-tests.

Independent-samples t-tests and Fisher’s exact test were used to assess pre-treatment differences between the IT and WL groups on demographic and outcome variables (see Table 8). Specifically, there was no significant difference in age between the IT ($M = 10.50, SD = 1.38$) and WL groups ($M = 10.67, SD = 1.03$), $t(10) = .24, p = .82$. Using Fisher’s exact test, there were no significant differences found in gender between the IT (50% male) and WL groups (67% male), $p = 1.00$. 
Regarding clinical outcome measures, there were significant pre-treatment differences between the IT and WL groups, suggesting higher scores for the IT group than the WL group on the MCQ-C total score \( (M = 50.83, SD = 15.03 \text{ versus } M = 31.33, SD = 5.05, t(10) = -3.01, p = .01) \), the PSWQ-C total score \( (M = 67.50, SD = 14.92 \text{ versus } M = 43.33, SD = 8.57, t(10) = -3.44, p = .01) \), and the MASC total score \( (M = 56.67, SD = 17.56 \text{ versus } M = 33.83, SD = 6.85, t(10) = -2.97, p = .01) \). Overall, the children in IT reported higher levels of symptoms that did children in WL on self-report measures. No other pre-treatment differences were found. Table 9 shows the means and standard deviations of all outcome variables at pre- and post-treatment assessments for the IT and WL groups. Table 10 shows the means and standard deviations of all outcome variables at each time point for the total combined sample.

**Assessment of Treatment Effects: Primary Outcome Variables**

Independent-samples t-tests were conducted to compare between group differences regarding the amount of change during the waitlist period (for the WL group) versus during the intervention (for the IT group) for all primary outcome variables (GAD CSR, CGAS, CGI-S, CGI-I, and PSWQ). Additionally, paired-samples t-tests were used to assess within group differences regarding whether there was a significant change in children’s GAD diagnostic status and other primary and secondary outcome measures for the total sample following participation in the mindfulness intervention (WL and IT combined. Effect sizes were calculated in order to determine the impact of the intervention by comparing waitlist and immediate treatment groups. In addition, effect sizes were also calculated to compare change across the intervention phase in order to
provide an estimated impact of the intervention on outcome measures. While computing effect sizes for a pilot study with a small sample is unreliable (Kraemer, Mintz, Noda, Tinklenberg, & Yesavage, 2006), they still provide important data to guide future, larger studies. Considering the small sample size, our goal was to examine preliminary evidence of between group differences. While we hoped to see large effect sizes in comparing the differences in mean change scores between the WL and IT groups, we did not anticipate a high degree of statistical significance, given that our study was not powered for it.

Subclinical Diagnostic Status. Subclinical diagnostic status was defined as obtaining a GAD CSR ≤ 3 on the ADIS-IV-C/P. Over the waitlist period, 0% of the WL participants achieved subclinical diagnostic status. At post-treatment, 50% of participants in the WL achieved subclinical diagnostic status. For the IT only, immediately post-treatment, 33% of the participants achieved subclinical diagnostic status for GAD. Collapsing the two groups, 42% of the participants achieved a subclinical GAD diagnostic status at post-treatment.

Clinical Severity of GAD Diagnosis. While both groups evidenced decrease in GAD CSRs, there was no significant difference in change scores of GAD CSRs at post-waitlist/pre-treatment for the WL ($M_{\text{change}} = -.33$, $SD = .82$) and at post-treatment for IT groups ($M_{\text{change}} = -1.17$, $SD = 1.17$), $t(10) = 1.43$, $p = .18$ (two-tailed). The magnitude of the differences in the mean change scores (mean difference = .83, 95% CI: -.46 to 2.13) was large ($d = .83$) according to guidelines for evaluating effect sizes proposed by Cohen (1988). The change in GAD CSR for the IT group occurred in the expected direction; that is, CSRs improved following treatment participation. However,
GAD CSRs for the WL group also evidenced improvement. Table 11 shows the means and standard deviations of all change scores of outcome variables at pre- and post-treatment assessments for the IT and WL.

A paired-samples t-test was then conducted to evaluate the impact of the mindfulness intervention on participants’ clinical severity ratings of GAD across the total sample (WL and IT groups combined). Supporting our hypothesis, there was a statistically significant decrease in GAD CSR scores from pre-treatment ($M = 5.17, SD = .72$) to post-treatment ($M = 3.75, SD = 1.29$), $t(11) = 4.93, p = .00$. There was a very large effect size for this analysis ($d = 1.42$). However, there was not a statistically significant decrease in clinical severity ratings of GAD scores from post-treatment to 8-week follow-up ($M = 3.25, SD = 1.49$), $t(11) = 1.03, p = .32, d = .30$ (small). When examining change from pre-treatment to follow-up, there was a significant decrease in GAD CSRs, $t(11) = 5.06, p = .00$. There was a very large effect size for this analysis ($d = 1.46$).

**Functional Impairment.** An independent-samples t-test was conducted to compare participants’ change scores on CGAS at post-waitlist/pre-treatment for the WL and at post-treatment for IT groups. While both groups evidenced change in CGAS in the expected direction, there was no significant difference in change scores of CGAS scores at post-waitlist/pre-treatment for the WL ($M_{change} = 1.33, SD = 3.14$) and post-treatment for the IT groups ($M_{change} = 5.00, SD = 10.04$), $t(10) = -.85, p = .41$ (two-tailed). The magnitude of the differences in the mean change scores (mean difference = -3.67, 95% CI: -13.24 to 5.90) was moderate ($d = .49$).

Across the total sample, supporting our hypothesis, there was a statistically
significant increase in CGAS scores from pre-treatment ($M = 52.58, SD = 4.76$) to post-treatment ($M = 61.33, SD = 10.34$), $t(11) = -3.40, p = .01$. The effect size statistic ($d = .98$) indicated a large effect. However, while CGAS scores continued on an upward trajectory in the post-treatment period, there was not a statistically significant increase in CGAS scores from post-treatment to 8-week follow-up ($M = 65.33, SD = 12.82$), $t(11) = -1.24, p = .24, d = .36$ (small). When examining change from pre-treatment to follow-up, there was a significant increase in CGAS scores, $t(11) = -4.67, p = .001$. There was a very large effect size for this analysis ($d = 1.35$).

**Global severity/improvement.** Supporting our hypothesis, there was a significant difference in CGI-S change scores for the WL ($M_{\text{change}} = .17, SD = .41$) and IT groups ($M_{\text{change}} = -.67, SD = .82$), $t(10) = 2.24, p = .049$ (two-tailed). The magnitude of the differences in the mean change scores (mean difference = .83, 95% CI: .00 to 1.66) was very large ($d = 1.30$). It should be noted that the change in CGI-S scores for the IT group occurred in the expected direction of improvement while it appears CGI-S scores for the WL group got worse over the waitlist period.

While we could not calculate change scores for CGI-I scores, given that the rating is not made at baseline, we examined what ratings were made at post-treatment for the IT group and at post-waitlist/pre-treatment for the WL group. As defined previously, treatment responders were those who scored $\leq 2$ on the CGI-I (‘2’ = much improved, ‘1’ = very much improved). On average, the improvement score for the WL group over the waitlist period indicated “no change” in clinical diagnosis relative baseline (or pre-waitlist) while, on average for the IT group, the score indicated “minimally improved”
relative to baseline (or pre-treatment). More specifically, at post-waitlist for the WL group, four participants showed “no change” (CGI-I = 4) while two participants showed “minimal improvement” (CGI-I = 3). At post-treatment for the IT group, one participant was deemed a treatment responder (i.e., CGI-I \leq 2), while four showed “minimal improvement,” and one participant showed “no change” (CGI-I = 4).

In examining the total sample, supporting our hypothesis, there was a statistically significant change in the anticipated direction for global severity as measured by the CGI-S from pre-treatment ($M = 4.25$, $SD = .45$) to post-treatment ($M = 3.42$, $SD = .79$), $t(11) = 4.02$, $p = .002$. There was a very large effect size for this analysis ($d = 1.16$). However, there was not a statistically significant change in CGI-S scores from post-treatment to 8-week follow-up ($M = 3.25$, $SD = 1.42$, $t(11) = .41$, $p = .67$, $d = .12$ (small)).

When examining change from pre-treatment to follow-up, there was a significant decrease in CGI-S scores, $t(11) = 2.25$, $p = .05$, $d = .65$ (moderate).

Again, given that CGI-I ratings are not made at baseline, we only examined change from post-treatment to follow-up. There was little change in CGI-I scores from post-treatment ($M = 2.67$, $SD = .88$) to 8-week follow-up ($M = 2.67$, $SD = 1.30$), $t(11) = .00$, $p = .100$, $d = .00$ (small). For the total sample, five out of the twelve (41.67%) participants were deemed treatment responders (i.e., CGI-I $\leq 2$). Four children were “much improved” (CGI-I = 2) and one was “very much improved” (CGI-I = 1). No participants got worse (CGI-I $\geq 5$), three participants showed “minimal improvement,” and two participants showed “no change” (CGI-I = 4).
Worry. While both groups evidenced decreases in PSWQ total T-scores, there was no significant difference in change scores on the PSWQ-C total T-scores for the WL ($M_{\text{change}} = -2.33, SD = 10.46$) and IT groups ($M_{\text{change}} = -14.00, SD = 7.84$), $t(9) = 2.05, p = .07$ (two-tailed). The magnitude of the differences in the mean change scores (mean difference = 11.67, 95% CI: -1.19 to 24.53) was very large ($d = 1.26$) and in the expected direction.

Supporting our expectations, we did find a statistically significant decrease in PSWQ T-scores across the total sample from pre-treatment ($M = 57.56, SD = 15.90$) to post-treatment ($M = 45.00, SD = 13.43$), $t(8) = 4.86, p = .001$. There was a very large effect size for this analysis ($d = 1.62$), which was in the expected direction. However, there was not a statistically significant decrease in PSWQ T-scores from post-treatment to 8-week follow-up ($M = 44.67, SD = 8.38$), $t(8) = .12, p = .91, d = .04$ (small). When examining change from pre-treatment to follow-up, there was a significant decrease in PSWQ-C scores, $t(11) = 2.65, p = .02, d = .76$ (moderate).

Assessment of Treatment Effects: Secondary Outcome Variables

Parent-report of internalizing symptoms. Supporting our hypothesis, there was a significant difference in change scores on the CBCL Internalizing T-scores at post-waitlist/pre-treatment for the WL ($M_{\text{change}} = -2.50, SD = 5.82$) and IT groups ($M_{\text{change}} = -9.60, SD = 4.10$), $t(9) = 2.29, p = .048$ (two-tailed). The magnitude of the differences in the mean change scores (mean difference = 7.10, 95% CI: 0.08 to 14.13) was very large ($d = 1.41$). In addition, there was also a significant difference in change scores on the CBCL Anxiety Problems subscale T-scores at post-waitlist/pre-treatment...
for the WL ($M_{\text{change}} = -.67, SD = 3.01$) and at post-treatment for the IT groups ($M_{\text{change}} = -8.60, SD = 6.12$), $t(9) = 2.82, p = .02$ (two-tailed). The magnitude of the differences in the mean change scores (mean difference = 7.93, 95% CI: 1.57 to 14.30) was extremely large ($d = 1.65$).

Regarding secondary measures of outcome for the total sample, supporting our hypothesis, there was a statistically significant decrease in CBCL Internalizing T-scores from pre-treatment ($M = 68.90, SD = 8.29$) to post-treatment ($M = 62.20, SD = 6.05$), $t(9) = 4.21, p = .002$, and CBCL Anxiety Problems T-scores from pre-treatment ($M = 71.90, SD = 4.20$) to post-treatment ($M = 65.60, SD = 4.74$), $t(9) = 3.10, p = .013$. The effect size statistics ($d = 1.33$ and $1.98$, respectively) indicated large effect sizes for the total sample. However, there was not a statistically significant decrease in CBCL Internalizing T-scores from post-treatment to 8-week follow-up ($M = 59.30, SD = 6.60$), $t(9) = 1.58, p = .15$, $d = .50$ (moderate), and CBCL Anxiety Problems T-scores from post-treatment to 8-week follow-up, ($M = 64.40, SD = 4.88$), $t(9) = 1.10, p = .30, d = .49$ (moderate). When examining change from pre-treatment to follow-up, there was a significant decrease in both CBCL Internalizing scores, $t(11) = 4.10, p = .002$, and Anxiety Problems scores, $t(11) = 4.34, p = .001$. The effect size statistics ($d = 1.18$ and $1.25$, respectively) indicated very large effect sizes.

*Child report of anxiety.* There was not a significant difference in change scores on the MASC total T-scores for the WL ($M_{\text{change}} = -5.33, SD = 4.18$) and IT groups ($M_{\text{change}} = -7.00, SD = 15.51$), $t(9) = .26, p = .81$ (two-tailed). The magnitude of the differences in the mean change scores (mean difference = 1.67, 95% CI: -13.12 to 16.46)
was small ($d = .15$) and in the expected direction.

Across the total sample, we did not observe a significant decrease in MASC total T-scores from pre-treatment ($M = 43.33$, $SD = 10.69$) to post-treatment ($M = 38.56$, $SD = 13.50$), $t(8) = 1.20$, $p = .26$. There was a moderate effect for this analysis ($d = .40$) and this was in the expected direction. Similarly, there was not a statistically significant decrease in MASC T-scores from post-treatment to 8-week follow-up ($M = 40.22$, $SD = 11.79$), $t(8) = -.70$, $p = .51$, $d = .23$ (small). This was not in the expected direction. When examining change from pre-treatment to follow-up, there was also no significant decrease in MASC scores, $t(11) = .76$, $p = .46$. There was a small effect size for this analysis ($d = .23$).

*Child report of mindfulness ability.* There was not a significant difference in change scores on the CAMM total scores at for the WL ($M_{\text{change}} = 6.33$, $SD = 6.86$) and IT groups ($M_{\text{change}} = -.83$, $SD = 5.46$), $t(10) = 2.00$, $p = .07$ (two-tailed). The magnitude of the differences in the mean change scores (mean difference = 7.17, 95% CI: -0.81 to 15.14) was very large ($d = 1.16$). It should be noted, however, that CAMM scores increased for the WL group over the waitlist period while scores slightly decreased for the IT group over the intervention period.

For the total sample, there was not a significant increase in CAMM total scores from pre-treatment ($M = 30.00$, $SD = 9.32$) to post-treatment ($M = 30.09$, $SD = 11.29$), $t(10) = -.07$, $p = .95$. There was a very small effect size for this analysis ($d = .02$). Similarly, there was not a statistically significant increase in CAMM total scores from post-treatment to 8-week follow-up ($M = 31.36$, $SD = 11.09$), $t(10) = -.61$, $p = .56$, $d =$
.18 (small). When examining change from pre-treatment to follow-up, there was also not a significant decrease in CAMM scores, \( t(11) = -0.61, p = .55, d = .18 \) (small).

*Child report of metacognition.* There was not a significant difference in change scores on the MCQ-C total scores for the WL (\( M_{change} = -6.83, SD = 4.40 \)) and IT groups (\( M_{change} = -6.67, SD = 6.02 \), \( t(10) = -0.06, p = .96 \) (two-tailed). The magnitude of the differences in the mean change scores (mean difference = -1.95, 95% CI: -6.95 to 6.62) was small (\( d = .03 \)). Additionally, when examining each subscale independently, there were no significant differences in change scores on any of the four subscales. Specifically, there was no significant difference in the Positive Meta-Worry subscale for the WL (\( M_{change} = -0.33, SD = 1.03 \)) and IT groups (\( M_{change} = .67, SD = .82 \), \( t(10) = -1.86, p = .09 \) (two-tailed). The magnitude of the differences in the mean change scores (mean difference = -1.00, 95% CI: -2.20 to .20) was very large (\( d = 1.07 \)). Similarly, there was no significant difference in change scores on the Negative Meta-Worry subscale for the WL (\( M_{change} = -3.33, SD = 1.75 \)) and IT groups (\( M_{change} = -1.83, SD = 2.56 \), \( t(10) = -1.18, p = .26 \) (two-tailed). The magnitude of the differences in the mean change scores (mean difference = -1.50, 95% CI: -4.32 to 1.32) was moderate (\( d = .68 \)). There was no significant difference in the SPR subscale for the WL (\( M_{change} = -1.17, SD = 1.47 \)) and IT groups (\( M_{change} = -.83, SD = 2.56 \), \( t(10) = -.28, p = .0 \) (two-tailed). The magnitude of the differences in the mean change scores (mean difference = -0.33, 95% CI: -3.02 to 2.35) was small (\( d = .16 \)). When only examining change scores on the Cognitive Monitoring subscale, there was also no significant difference in change scores in this subscale for the WL (\( M_{change} = -2.00, SD = 2.90 \)) and IT groups (\( M_{change} = -
4.67, SD = 3.88), \( t(10) = 1.35, p = .21 \) (two-tailed). The magnitude of the differences in the mean change scores (mean difference = 2.67, 95% CI: -1.74 to 7.07) was large \( (d = .78) \).

Finally, there was a trend towards significance for an increase in the total sample in MCQ total scores from pre-treatment \( (M = 42.45, SD = 14.66) \) to post-treatment \( (M = 38.64, SD = 14.02) \), \( t(10) = 2.18, p = .054 \). There was a moderate effect size for this analysis \( (d = .66) \). However, there was not a statistically significant increase in MCQ total scores from post-treatment to 8-week follow-up \( (M = 34.36, SD = 13.63) \), \( t(10) = 2.00, p = .07, d = .60 \) (moderate).

Next, each subscale of the MCQ-C was examined. There was no significant change in Positive Beliefs about Worry subscale from pre-treatment \( (M = 6.73, SD = 1.62) \) to post-treatment \( (M = 6.91, SD = 2.12) \), \( t(10) = -.69, p = .51, d = .21 \) (small). This was also true from post-treatment to follow-up, \( (M = 6.73, SD = 1.27) \), \( t(10) = .25, p = .81, d = .08 \) (small).

Nor did we find any significant change in Negative Beliefs about Worry subscale from pre-treatment \( (M = 12.91, SD = 5.89) \) to post-treatment \( (M = 11.64, SD = 5.20) \), \( t(10) = 1.64, p = .13, d = .50 \) (moderate). However, there was a significant difference in this subscale from post-treatment to follow-up, \( (M = 9.82, SD = 4.94) \), \( t(10) = 2.47, p = .03, d = .74 \) (large), in the expected direction, such that children reported a decrease in negative beliefs about worry 8 weeks after receiving the intervention.

When parsing out the Cognitive Monitoring subscale of the MCQ-C for the total sample, while there was not significant change in awareness and reporting of thoughts
from pre-treatment \((M = 12.91, SD = 5.80)\) to post-treatment \((M = 10.82, SD = 4.69)\), \(t(10) = 1.66, p = .13, d = .50\) (moderate), there was a significant decrease in scores from post-treatment to follow-up \((M = 9.09, SD = 4.44)\), \(t(10) = 2.51, p = .03, d = .76\) (moderate). However, this direction of change was contrary to expectations.

Finally, we did not find any significant change in scores on the SPR subscale from pre-treatment \((M = 9.91, SD = 4.01)\) to post-treatment \((M = 9.27, SD = 4.25)\), \(t(10) = 1.08, p = .31, d = .32\) (small). This was also true from post-treatment to follow-up, \((M = 8.73, SD = 4.45)\), \(t(10) = 1.00, p = .34, d = .30\) (small).

When examining change from pre-treatment to follow-up in the total sample \((N = 12)\), there was a significant decrease in MCQ-C total scores, \(t(11) = 2.30, p = .04, d = .66\) (moderate), in the Cognitive Monitoring subscale, \(t(11) = 2.26, p = .05, d = .65\) (moderate), and the Negative Beliefs about Worry subscale, \(t(11) = 2.35, p = .04, d = .68\) (moderate). However, we did not find significant change in the Positive Beliefs about Worry subscale, \(t(11) = .00, p = 1.00, d = .00\) (small), nor for the SPR subscale, \(t(11) = 1.51, p = .16, d = .43\) (small).

**Maintenance of Treatment Gains**

Examining the total sample (combined waitlist and immediate treatment for a total of 12 participants), 58% of the participants had achieved subclinical diagnostic status at the follow-up assessment.

To examine the impact of the intervention on anxiety comorbidity, as assessed by the ADIS-IV-C/P, changes in number of comorbid anxiety diagnoses were also examined. As seen in Table 12, three participants who had a comorbid anxiety diagnosis
at pre-treatment showed improvement over time in that their comorbid diagnosis no longer met clinical severity criteria at post-treatment. We were unable to perform statistical analyses, however, due to the small number of subjects with comorbid diagnoses.

*Associations between Anxiety Symptoms, Mindfulness Ability, and Metacognition*

Lastly, we were interested in examining the relationship between anxiety symptoms, mindfulness ability, and metacognitive ability. Specifically, we were predicting that higher levels of mindfulness ability, as measured by the CAMM, would be significantly correlated with lower levels of worry, as measured by the PSWQ-C, at post-treatment. However, there were no significant associations found at either pre-treatment, $r = -.52, n = 12, p = .08$, or post-treatment, $r = -.18, n = 9, p = .65$ between mindfulness ability and worry. However, there was a significant association found at follow-up, $r = -.64, n = 12, p = .026$.

Additionally, we hypothesized that higher levels of metacognition, as measured by the Cognitive Monitoring subscale of the MCQ-C, would be significantly correlated with higher levels of mindfulness ability, as measured by the CAMM, at post-treatment. While was a significant relationship between cognitive monitoring (i.e., awareness and reporting of thoughts) and mindfulness ability, $r = -.84, n = 11, p = .001$, it was not in the expected direction. That is, higher levels of mindfulness ability were associated with lower levels of cognitive monitoring. To further understand this relationship, we examined associations at both pre-treatment, $r = -.78, n = 12, p = .003$, and at follow-up, $r = -.89, n = 12, p = .000$, and found a similar relationships.
Lastly, we were interested in exploring the relationship between worry and metacognition at post-treatment. We found that worry, as measured by the PSWQ, was not associated with more awareness of thoughts, as measured by the Cognitive Monitoring subscale of the MCQ-C, at post-treatment, \( r = .15, n = 9, p = .71 \).

**Treatment Satisfaction**

Both parents (\( M = 4.13, SD = .74 \)) and children (\( M = 3.40, SD = 1.42 \)) reported a high level of treatment satisfaction measure. Additionally, across the 11 items, both parents and children reported a very high level of treatment satisfaction on the 1-5 scale provided (\( M = 3.92, SD = .95 \)). Moreover, qualitative responses provided further support for the mindfulness intervention. Comments included, “It is a wonderful, practical experience for both parent and child. You both walk away with valuable information and tools. There is hope.” One parent noted, “The therapist presented skills that helped my child. [My child] was eager to try the exercises at home and school and felt very comfortable talking about them.” Another parent reported, “I would definitely not hesitate to recommend this treatment to a friend. I would say that the exercises that they learn gave them some really good tools for dealing with anxiety.”

**Discussion**

The results of this study provide preliminary support for the feasibility, acceptability, safety, and potential efficacy of a brief 6-week mindfulness intervention for children with GAD. First, the intervention was feasible. Families of children on the clinic waitlist were interested in participating in a mindfulness-based assessment, and recruitment was relatively easy. Families who enrolled tended to complete the treatment.
Specifically, out of a total of sixteen participants, we experienced only one premature termination, which occurred after three treatment sessions due to maternal health issues. However, this family continued to participate in the post-treatment and follow-up assessments. Otherwise, all other participants in the WL and IT groups, and the four participants the pilot phase, completed all treatment sessions.

Second, families reported high acceptability and satisfaction with the intervention. In addition, qualitative responses from parents and children indicated that the treatment made sense to families, that they learned useful skills to manage anxiety, and saw positive effects.

Third, the intervention was safe. There were no adverse events that occurred during the intervention and no child’s symptoms worsened during the course of the intervention. Interestingly, during the follow-up period, 3 children evidenced some loss of treatment gains, suggesting the possible need for longer term follow-up.

Fourth, the intervention evidenced preliminary efficacy. Relative to waitlist, children in the treatment group showed statistically significant improvements in change scores on CGI-S scores and CBCL Internalizing and Anxiety Problems T-scores. Although the direction of effects is as expected, the statistical significance was unexpected given the sample was not sized to have adequate power for the statistical analyses used. It appears that while the total group improved on both primary and secondary outcome measures, there were no statistically significant between group effects to account for the influence of treatment condition. Again, this result is not surprising given that our sample was not adequately powered; however, results do
indicate large between group effect sizes, suggesting the need for a larger RCT study to adequately assess statistical between group differences.

In addition to reductions in GAD diagnostic severity, we hypothesized that children in the immediate treatment group would display greater improvements in change scores for other primary outcomes measures (i.e., functional impairment and PSWQ-C scores) from pre-treatment to post-treatment when compared to the waitlist group. Again, while we did not anticipate finding statistical significance, the results suggest a moderate group difference for functional impairment, as measured by the CGAS, and a large group difference for child-report of worry, as measured by the PSWQ-C. While the immediate treatment group was not superior on change scores for MASC total scores at the post-treatment assessment point when compared to post-waitlist/pre-treatment assessment point for the waitlist group, our results indicated a small between groups difference. Supporting our hypothesis, as mentioned above, the immediate treatment group did evidence greater improvements on change scores for CBCL Internalizing and Anxiety Problems T-scores at post-treatment when compared to the waitlist group at post-waitlist/pre-treatment, both of which evidenced large between group differences.

Overall, the current study evidenced very large effect size estimates, which is quite remarkable for a pilot study of such a small sample size. In a meta-analysis of adult mindfulness studies, Baer (2003) found a mean effect size of $d = .59$ (SD = .41). By comparison, Lee and colleagues (2008) found a small to medium effect size for their open trial of Mindfulness-based Cognitive Therapy (MBCT-C) for children ages 9 to 12, while Biegel and colleagues (2009) reported a range of $d = .59$ to 1.02, indicating
moderate to large effect sizes, for their trial of Mindfulness-based Stress Reduction (MBSR) for adolescents. The current study found similar effect sizes, despite mostly non-significant findings, suggesting the need for a future, larger randomized clinical trial to fully evaluate treatment efficacy.

While we cannot attribute treatment outcomes entirely to the intervention, when examining changes in pre-treatment differences to post-treatment differences for the total sample, we did find changes in outcomes. Specifically, when examining the total group \( (n = 12) \) together, at the post-treatment assessment, 42% of participants \( (n = 5) \) entered into the subclinical range on GAD clinical severity. Indeed, by the 8-week follow-up, 58% of participants \( (n = 7) \) had entered into the subclinical range on GAD clinical severity. In other initial clinical trials of CBT for child anxiety, studies showed percentages of children diagnosis-free at post-treatment ranging from 57% (Barrett, Dadds, & Rapee, 1996) to 64% (Kendall, 1994). In a randomized clinical trial of MBSR for adolescents with a range of diagnoses, including mood and anxiety disorders, more than 45% of the sample showed diagnostic improvement by post-treatment (Biegel, Brown, Shapiro, & Schubert, 2009). Our findings seem comparable to not only studies evaluating mindfulness-based treatments for children and adolescents, but also trials of CBT for child anxiety.

Regarding additional outcome measures, on average, children’s global assessment scale (CGAS) ratings improved by one domain range. Additionally, there was also a significant decrease in clinical global severity (CGI-S) from pre-treatment to post-treatment. However, this was not true for clinical global improvement (CGI-I), which
takes into account pre-treatment diagnostic severity. When examining the data more closely, children at pre-treatment had CGI-S scores of “markedly ill” or “moderately ill”. By post-treatment, while two participants had “no change” in clinical global improvement (CGI-I), all other participants (n = 14) were rated CGI-I scores of “minimally improved,” “much improved,” or “very much improved.” We also anticipated that children would display improvements in secondary outcome measures of anxiety and worry following the intervention. Our results partially support this hypothesis. Specifically, we found significant reductions in PSWQ T-scores and CBCL Internalizing and Anxiety Problems T-scores, but not with MASC total T-scores. Previous research has indicated that the PSWQ-C reliably discriminates GAD from other anxiety disorders (Muris, Meesters, & Gobel, 2001; Pestle, Chorpita, & Schiffman, 2008), so it may be that the PSWQ-C is a more sensitive measure and, therefore, a better indication of change in worry than the MASC, particularly for the current study, in which all children had a primary GAD diagnosis prior to treatment.

In addition, we hypothesized that all children receiving the intervention would evidence increases in both mindfulness ability, as measured by the CAMM, and increases in metacognition, as measured by the MCQ-C. Results indicated that there was not a significant increase in mindfulness ability after receiving the intervention when examining the total sample. On the other hand, there was evidence of a significant trend in increases in metacognitive abilities after receiving the intervention when examining the total scale on the MCQ, which include scales measuring both positive and negative beliefs about worry; superstitious, punishment and responsibility (SPR) beliefs about
worry; and cognitive monitoring (or awareness of one’s thoughts). However, examining the total score of the MCQ-C is not very informative given that the instrument is made up of four different subscales measuring various meta-cognitive beliefs about worry. Therefore, we chose to examine each subscale separately and how children’s metacognitive beliefs about worry may change after the mindfulness intervention. While there were no significant changes from pre-treatment to post-treatment for any of the MCQ-C subscales, we did find that, from post-treatment to follow-up, there was a significant decrease in children’s negative beliefs about worry. This would be expected, given that previous research has found that holding negative meta-worry is what distinguishes individuals with GAD from other anxiety disorders (Wells & Carter, 1999). Therefore, the decrease in negative meta-worry may be an indication that children are continuing to improve and are reporting fewer GAD worries, especially in light of the fact that 5 out of the 12 children (58%) entered into a subclinical range on GAD clinical severity by the follow-up assessment time point.

Of note, although this was not a specific study hypothesis, we found a significantly high correlation between PSWQ scores and MCQ-C Negative Beliefs about Worry subscale scores at both pre-treatment and post-treatment ($r = .80, p = .002$ and $r = .92, p = .001$, respectively). This is consistent with previous research (Smith & Hudson, 2013; Muris et al., 1998; Perrin & Last, 1997) that found children with anxiety, specifically GAD, scored higher in this subscale. Wells and Carter (1999), along with other researchers, have posited that these negative beliefs about worry are unique to individuals with GAD. In other words, holding negative beliefs about worry, such as the
danger and uncontrollability about worry, may be what distinguishes children with GAD from other anxiety disorders. This correlation is just as strong at the follow-up assessment time point \( r = .83, p = .001 \) even though by the post-treatment, 58% of the participants \( (n = 7) \) had entered into a subclinical diagnosis of GAD. In examining the original development of MCQ-C measure, Bacow and colleagues (2009) found that children with anxiety (compared to non-clinical children), scored lower on all MCQ-C scales, reasoning that children with anxiety disorders may wish to avoid their worries/thoughts as a coping strategy (i.e., cognitive avoidance). In this light, the negative correlation between mindfulness ability and cognitive monitoring that we found in the current study may not be so surprising. Although mindfulness provides a specific set of skills for children (and adults) to learn how to be present in the current moment, thus allowing for an exposure of sorts for paying attention to anxiety and worries, it could be that there are other potential mechanisms in the way mindfulness may impact anxiety.

When parsing out the Cognitive Monitoring subscale, contrary to expectations, there were no significant increases in this area of metacognitive abilities after receiving the intervention. This result was surprising, given that we would have expected that Cognitive Monitoring would increase as a result of a mindfulness intervention. In other words, we would have expected children would report more awareness of thoughts following a mindfulness intervention because one aspect of mindfulness is learning to pay attention to one’s thoughts without judgment and with acceptance. However, this was not the case. It may be that the Cognitive Monitoring scale, and the MCQ-C measure in general, does not capture all of the complexities of mindfulness, given that mindfulness
encompasses not just awareness of the present moment through one’s cognitions but also awareness of emotions and body sensations of an individual using all five senses. In addition, the MCQ-C was designed to capture metacognitive beliefs about worry and not the development of normative metacognitive abilities. Consequently, as mentioned above, more than half the child no longer met diagnostic criteria for GAD at post-treatment, therefore, they may not have held metacognitive beliefs about worry any longer but the MCQ-C was not able to capture that. Therefore, these results must be interpreted with caution given that there has not been extensive research using the CAMM and MCQ-C measures nor comprehensive validity or reliability data on these measures.

Limitations and Future Directions

The current study is the first randomized-controlled trial using a mindfulness intervention specifically targeted for children with GAD and provides initial evidence to support the treatment’s feasibility, safety, acceptability, and potential efficacy on GAD diagnostic severity. However, there are several limitations to this study that offer future directions for research.

As expected for a small study sample, we did not find significant improvements among the treatment group, relative to waitlist, on primary and secondary outcome measures, except on CGI-S and CBCL Internalizing and Anxiety Problems scales. One reason may be the limited power due to the small sample size. Future research should include a large enough sample size that would have enough power to conduct analyses in order to examine main effects of treatment condition. Indeed, our promising effect size
estimates indicate that a large randomized control trial is warranted to fully examine treatment efficacy.

Another limitation may be the brief nature, or “dose,” of the intervention. Six sessions is a fairly brief and limited intervention targeting the reduction of anxiety symptoms, yet the current study found that 50% of participants at post-treatment and 69% of participants at the follow-up assessment showed GAD recovery. Future studies may want to investigate both smaller and larger doses to more fully examine how that may impact the maintenance of treatment gains over time.

Another aim of our study was to examine associations between mindfulness ability, anxiety symptoms, and metacognitive abilities. Many strategies have been used to assess metacognitive processes in children from an executive functioning standpoint, but fairly limited research has been done examining how metacognition is impacted by mindfulness treatments in anxious children. It is clear much more research is needed to examine the potential associations between metacognitive abilities, anxiety symptoms, and mindfulness ability. Thus, it may not be surprising that we found mixed results in our study for these constructs given the limited availability of developmentally sensitive and sound measurements in this area, which is certainly an area of need for future research. In addition, it may be that measurements need to be developed that more sensitively capture all aspects of mindfulness, such as nonjudgmental attitude and awareness of the present moment. It may be that in developing mindfulness measures, there may be a need to encompass several subscales to parse out the different aspects of mindfulness. Regarding the current study, it is unclear from the measurements we have whether children have not
yet developed the capacity to have certain metacognitive beliefs or whether children possess metacognitive capacities but no longer hold metacognitive beliefs regarding worry. In addition, it is unclear whether current instruments (such as the MCQ-C) are not yet able to measure the construct of metacognition fully, speaking again for the clear need of understanding current instruments more fully and the need for more developmentally sensitive measures. Regardless of the mixed findings, the current study provides evidence supporting the role of potential importance that metacognitive beliefs may play in clinical anxiety disorders in children. Future research in this area should continue examining the relationship between mindfulness and child anxiety, especially the potential mediating and/or moderating role metacognition may play in the relationship between mindfulness abilities and symptoms of GAD in children.

Despite possible limitations, given the intervention’s evidenced feasibility, high acceptability and satisfaction among parents and children, demonstrated safety, and preliminary efficacy, these findings suggest one delivery method of mindfulness treatment that is brief and focused, especially given limitations in the dissemination of standard child anxiety treatment. Compared to a more standard course of CBT that may last up to five months, this type of brief treatment may provide an alternative method of delivery and may be a possibility to implement in various treatment settings, such as community clinics. Overall, the current study provides promising initial evidence of reducing anxiety symptoms in children using a mindfulness intervention and demonstrates support of conducting a larger randomized clinical trial for pediatric anxiety disorders.
Figure 1. Flow of participants through pre- and post-assessment in the waitlist-controlled trial

Assessed for eligibility via phone screen
\( n = 31 \)

Assessed for eligibility via diagnostic assessment
\( n = 19 \)

Eligible
\( n = 16 \)

Randomized
\( n = 12 \)

Excluded
\( n = 12 \)
- Ineligible \( n = 4 \)
- Lost contact \( n = 3 \)
- Not interested \( n = 5 \)

Excluded due to diagnostic ineligibility
\( n = 3 \)

Completed open trial phase of study
\( n = 4 \)

Assigned to immediate treatment
\( n = 6 \)
- Completed treatment \( n = 5 \)
- Withdrew due to maternal health issues \( n = 1 \)

Assigned to waitlist
\( n = 6 \)
- Completed post-waitlist assessment \( n = 6 \)
- Completed treatment \( n = 6 \)

Completed post-treatment assessment \( n = 6 \)

Completed post-treatment assessment \( n = 6 \)

Completed 8-week follow-up assessment \( n = 6 \)

Completed 8-week follow-up assessment \( n = 6 \)

6 subjects included in analyses

6 subjects included in analyses
<table>
<thead>
<tr>
<th>Reference</th>
<th>Subjects</th>
<th>Diagnostic Assessment</th>
<th>Format(s)</th>
<th>Mindfulness Intervention</th>
<th>Diagnostic Target</th>
<th>Post-Intervention Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beigel et al., 2009</td>
<td>Ages 14-18</td>
<td>DSM-IV criteria; PSS-10; SCL-90-R</td>
<td>Group</td>
<td>MBSR</td>
<td>Anxiety and Mood Disorders</td>
<td>Immediate; 3 months</td>
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<td></td>
<td>(n=102)</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liehr &amp; Diaz, 2010</td>
<td>Ages 7-12</td>
<td>SMFQ; SAIC</td>
<td>Group</td>
<td>Mindful awareness to breath, movement, &amp; generosity</td>
<td>Anxiety and Depressive Symptoms</td>
<td>Immediate</td>
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<td>(n=18)</td>
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<td></td>
<td></td>
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<tr>
<td>Lee et al., 2008</td>
<td>Ages 9-12</td>
<td>CBCL; MASC, STAIC; RCDS</td>
<td>Group</td>
<td>MBCT-C</td>
<td>Academic Problems</td>
<td>Immediate</td>
</tr>
<tr>
<td></td>
<td>(n=25)</td>
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<td>Semple et al., 2005</td>
<td>Ages 7-8</td>
<td>CBCL; MASC; STAIC</td>
<td>Group</td>
<td>MBCT-C</td>
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<td>Semple et al., 2010</td>
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<td>CBCL; MASC; STAIC</td>
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<td>MBCT-C</td>
<td>Academic Problems</td>
<td>Immediate; 3 months</td>
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<tr>
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Table 2. Overview of the AWARE Program

<table>
<thead>
<tr>
<th>Session</th>
<th>Overview</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Psychoeducation with both parent and child; Defining mindfulness; Emphasizing the importance of practicing and homework; Explaining judging versus noticing thoughts and feelings; Introducing Mindful Eating; Child teaches parent skill learned.</td>
</tr>
<tr>
<td>Sessions 2-5</td>
<td>Review of mindfulness practice done over past week; Problem-solving barriers to practicing mindfulness; Introducing Mindful Touching; Child teaches parent skill learned.</td>
</tr>
<tr>
<td></td>
<td>Review of mindfulness practice over past week; Introducing Mindful Movement; Child teaches parent skill learned.</td>
</tr>
<tr>
<td></td>
<td>Review of mindfulness practice over past week; Introducing Mindful Listening (practicing both indoors and outdoors); Child teaches parent skill learned.</td>
</tr>
<tr>
<td></td>
<td>Review of mindfulness practice over past week; Introducing Mindful Breathing; Child teaches parent skill learned.</td>
</tr>
<tr>
<td>6</td>
<td>Review of mindfulness skills learned; Examining child’s overall experience with mindfulness; Discussing how to use mindfulness in everyday life; Taking stock of what the child accomplished.</td>
</tr>
</tbody>
</table>
Table 3. Demographic Information, Diagnostic Status, and Clinical Severity at Pre-Treatment, Post-Treatment, and 8-week Follow-Up

<table>
<thead>
<tr>
<th>Participant</th>
<th>Demographic Info</th>
<th>Diagnostic Status (CSR; 0-8 scale)</th>
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<tbody>
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<td>Age</td>
<td>Ethnicity</td>
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<tr>
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<td></td>
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</tbody>
</table>

Notes. CSR = Clinical Severity Rating, a score of 4 or above is considered to be a clinical diagnosis; GAD = Generalized Anxiety Disorder; SOC = Social Phobia; Spec = Specific Phobia.
Table 4. Functional Impairment and Clinical Global Severity and Improvement Scores at Pre-Treatment, Post-Treatment, and 8-week Follow-Up

<table>
<thead>
<tr>
<th>Participant</th>
<th>CGAS</th>
<th>CGI-S (0-7 scale)</th>
<th>CGI-I (0-7 scale)</th>
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<td>Pre</td>
<td>Post</td>
<td>F/U</td>
</tr>
<tr>
<td>1</td>
<td>55</td>
<td>65</td>
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<tr>
<td>2</td>
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<tr>
<td>4</td>
<td>48</td>
<td>85</td>
<td>88</td>
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</table>

Notes. CGAS = Children’s Global Assessment Scale; CGI-S = Clinical Global Impression-Severity Scale; CGI-I = Clinical Global Impression-Improvement Scale; Pre = pre-treatment; Post = post-treatment, F/U = follow-up
Table 5. CBCL Internalizing and Anxiety Problems, PSWQ-C, and MASC T-scores at pre-treatment, post-treatment, and 8-week follow-up

<table>
<thead>
<tr>
<th>Participant</th>
<th>CBCL Int. Prob.</th>
<th>CBCL Anx. Prob.</th>
<th>PSWQ-C</th>
<th>MASC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre</td>
<td>Post</td>
<td>F/U</td>
<td>Pre</td>
</tr>
<tr>
<td>1</td>
<td>72</td>
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<td>52</td>
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<td>4</td>
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<td>48</td>
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</tbody>
</table>

Notes. CBCL Int, Anx = Child Behavior Checklist Internalizing and Anxiety Problem Scale; PSWQ-C = Penn State Worry Questionnaire for Children; MASC = Multidimensional Anxiety Scale for Children, Total scale; Pre = pre-treatment; Post = post-treatment, F/U = follow-up
Table 6. CAMM and MCQ-C Total Scores at pre-treatment, post-treatment, and 8-week follow-up

<table>
<thead>
<tr>
<th>Participant</th>
<th>CAMM</th>
<th></th>
<th>MCQ-C Total</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre</td>
<td>Post</td>
<td>F/U</td>
<td>Pre</td>
</tr>
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</table>

Notes. CAMM = Child and Adolescent Mindfulness Measure; MCQ-C Total = Metacognitions Questionnaire for Children, Total scales; Pre = pre-treatment; Post = post-treatment, F/U = follow-up
Table 7. MCQ-C Positive Meta-Worry, Negative Meta-Worry, SPR, and Cognitive Monitoring Subscale Scores

<table>
<thead>
<tr>
<th>Participant</th>
<th>Positive</th>
<th>Negative</th>
<th>SPR Beliefs</th>
<th>Cognitive</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre</td>
<td>Post</td>
<td>F/U</td>
<td>Pre</td>
</tr>
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<td>4</td>
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</table>

Notes. Positive = Positive Beliefs about Worry subscale; Negative = Negative Beliefs about Worry subscale; SPR = Superstition, Punishment, and Responsibility Beliefs subscale; Cognitive = Cognitive Monitoring subscale; Pre = pre-treatment; Post = post-treatment, F/U = follow-up
Table 8. Sample Characteristics

<table>
<thead>
<tr>
<th></th>
<th>Open Trial (n = 4)</th>
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<th>Waitlist (n = 6)</th>
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<tr>
<td><strong>Race</strong></td>
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<td>100% Caucasian</td>
<td>66.67% Caucasian</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>-</td>
<td>16.67% African</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>16.67% Biracial</td>
<td>-</td>
</tr>
<tr>
<td><strong>Current medication</strong></td>
<td>0%</td>
<td>40%</td>
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Table 9. Means and Standard Deviations of Outcome Measures at Pre-treatment, Post-waitlist, Post-treatment, and Follow-up Assessments by Treatment Condition for Study 2

<table>
<thead>
<tr>
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<tr>
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<td>mean ($SD$)</td>
<td>mean ($SD$)</td>
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<tr>
<td></td>
<td>Pre-tx</td>
<td>Post-tx</td>
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<tr>
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<td>(1.26)</td>
<td>(.82)</td>
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<tr>
<td>CGAS</td>
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<td>64.00</td>
<td>69.75</td>
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<tr>
<td></td>
<td>(4.04)</td>
<td>(16.45)</td>
<td>(18.12)</td>
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<tr>
<td>CGI-S</td>
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<td>(0.58)</td>
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<td>CGI-I</td>
<td>-</td>
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<td>2.00</td>
</tr>
<tr>
<td></td>
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<td>(.82)</td>
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<tr>
<td>CBCL Int</td>
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<td>59.25</td>
<td>58.00</td>
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<tr>
<td></td>
<td>(2.01)</td>
<td>(10.87)</td>
<td>(9.42)</td>
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<tr>
<td>CBCL Anx</td>
<td>72.50</td>
<td>63.50</td>
<td>59.25</td>
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</table>

*Denotes adjusted scores for outliers.
<table>
<thead>
<tr>
<th></th>
<th>MASC Tot</th>
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<th></th>
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<tbody>
<tr>
<td></td>
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<td>(0.58)</td>
<td>(7.68)</td>
<td>(9.54)</td>
<td>(1.84)</td>
<td>(5.60)</td>
<td>(7.47)</td>
<td>(3.72)</td>
<td>(5.33)</td>
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<tr>
<td></td>
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<td>45.25</td>
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<td>56.67</td>
<td>43.00(^a)</td>
<td>50.17</td>
<td>39.17</td>
<td>33.83</td>
<td>33.00(^b)</td>
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<td>(7.85)</td>
<td>(11.53)</td>
<td>(17.66)</td>
<td>(16.02)</td>
<td>(21.96)</td>
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<td>40.00</td>
<td>67.50</td>
<td>52.00(^a)</td>
<td>53.83</td>
<td>45.67</td>
<td>43.33</td>
<td>36.25(^b)</td>
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<td>(8.22)</td>
<td>(6.68)</td>
<td>(14.92)</td>
<td>(14.87)</td>
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<td>28.67</td>
<td>28.50</td>
<td>34.83</td>
<td>35.20(^a)</td>
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<td></td>
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<td>(6.66)</td>
<td>(7.00)</td>
<td>(10.31)</td>
<td>(13.76)</td>
<td>(13.77)</td>
<td>(5.09)</td>
<td>(6.49)</td>
<td>(4.71)</td>
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<tr>
<td></td>
<td>38.50</td>
<td>40.00</td>
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<td>50.83</td>
<td>44.17</td>
<td>37.87</td>
<td>38.17</td>
<td>31.11</td>
<td>32.00(^a)</td>
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<tr>
<td></td>
<td>(4.44)</td>
<td>(4.55)</td>
<td>(5.82)</td>
<td>(15.03)</td>
<td>(17.44)</td>
<td>(17.95)</td>
<td>(6.68)</td>
<td>(5.05)</td>
<td>(3.16)</td>
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<td>7.00</td>
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<td>6.67</td>
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<td>6.33</td>
<td>7.00</td>
<td>6.67(^.82)</td>
<td>6.40(^a)</td>
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<tr>
<td></td>
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<td>(1.41)</td>
<td>(4.50)</td>
<td>(2.16)</td>
<td>(2.81)</td>
<td>(.52)</td>
<td>(1.55)</td>
<td>(.89)</td>
<td>(1.67)</td>
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<td>9.50</td>
<td>8.75</td>
<td>16.33</td>
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<td>11.67</td>
<td>8.33</td>
<td>8.20(^a)</td>
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<tr>
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<td>(0.82)</td>
<td>(1.73)</td>
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<td>(5.82)</td>
<td>(5.61)</td>
<td>(6.35)</td>
<td>(1.75)</td>
<td>(2.42)</td>
<td>(1.10)</td>
</tr>
<tr>
<td></td>
<td>9.00</td>
<td>10.00</td>
<td>9.00</td>
<td>11.33</td>
<td>10.50</td>
<td>9.67</td>
<td>9.33</td>
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<td>(1.41)</td>
<td>(2.00)</td>
<td>(2.16)</td>
<td>(4.97)</td>
<td>(5.43)</td>
<td>(5.68)</td>
<td>(1.51)</td>
<td>(1.47)</td>
<td>(1.79)</td>
</tr>
</tbody>
</table>

\(^a\) indicates a significant difference from baseline.

\(^b\) indicates a significant difference from control group.
<table>
<thead>
<tr>
<th>Measure</th>
<th>Value 1</th>
<th>Value 2</th>
<th>Value 3</th>
<th>Value 4</th>
<th>Value 5</th>
<th>Value 6</th>
<th>Value 7</th>
<th>Value 8</th>
<th>Value 9</th>
<th>Value 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCQ-C Cog</td>
<td>12.00</td>
<td>3.50</td>
<td>12.25</td>
<td>16.50</td>
<td>11.84</td>
<td>10.33</td>
<td>10.17</td>
<td>8.17</td>
<td>9.60a</td>
<td>8.00</td>
</tr>
<tr>
<td></td>
<td>(3.37)</td>
<td>(3.11)</td>
<td>(3.30)</td>
<td>(5.68)</td>
<td>(6.24)</td>
<td>(5.79)</td>
<td>(3.19)</td>
<td>(1.47)</td>
<td>(1.67)</td>
<td>(1.67)</td>
</tr>
</tbody>
</table>

Notes. a = n of 5; b = n of 4; GAD CSR = clinical severity rating of GAD; CGAS = Children’s Global Assessment Scale; CGI-S = Clinical Global Impression-Severity Scale; CGI-I = Clinical Global Impression-Improvement Scale; CBCL Int, Anx = Child Behavior Checklist, Internalizing and Anxiety Problem Scale; MASC Tot = Multidimensional Anxiety Scale for Children, Total Scale; PSWQ-C = Penn State Worry Questionnaire for Children; CAMM = Child and Adolescent Mindfulness Measure; MCQ-C Tot, Pos, Neg, Super, Cog = Metacognitions Questionnaire for Children, Total, Positive Meta-worry, Negative Meta-worry, Superstitious, and Cognitive Monitoring scales
Table 10. Means and Standard Deviations of Outcome Measures in Combined Sample for Study 2 (N = 12)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Pre-Treatment</th>
<th>Post-Treatment</th>
<th>Follow-up</th>
</tr>
</thead>
<tbody>
<tr>
<td>GAD CSR</td>
<td>5.17 (.72)</td>
<td>3.75 (1.29)</td>
<td>3.25 (1.49)</td>
</tr>
<tr>
<td>CGAS</td>
<td>52.58 (4.76)</td>
<td>61.33 (10.34)</td>
<td>65.33 (12.82)</td>
</tr>
<tr>
<td>CGI-S</td>
<td>4.25 (.45)</td>
<td>3.42 (.79)</td>
<td>3.25 (1.42)</td>
</tr>
<tr>
<td>CGI-I</td>
<td>-</td>
<td>2.67 (.89)</td>
<td>2.67 (1.30)</td>
</tr>
<tr>
<td>CBCL Internalizing</td>
<td>68.75 (7.62)</td>
<td>62.20 (6.05)</td>
<td>60.17 (6.89)</td>
</tr>
<tr>
<td>CBCL Anxiety</td>
<td>72.42 (4.08)</td>
<td>65.60 (4.74)</td>
<td>65.58 (5.71)</td>
</tr>
<tr>
<td>MASC Total</td>
<td>45.25 (17.43)</td>
<td>38.56 (13.50)</td>
<td>43.08 (18.40)</td>
</tr>
<tr>
<td>PSWQ-C</td>
<td>55.42 (17.14)</td>
<td>45.00 (13.43)</td>
<td>46.58 (11.37)</td>
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<tr>
<td>CAMM</td>
<td>30.75 (9.26)</td>
<td>30.09 (11.29)</td>
<td>31.75 (10.66)</td>
</tr>
<tr>
<td>MCQ-C Tot</td>
<td>41.08 (15.76)</td>
<td>38.64 (14.02)</td>
<td>34.33 (12.99)</td>
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<td>MCQ-C Pos</td>
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<td>6.91 (2.12)</td>
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<td>MCQ-C Neg</td>
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<td>9.67 (4.74)</td>
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<td>MCQ-C Super</td>
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<td>MCQ-C Cog</td>
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<td>10.82 (4.69)</td>
<td>9.17 (4.24)</td>
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</tbody>
</table>

Notes. Pre-treatment data includes pre-treatment for immediate treatment group and post-waitlist data for waitlist group; GAD CSR = clinical severity rating of GAD; CGAS = Children’s Global Assessment Scale; CGI-S = Clinical Global Impression-Severity Scale; CGI-I = Clinical Global Impression-Improvement Scale; CBCL Int, Anx = Child Behavior Checklist Internalizing and Anxiety Problem Scale; MASC = Multidimensional Anxiety Scale for Children, Total scale; PSWQ-C = Penn State Worry Questionnaire for Children; CAMM = Child and Adolescent Mindfulness Measure; MCQ-C Tot, Pos, Neg, Super, Cog = Metacognitions Questionnaire for Children, Total, Positive Meta-worry, Negative Meta-worry, Superstitious, and Cognitive Monitoring scales.
Table 11. Means and Standard Deviations of Change Scores in Outcome Measures in Combined Sample for Study 2 (N = 12)

<table>
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<tr>
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<th>Immediate (n = 6)</th>
<th>Waitlist (n = 6)</th>
<th>d</th>
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</thead>
<tbody>
<tr>
<td>GAD CSR</td>
<td>-1.17 (1.17)</td>
<td>-.33 (.82)</td>
<td>.83</td>
</tr>
<tr>
<td>CGAS</td>
<td>5.00 (10.04)</td>
<td>1.33 (3.14)</td>
<td>.49</td>
</tr>
<tr>
<td>CGI-S</td>
<td>-.67 (.82)</td>
<td>.17 (.41)</td>
<td>1.30</td>
</tr>
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<td>CGI-I</td>
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<td>1.16</td>
</tr>
<tr>
<td>CBCL Internalizing</td>
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<tr>
<td>CBCL Anxiety</td>
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</tr>
<tr>
<td>MASC Total</td>
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<td>-5.33 (4.18)</td>
<td>.15</td>
</tr>
<tr>
<td>PSWQ-C</td>
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</tr>
<tr>
<td>CAMM</td>
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<tr>
<td>MCQ-C Tot</td>
<td>-6.67 (6.02)</td>
<td>-6.83 (4.40)</td>
<td>.03</td>
</tr>
<tr>
<td>MCQ-C Cog</td>
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<td>.78</td>
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</tbody>
</table>

Notes. GAD CSR = clinical severity rating of GAD; CGAS = Children’s Global Assessment Scale; CGI-S = Clinical Global Impression-Severity Scale; CGI-I = Clinical Global Impression-Improvement Scale; CBCL Int, Anx = Child Behavior Checklist Internalizing and Anxiety Problem Scale; MASC = Multidimensional Anxiety Scale for Children, Total scale; PSWQ-C = Penn State Worry Questionnaire for Children; CAMM = Child and Adolescent Mindfulness Measure; MCQ-C Tot, Cog = Metacognitions Questionnaire for Children, Total and Cognitive Monitoring scales.
Table 12. Demographic Information, Diagnostic Status, and Clinical Severity at Pre- 
Treatment, Post-Treatment, and 8-week Follow-Up for Study 2 (N = 12)

<table>
<thead>
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<th>Participant</th>
<th>Demographic Info</th>
<th>Diagnostic Status (CSR; 0-8 scale)</th>
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</tr>
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<td>7</td>
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<tr>
<td></td>
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<td></td>
</tr>
<tr>
<td>15</td>
<td>10</td>
<td>Caucasian</td>
</tr>
</tbody>
</table>
16    11    Biracial    Male    GAD (5)    GAD (3)    GAD (3)

Notes. Pre-treatment data includes pre-treatment for immediate treatment group and post-waitlist data for waitlist group; CSR = Clinical Severity Rating, a score of 4 or above is considered to be a clinical diagnosis; GAD = Generalized Anxiety Disorder; SOC = Social Phobia; Spec = Specific Phobia.
Appendix A

The AWARE Program:
Approaching Worries Actively through Reflection and Experience

A Mindfulness-based Treatment for Children with Generalized Anxiety Disorder

Priscilla T. Chan, M.A.
Lisa S. Coyne, Ph.D.
Martha C. Tompson, Ph.D.

v. 11/2013
Overview of Treatment Rationale

Note to Parents and Clinicians:

Mindfulness is about practicing how to be focused and non-judgmental in the present moment in our day-to-day life. As Kabat-Zinn (1994) writes, “mindfulness means paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally…this kind of attention nurtures greater awareness, clarity, and acceptance of present-moment reality” (p. 4). Therefore, mindfulness is defined as having a nonjudgmental awareness and attention to the present and can be achieved through the practice of mindfulness meditation as well as other practices. Through mindfulness, one can learn to be open and accepting of one’s thoughts, both positive and negative, on a moment-to-moment basis. In addition to accepting one’s thoughts, mindfulness encourages a focus on internal sensations and emotions and external stimuli.

Mindfulness-based treatments have been shown in research to help adults across a range of problems and disorders including chronic pain (Kabat-Zinn, 1982; Reibel et al., 2001), anxiety (Kabat-Zinn et al., 1992), depression (Segal et al., 2002; Teasdale et al., 2000), post-traumatic stress disorder (Wolfsdorf & Zlotnick, 2001), and eating disorders (Kristeller & Hallett, 1999).

This will be an adapted mindfulness treatment for children. The treatment is aimed at helping children learn a different way of understanding their thoughts (both worried and coping thoughts) and feelings (both emotions and physical sensations). One of the goals is for children to learn how to be mindful and reflective of each and every situation rather than reacting reflexively. In this way, a secondary goal of teaching children mindfulness coping skills is to alleviate their everyday worries and anxieties.

By practicing mindfulness through these session exercises, the hope is that children will cultivate an attitude of awareness in everyday situations.

Please note that the order of sessions can be flexible. It may be helpful to give the child the choice of which type of mindfulness skill they want to learn and practice next. If kids have a difficult time being mindful to internal sensations, like breathing, it may be helpful to start with external mindfulness activities, such as mindful listening and mindful eating.

Note: Italicized text is meant to be a guideline script for the clinician.
Introduction to Mindfulness

| Content Goal | • Introduction to Mindfulness  
|             |   o What is Mindfulness  
|             |   o Judging versus noticing  
|             |   o Importance of practicing at home |
| Materials   | • Worksheets |

Introduction (parent + child)
Welcome the parent and child together and explain the structure of the next 6 weeks (meeting once a week for approximately 60 minutes each week). Child will be meeting with the therapist for the majority of the session learning and practicing different mindfulness exercises. At the end of every session, the parent will be invited back into the room and the child will teach his/her parent the mindfulness skill learned in session. Mindfulness homework will be assigned for practice throughout the week and the parent is strongly encouraged to practice these exercises with his/her child. These exercises will take between 10-20 minutes daily.

Psychoeducation (parent + child)
Nature of anxiety
- All emotions, including anxiety, are natural, necessary, and harmless – experienced by everyone and part of the experience of being human. Can anxiety ever be good?
- Anxiety can be helpful (protect yourself from danger) and unhelpful (no danger present, too intense or too frequent). So, sometimes anxiety can be good because it protects us from danger, but sometimes anxiety is not helpful because there is no real danger.
- Since anxiety is a reaction, we can learn ways of managing anxiety. And because anxiety can be helpful, the goal of treatment is not to remove all anxiety but to help you become more aware so that you can decide what to do in the situation. We are going to learn how to observe your anxiety so that you can decide how to respond.

What is Mindfulness? + Rationale for Treatment
- Have you ever noticed times when you weren’t paying attention? For instance, not paying attention when you get home from school and then realizing that you didn’t know where you put your book bag or homework papers?

[Elicit examples from parent and child]

Everyone has moments like this when we aren’t very good about paying attention or being aware of what’s going on right now. What can happen is that when kids get anxious, we can get stuck with worrying about things that happened in the
past or getting stuck worrying about what might happen in the future. Has that happened to you?

What can get lost is thinking about what’s happening right now. Throughout our 6 weeks together, we’ll learn how to pay more attention by being aware of our thoughts whether they are positive or negative, noticing our feelings like being sad, happy, or worried and being aware of feelings in our bodies. By learning how to pay attention to what’s going on in the moment, you can enjoy life more and not get stuck worrying. When we learn how to do this, we can decide what to do about something in the moment instead of just acting and worrying. This is called “mindfulness” or “being mindful.” Being “mindful” means being aware of what we do, think, and feel in situations that make us worried or anxious. Another way to say it is that we can learn to respond more thoughtfully and reflectively rather than acting automatically. By practicing mindfulness, we can start to experience every day moments in a new way, perhaps noticing things we hadn’t noticed before and learning that our thoughts and feelings aren’t necessarily “good” or “bad” but part of our every day experiences. Mindfulness might change your relationship with worry – worries might boss you around and mindfulness can help you change that. Also, by being mindful, we become more aware when we do feel worried and learn to be okay with those feelings, whether we label them as “good” or “bad.”

Most kids and adults learning how to do mindfulness and practicing it have some trouble at first doing it. It can take a while to get there. It’s tricky! And we’ll talk about ways to help you figure out how to do it. It’s definitely going to take some practice and allowing yourself room to make mistakes here and there.

Judging versus Noticing

- One part of mindfulness is noticing rather than judging. Judging is when you decide something is bad or good. Noticing is about saying the facts. Have you ever tasted something you didn’t like and thought, “That’s gross”?

  [Let child respond]

  Instead of judging that food as “gross” how could you have thought about it differently and notice your reactions?

  [Let child respond]

  Maybe you could think to yourself, “Hm, that tastes different.” Or, have you been nervous and messed up? Being mindful might mean thinking “Okay, I messed up and right now I’m feeling ____” and describe what you feel without judging yourself, instead of thinking, “Gosh, I’m so stupid.” If this sounds hard, it can
Throughout these next 6 weeks, we’ll learn how to get better at noticing instead of judging, having present moment awareness without defense.

Practicing Mindfulness at home

- We’ll be learning lots of different exercises and some of will seem to really relate to what you do when you are worried and some of the skills we learn might not seem to relate as much. It’s important to keep in mind that all of the exercises will help you learn WAYS to be mindful in your everyday life so even if it doesn’t seem to help your worries right away, I think the more we practice being mindful in your normal life, the more it will be helpful to you. Also, it will be really important that you make sure to practice these exercises at home with your mom/dad. It will usually only take about 10-20 minutes a day to practice. Just like any skill, like playing an instrument/computer or video game really well or knowing how to shoot a basketball, we will need to practice every day to get better at being mindful. Hopefully these practices will be fun and if you have trouble remembering or doing them at home, let me know and we’ll work together to figure out the best way for you to practice outside of session.

- Give Mindful Tips HANDOUT to parent(s)

**Beginning Session Check-In: How are you feeling? (child)**
Ask the child to describe how they are feeling at the beginning of the session.

- [Ask child] Why do you think we are going to rate how you feel each time we meet?
  - Happy
  - Sad
  - Mad
  - Worried
  - Any other emotions?

**Getting to Know You Game (child)**
Play a get to know you game and find out 5 interesting facts about the child. Use this game as an exercise to practice mindfulness by paying attention to what the other person is saying and then trying to remember at the end of session what he/she has shared with you.

Questions that you can ask:

- Favorite color
- Favorite vacation spot
- Favorite (spring/summer/fall/winter) activity
- Favorite sports/music/tv shows/movie/etc.

**Before introducing new Mindfulness Skill**

- What do you do now when you feel worried/anxious?
AFTER FIRST SESSION: Problem Solving Barriers to Everyday Mindful Practice (parent + child)
If parent and/or child had any difficulties in maintaining a regular practice over the week, work together with them to figure out a plan for the coming week.

- Finding a regular consistent time to practice together (right after school, after dinner, before bedtime, etc.) and scheduling it into the day
- Maybe involving other family members so that it can be a family activity
- What other difficulties were encountered?
- If you find that your mind wanders or you are making judgments about the exercise ("This is boring," "This is weird," etc.), that’s OKAY! This is part of practicing mindfulness.
Mindful Eating

| Content Goal | • Problem solving barriers to practice  
|             | • Mindful Eating                     |
| Materials   | • Raisins                            
|             | • Orange slices                      
|             | • M&M’s                              
|             | • Gummy worms                        
|             | • Crackers                           |

**Checking In (parent + child)**
Review last session and mindfulness skill learned (if applicable) – elicit responses from parent and child, too.
Review practice assignment and ask both parent and child how their mindful practice went over the past week:
• What did they notice?
• Were they judging or noticing?
• Any difficulties about maintaining every day practice?

**Beginning Session Check-In: How are you feeling? (child)**
Ask the child to describe how they are feeling at the beginning of the session.
• Happy
• Sad
• Mad
• Worried
• Any other emotions?

**Introduction to Mindful Eating**

*Eating is an everyday activity that we can often do without really being in the moment. How many times have you been eating, and without realizing it, all of a sudden, you feel full or maybe not notice how much you were eating? Has that ever happened to you or can you think of any times when maybe you weren’t being mindful while eating? We can practice mindfulness in just about all of our everyday activities and today we’ll be starting with eating.*

**Raisin Exercise (Based on Kabat-Zinn. From Segal, Z. V., Williams, J. M. G., & Teasdale, J. D. (2002). Mindfulness-Based Cognitive Therapy for Depression. NY: Guilford.)*

*Begin by assuming a mindful posture – how are you sitting on the chair/on the floor, you might notice the feeling of air on your skin, you might notice your breaths.*
Then begin to focus on the object in front of you and just imagine that you have never seen anything like it before. Imagine you have just come from another planet at this moment and you have never seen anything like it before in your life. Taking one of these objects and holding it in the palm of your hand, or between your finger and thumb. Paying attention to seeing it. Looking at it carefully, as if you had never seen such a thing before. Turning it over between your fingers. How does the object look? What colors describe the object? Notice where the light shines on it. Use your eyes to explore every part of it, like you’ve never seen it before. If you notice any thoughts or feelings that come up as you are looking at this object, just note them as thoughts and return your attention to the object. How does the object feel in your hands – is it soft or hard? Is it bumpy or smooth? Now use your nose to smell the object, with each breath, notice its smell. Use all your senses to examine it.

And now slowly putting the object into your mouth and use your tongue to explore it. You might notice its texture or its taste. Perhaps you might notice your mouth watering as it is in your mouth. You might notice you have thoughts and feelings about the object or you might notice that your mind has wandered. Now when you’re ready, gently bite into the object. You might notice that the texture has changed or that it tastes differently. Slowly chew the object, taking your time to notice the different sensations in your mouth. As you swallow it, notice if you have any sensations in your throat while it goes to your stomach. Again, notice what thoughts or feelings you have at this exact moment and realizing that now your body is exactly one raisin heavier.

Repeat exercise but with different foods (orange slices, chocolate M&M’s, gummy worms, crackers, etc.)

Questions to ask after Mindful Eating exercises:
- How did you feel during the exercise?
- What thoughts did you notice you had?
- Were you noticing or any times you felt like you were judging?
- Did you notice any body sensations while you were breathing mindfully?
- Was there a moment when your mind wandered?

After Exercise Check-In: How are you feeling?
Check in with the child about how they are feeling at the end of the session? Compare to how he/she was feeling at the beginning of session.
- Let’s take a moment to notice how you are feeling. Tell me...

Teaching Mindful Eating to Parent (parent + child)
Invite the parent back into the session and have the child walk the parent through taking mindful eating. As needed, teach the parent together or the child can read the script to the parent. Ask similar follow-up questions to the parent and encourage child to share his/her experiences when doing mindful eating.
Emphasize that bringing greater attention or awareness to everyday activities, such as eating, can enrich our day to day life, make normal, everyday things more enjoyable.

**Mindfulness Practice: (parent + child)**
- Mindful Eating – Take at least 5 minutes in which both parent and child are mindfully eating – this can be during a meal time or snack time. Share with one another what you noticed while doing mindful eating. Make sure to record any feelings, thoughts, or body sensations you noticed before and after mindful eating.
- Before parent and child leave, plan out together with them when they will do this activity every day.
Mindful Touching

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| Materials    | • Variety of objects with different textures: hairbrush, bubble wrap, pumice stone, stress ball, etc.  
|              | • Handkerchief to be used as a blindfold or bag/box  
|              | • Brown paper bag (if needed) |

Checking In (parent + child)
Review last session and mindfulness skill learned (if applicable) – elicit responses from parent and child, too. Review practice assignment and ask both parent and child how their mindful practice went over the past week:
• What did they notice?
• Were they judging or noticing?
• Any difficulties about maintaining every day practice?

Beginning Session Check-In: How are you feeling? (child)
Ask the child to describe how they are feeling at the beginning of the session.
• Happy
• Sad
• Mad
• Worried
• Any other emotions?

Introduction to Mindful Touching
Today we’ll learn about mindfulness through our sense of touch. As we have learned about mindfulness with breath awareness and mindful eating, when we are being present in the moment, being mindful while we are touching objects, we might notice that we have certain judgments about things that we never noticed before. Being mindful will help us to look at these objects in a new way, just like we looked at the raisin in a new way.

Blindfold the child and one by one, place an object into the child’s hands and let the child explore the object with his/her hands. If the child is not comfortable with being blindfolded, the child can close his/her eyes instead and put his/her hands into a brown paper bag to feel the different objects.

Hold the object in your hand and, using your hands, explore the object with your hands through your sense of touch. Try to describe the object without naming it and making judgments about the object. Instead notice how it feels in your hands in this moment.
If the child describes the object by its name, gently direct the child to describe it without naming it and without judgment, so statements like “it feels nice” or “this feels gross” are subjective and not objective. Instead help the child use descriptive words such as sticky, prickly, hard, smooth, soft, rough, etc. If the child continues to have difficulty, ask open-ended questions about how object feels:

- Does it feel soft or hard?
- How heavy is it?
- Is the object big or small?
- Does it feel warm or cold?

Questions to ask after Mindful Touching exercise:

- What was it like to use only your sense of touch?
- Did you notice any times you were judging the object instead of noticing?
  - We can often do this in our everyday life, or when just focusing on one sense, we can misjudge something.
- How was cultivating mindfulness in touching different than everyday life?
- Did using only your sense of touch change how you “saw” an object?

How to apply Mindful Touching in Everyday Life

You can choose to bring a mindful awareness in any moment in your life just as you did with this exercise! For example, one day you might be having feelings of sadness, or anger, or happiness. In that moment, you might choose to take a mindful stance and instead of putting judgments on those feelings (like “This stinks” or “I wish I wasn’t feeling this way right now”), you might instead simply notice you have those feelings without labeling them as good or bad, and not trying to change them. Just as you noticed how an object felt “gooey” instead of thinking “this feels gross.” In this way, you can cultivate a mindful awareness and just be in the present moment.

Another way to bring mindful awareness into your day to day life is for you to imagine what your worry would look, feel, taste, smell, sound like if it were a physical object! Let’s take a moment to do this. If your worry was an object, how would you describe it?

**After Exercise Check-In: How are you feeling?**

Check in with the child about how they are feeling at the end of the session? Compare to how he/she was feeling at the beginning of session.

- Let’s take a moment to notice how you are feeling. Tell me...

**Teaching Mindful Touching to Parent (parent + child)**

Invite the parent back into the session and have the child walk the parent through mindful touching. Have the child blindfold the parent for the exercise. As needed, teach the parent together. Make this as interactive and fun as you can – perhaps the parent and child can take turns mindfully touching objects and asking questions to one another about their
experience. Ask similar follow-up questions to the parent and encourage child to share his/her experiences when doing mindful touching.

**Mindfulness Practice: (parent + child)**

- Mindful Touching – Take at least 5 minutes in which both parent and child are mindfully touching different household objects. Share with one another what you noticed while doing mindful touching. *Did you experience an everyday object in a different way? Did the act of describing an object change how you experienced it?* Make sure to record any feelings, thoughts, or body sensations you noticed before and after mindful touching.
- Before parent and child leave, plan out together with them when they will do this activity every day.
Mindful Movement

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<tr>
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<tbody>
<tr>
<td>Materials</td>
<td>Yoga mat</td>
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Checking In (parent + child)
Review last session and mindfulness skill learned (if applicable) – elicit responses from parent and child, too.
- What did they notice?
- Were they judging or noticing?
- Any difficulties about maintaining every day practice?

Beginning Session Check-In: How are you feeling? (child)
Ask the child to describe how they are feeling at the beginning of the session.
- Happy
- Sad
- Mad
- Worried
- Any other emotions?

Introduction to Mindful Movement (Walking)
Another way to cultivate an attitude of mindfulness is by paying attention to how our body moves. Sometimes what we feel in our bodies is in indication of the emotions we are feeling. Have you ever noticed that if you are worried about something like speaking in front of our class, you might notice your heart pounding, or if you are excited about your birthday party, you might feel like jumping up and down in excitement? So it can be helpful and important to really notice and pay attention to how your body feel because that can help you figure out how you are feeling. And with mindfulness, we want to have an attitude of non-judgment, just noticing and not labeling feelings as good or bad. By being more aware of your body, you might feel that you can really be focused and attentive to the present moment more so than during other times during the day.

Begin by noticing how your feet feel being “grounded.” You might notice that the ground is hard, or that your feet feel squishy in your shoes. Gently bring awareness to your feet as you begin to walk slowly around the room. How does your foot feel with each step – heavy, light? Pay attention to how your foot knows how to lift up and down as you walk slowly. Notice which part of your foot touches the ground first – is it your heel or your toe? Does your body adjust or shift when one foot lifts off the ground? Maybe stop and stand still and notice the difference between walking slowly and standing. As you begin walking again, do you notice any thoughts coming into your head about how this feels? If you notice that you might be judging, just make note of that gently and then shift your focus.
back on describing to yourself. Now, being mindful of your body, start walking more quickly. How do the sensations in your body change?

Continue the exercise by asking the child to increase speed and decrease speed. After giving guidance for the first 5 minutes or so, you can stop the verbal instruction and let the child have space to continue mindful movements at his/her own pace. [total time = 10 minutes]

**Continuing Mindful Movement (Yoga + other movements)**

Practicing yoga poses is another experiential learning exercise that can assist the child in becoming more aware of their body and movements.

- **Tree Pose:** 1. Stand up straight. Look at one spot in front of you to keep a steady posture and gaze. 2. Bend your right knee and place your right leg on your left leg, above the knee or below the knee, whichever is more comfortable. 3. Now stretch your arms up above you.

- **Butterfly Pose:** 1. Sit on the floor and place the bottoms of your feet together. Hold on to your feet or ankles. 2. Gently let your knees drop toward the floor while sitting up with a tall spine.

- **Airplane Pose:** 1. Stand up straight and tall. Stretch your arms out by the side of your body like an airplane. 2. Dip your body forward at your waist as you point one foot behind you. 3. Try to keep balanced as your chest is in front of you and one foot is behind you. It might help to keep your eyes on one spot. 4. Now try Airplane pose with the other foot.

Seaweed (adapted from Amy Saltzman): imagine your body is a piece of seaweed at the bottom of the ocean…how would you be moving? What if a big wave comes through – how would that change your movements?

Questions to ask after Mindful Movement exercise:

- *What was it like to pay attention to how we move our bodies?*
- *Did you notice any times you were judging instead of noticing?*
- *Anything you learned about yourself?*
- *Did using only your sense of movement change how you experienced walking or stretching?*

**After Exercise Check-In: How are you feeling?**

Check in with the child about how they are feeling at the end of the session? Compare to how he/she was feeling at the beginning of session.

- *Let’s take a moment to notice how you are feeling. Tell me…*

**Teaching Mindful Movement to Parent (parent + child)**

Invite the parent back into the session and have the child walk the parent through taking mindful movement (both walking and yoga pose = maybe 1 minute for each). As needed, teach the parent together or the child can read the script to the parent. Ask similar follow-
up questions to the parent and encourage child to share his/her experiences when doing mindful movement.

**Mindfulness Practice: (parent + child)**

- Mindful Movement – Take at least 5 minutes in which both parent and child are either practicing mindful walking around the house or outside, or trying the yoga poses together. Share with one another what you noticed while doing mindful movement. Make sure to record any feelings, thoughts, or body sensations you noticed before and after mindful movement.
- Before parent and child leave, plan out together with them when they will do this activity every day.
Mindful Listening

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<tr>
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<tbody>
<tr>
<td>Materials</td>
<td>• Different instrumental music clips</td>
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**Checking In (parent + child)**
Review last session and mindfulness skill learned (if applicable) – elicit responses from parent and child, too.
- What did they notice?
- Were they judging or noticing?
- Any difficulties about maintaining every day practice?

**Beginning Session Check-In: How are you feeling? (child)**
Ask the child to describe how they are feeling at the beginning of the session.
- Happy
- Sad
- Mad
- Worried
- Any other emotions?

**Introduction to Mindful Listening**
*It’s easy to become used to all the noises and sounds we hear everyday.
Sometimes we won’t notice until it seems suddenly quiet in a room what sounds were present. Has that happened to you before, maybe you really noticed the ticking of the clock or the small whirring of a fan? We don’t realize how many sounds are present because we forget to pay attention. Sounds can also bring about different feelings or emotions for us or even memories. Maybe hearing the sound of waves brings you back to a happy memory of a summer vacation or hearing a police siren causes you to become irritated because it’s loud. Being mindful of sounds won’t change the sound itself but it will probably change your experience of it – like mindful eating or touching, our relationship to sounds will be different. You might start to notice sounds that were always there before but you never realized. You might feel like you are experiencing sounds in a new, fresh way.*

*Let’s begin by first taking 5 mindful breaths to come into a stance of mindfulness. Close your eyes and as you listen to the sounds, note anything thoughts, feelings, or body sensations to come up for you. Try to note the sounds as just sounds and not as “good” or “bad.”*

Play 1 minute sound clips of different instrumental songs – 3 to 4 clips in total. After each clip, ask the child to write down what thoughts, feelings, or body sensations arise as they listened paying attention to whether they “noticed” or “judged.”
Take the child outside, weather permitting, and take 2-3 minutes for the child to practice mindful listening outside.

Questions to ask after Mindful Listening exercise:

- What thoughts, feelings, or body sensations did you notice while listening?
- How can these be related to the sounds you hear?
- What made you have certain responses to each sound clip?

Share your own thoughts, feelings, body sensations that you had while listening to the same sound clips. Discuss with child how a person’s own previous experiences might shape how they perceive a sound. You might note to the child that your experience of the sounds was different than his/her own experience. But also note there is not “right” or “wrong” way.

**After Exercise Check-In: How are you feeling?**
Check in with the child about how they are feeling at the end of the session? Compare to how he/she was feeling at the beginning of session.

- Let’s take a moment to notice how you are feeling. Tell me...

**Teaching Mindful Listening to Parent (parent + child)**
Invite the parent back into the session and have the child walk the parent through mindful listening. As needed, teach the parent together or the child can read the script to the parent. Ask similar follow-up questions to the parent and encourage child to share his/her experiences when doing mindful listening.

**Mindfulness Practice: (parent + child)**

- Mindful Listening – Take at least 5 minutes in which both parent and child are mindfully listening. This can be by listening to the radio, a sounds clip, sitting outside or just sitting in a room and listening to the noises present. Share with one another what you noticed while doing mindful listening. Make sure to record any feelings, thoughts, or body sensations you noticed before and after mindful listening.
- Before parent and child leave, plan out together with them when they will do this activity every day. Suggest that this could be a fun exercise to do while parent and child run errands.
Mindful Breathing

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<td>o Importance of practicing at home</td>
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| Materials | • Worksheets |

**Checking In (parent + child)**
Review last session and mindfulness skill learned (if applicable) – elicit responses from parent and child, too.

Review homework assignment and ask both parent and child how their breath awareness exercises went over the past week:
- *What did they notice?*
- *Were they judging or noticing?*
- *Any difficulties about maintaining every day practice?*

**Mindfulness Exercise: Breath Awareness**
[Model each and every exercise with child and practice WITH the child] 
- *Let’s start our first mindfulness exercise by taking “mindful breaths.” Remember, being mindful means paying attention, just notice any thoughts, feelings, or body sensations you have while we do this exercise. Practice paying attention to EACH breath. Let’s start out by being mindful of how you are sitting; you may want to sit up straighter if you like. You can close your eyes to help you pay more attention or you can also focus on a spot in the room. Take one deep breath in with your nose and hold it for 1 second and then breathe out slowly. Notice how the breath feels in your nose – your breath might feel warm or cold. You might notice how your breath travels down to your lungs. Take another deep breath in and another deep breath out. If you notice that your mind wanders, that’s okay. Notice that it has happened and bring your awareness back to your breaths. Breathe in again. Pause for 1 second and then breathe out. You might notice that your body, your shoulders move while you breathe in and out. Notice any thoughts you might be thinking – you may be thinking, “I’m breathing in and out.” Take your time and have full awareness and attention on your breaths.*

Questions to ask after Breath Awareness:
- *How did you feel during the exercise?*
- *What thoughts did you notice you had?*
- *Were you noticing or any times you felt like you were judging?*
- *What body sensations did you notice while you were breathing mindfully?*
- *Was there a moment when your mind wandered?*
Bubble Exercise (adapted from Hooker & Fodor) to be introduced as child becomes more comfortable with mindfulness, such as later sessions:

- As you are sitting with your eyes closed, imagine bubbles floating up in front of you. Each bubble contains a worry, a thought, a picture, or an image. See the first bubble float up. What do you see inside the bubble? What do you notice about the bubble? See the thought or worry, and watch the bubble continue to rise up and gently float away. Try not to judge it and once it floats away, notice the next bubble to floats up in front of you. What do you see in that bubble?

After Exercise Check-In: How are you feeling?
Check in with the child about how they are feeling at the end of the session? Compare to how he/she was feeling at the beginning of session.

- Let’s take a moment to notice how you are feeling. Tell me...

Teaching Mindful Breathing to Parent (parent + child)
Invite the parent back into the session and have the child walk the parent through taking mindful breaths. As needed, teach the parent together or the child can read the script to the parent. Ask similar follow-up questions to the parent and encourage child to share his/her experiences when doing breath awareness.

Mindfulness Practice: (parent + child)
- Breath Awareness – Take at least 5 mindful breaths with parent. Share with one another what you noticed while doing mindful breathing. Make sure to record how you were feeling before and after mindful breathing.
- Encourage parent that practice these mindfulness exercises WITH the child rather than enforcing it.
- Before parent and child leave, plan out together with them when they will do this activity every day
Termination and Everyday Mindfulness

| Content Goal | • Review of mindfulness skills learned  
• Examining child’s overall experience with mindfulness  
• Using mindfulness in everyday life  
• Taking stock of all you accomplished |
| --- | --- |
| Materials | • Mindfulness worksheets  
• Graduation certificate |

**Checking In (parent + child)**

Review Practice assignment and ask both parent and child how their mindful listening exercises went over the past week:

- *What did they notice?*
- *Were they judging or noticing?*
- *Any difficulties about maintaining every day practice?*

**Reviewing Mindfulness + Being Mindful in Everyday Life**

*Today is our last session together. Let’s spend some time talking about what you’ve learned about mindfulness and yourself over the past 6 weeks. First, let’s take 5 mindful breaths together.*

*How would you describe mindfulness to a friend?*

*What do you remember from the first time you came here?*

*What have you learned about yourself over the past several weeks?*

*How has your experience or relationship with your worries changed over time?*

*Do you see any differences in how you respond now in different situations?*

*What will you remember from this experience?*

*Do you have any goals you want to set for yourself for the future?*

*Any specific things you want to continue practicing?*

*Although this is the end of our time together, how can you continue to practice what you have learned about mindfulness going forward?*

(Some ideas may be to continue practicing taking mindful breaths when feeling a certain emotion; taking time each week to do something mindfully like eating, touching, smelling)
Graduation Certificate Presentation (parent + child)
Invite the parent back into the session and have the child discuss with parent what he/she has learned about mindfulness and how he/she might commit to practicing mindfulness in everyday life. Present a graduation certification for the child.
Mindfulness Treatment for Generalized Anxiety

What is Mindfulness?

Mindfulness is about practicing how to be focused and non-judgmental in the present moment in our day-to-day life. Through practicing mindfulness exercises, one can learn to be open and accepting of one’s thoughts, both positive and negative, on a moment-to-moment basis. In addition to accepting one’s thoughts, mindfulness encourages a focus on internal sensations and emotions and external stimuli.

When kids are anxious, they get stuck with worrying about things that happened in the past or getting stuck worrying about what might happen in the future. What can get lost is thinking about what’s happening right now. This mindfulness treatment is aimed at helping your child learn a different way of understanding his/her thoughts (both worried and coping thoughts) and feelings (both emotions and physical sensations). One of the goals is for your child to learn how to be mindful and reflective of each and every situation rather than reacting automatically. Thus, using mindfulness skills can help your child cope and manage his/her everyday worries and anxieties. By learning how to pay attention to what’s going on in the moment, your child may be able to enjoy life more and not get stuck worrying. He/she can then decide what to do about something in the moment instead of just acting and worrying.
Mindfulness Exercise Tips for Parents

• Plan out exactly when you and your child will practice mindfulness each day.

• Try to find a place to practice without too many distractions (ex: television, other kids, toys, etc.)

• Use a timer to keep track of time, especially for exercises that are 5 minutes.

• Actively practice each exercise WITH your child.

• It’s OKAY if you and your child notice your mind wandering or find practicing mindfulness hard. It happens! 😊 Just notice it and gently remind yourself to bring your attention and focus back on the specific exercise.

• Allow yourself and your child room to make mistakes here and there.

• Don’t forget to praise your child for his/her efforts.
Mindfulness Practice

1. Practice **5 minutes of mindful breaths.** Practice *imagining your worried thoughts as clouds floating by.*
2. Take **5 minutes to eat mindfully** by using your *fingers, eyes, nose, ears, and mouth.*
3. Take **5 minutes to listen mindfully** and notice what feelings and emotions you have while listening. Notice if you are making any *judgments* instead of *noticing.*
4. Take **5 minutes to touch mindfully** whether that’s when you’re eating, doing homework, etc.
5. OR take **5 minutes to move mindfully** when you’re walking to school, doing an errand with mom or dad.
6. Remember, it’s OKAY if your mind wanders. Just notice it, and gently try to bring your attention back to your mindful exercise.

****Practice at least once each day****

Circle: ☺ if you have practiced *mindful breathing*  
🍎 if you have practiced *mindful eating*  
ğı if you have practiced *mindful touching*  
耳边 if you have practiced *mindful listening*  
🚴 if you have practiced *mindful movement*  
✗ if you have not practiced

<table>
<thead>
<tr>
<th>Day 1</th>
<th>What did you notice BEFORE the practice? (thoughts, feelings, and body sensations)</th>
<th>What did you notice AFTER the practice? (thoughts, feelings, body sensations)</th>
</tr>
</thead>
<tbody>
<tr>
<td>☺/✗</td>
<td></td>
<td></td>
</tr>
<tr>
<td>🍎/✗</td>
<td></td>
<td></td>
</tr>
<tr>
<td>갚/✗</td>
<td></td>
<td></td>
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<tr>
<td>耳/✗</td>
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<td>Day 2</td>
<td>☺ / x</td>
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<tr>
<td>☺</td>
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<tr>
<td>🍎</td>
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<td>🙋</td>
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<td>🎭</td>
<td>/ x</td>
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<td>🚴</td>
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<td>🍎</td>
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<td>🍎</td>
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<td>🙋</td>
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<td>🎭</td>
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<tr>
<td>🚴</td>
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<table>
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<td>☺</td>
<td>/ x</td>
</tr>
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<td></td>
<td>Day 6</td>
</tr>
<tr>
<td>----</td>
<td>-------</td>
</tr>
<tr>
<td>🍏</td>
<td>/ x</td>
</tr>
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<td>🍎</td>
<td>/ x</td>
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<tr>
<td>🧠</td>
<td>/ x</td>
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<tr>
<td>🎧</td>
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<tr>
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<table>
<thead>
<tr>
<th></th>
<th>Day 7</th>
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<tbody>
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<td>😊</td>
<td>/ x</td>
<td></td>
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<tr>
<td>🍏</td>
<td>/ x</td>
<td></td>
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<tr>
<td>🍎</td>
<td>/ x</td>
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<td>🧠</td>
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<td></td>
</tr>
<tr>
<td>🎧</td>
<td>/ x</td>
<td></td>
</tr>
<tr>
<td>🛴</td>
<td>/ x</td>
<td></td>
</tr>
</tbody>
</table>
Appendix B

Child and Adolescent Mindfulness Measure (CAMM)
*From Greco, Smith, & Baer, 2011: Table 1*

We want to know more about what you think, how you feel, and what you do. **Read** each sentence. Then, circle the number that tells **how often each sentence is true for you**.

<table>
<thead>
<tr>
<th></th>
<th>Never True</th>
<th>Rarely True</th>
<th>Sometimes True</th>
<th>Often True</th>
<th>Always True</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I get upset with myself for having feelings that don’t make sense.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2. At school, I walk from class to class without noticing what I’m doing.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3. I keep myself busy so I don’t notice my thoughts or feelings.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4. I tell myself that I shouldn’t feel the way I’m feeling.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5. I push away thoughts that I don’t like.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6. It’s hard for me to pay attention to only one thing at a time.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7. I get upset with myself for having certain thoughts.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8. I think about things that have happened in the past instead of thinking about things that are happening right now.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9. I think that some of my feelings are bad and that I shouldn’t have them.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10. I stop myself from having feelings that I don’t like.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
Scoring Instructions: Compute total score on the CAMM by reverse scoring and summing all items.
Penn State Worry Questionnaire for Children (PSWQ-C)

Directions. This form is about worrying. Worrying happens when you are scared about something and you think about it a lot. People sometimes worry about school, their family, their health, thing coming up future or other kinds of things. For each sentence that you read, circle the answer that best tells how true that sentence is about you.

1. My worries really bother me.

2. I don’t really worry about things.

3. Many things make me worry.

4. I know I shouldn’t worry about things, but I just can’t help it.

5. When I’m under pressure, I worry a lot.

6. I am always worrying about something.

7. I find it easy to stop worrying when I want.

8. When I finish one thing, I start to worry about everything else.

9. I never worry about anything.

10. I’ve been a worrier all my life.

11. I notice that I have been worrying about things.

12. Once I start worrying, I can’t stop.
<table>
<thead>
<tr>
<th></th>
<th>13. I worry all the time.</th>
<th>Never true</th>
<th>Sometimes true</th>
<th>Most times true</th>
<th>Always true</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>14. I worry about things until they are all done.</td>
<td>Never true</td>
<td>Sometimes true</td>
<td>Most times true</td>
<td>Always true</td>
</tr>
</tbody>
</table>
Meta-cognitions Questionnaire for Children (MCQ-C)

*From Cartwright-Hatton & Landon 2005, Revised*

We are interested in how young people think. Listed below are a number of beliefs that people have. Please read each item and say how much you *generally* agree with it by circling a number. Please respond to all the items. There are no right or wrong answers.

<table>
<thead>
<tr>
<th>Sex: ..................</th>
<th>Age: ..................</th>
<th>Do not agree</th>
<th>Agree slightly</th>
<th>Agree moderately</th>
<th>Agree very much</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. If I worry about things now, I will have fewer problems in the future</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>2. It is not a good idea to worry because worrying is bad for me</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>3. I often notice the thoughts that I have in my head</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>4. If I worry a lot, I could make myself sick</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5. When I am thinking about a problem in my head, I take note of how my mind works</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>6. If I did not get a worry thought out of my head and then something bad happened, it would be my fault</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>7. Worrying about things helps me to be organized and keep my stuff in order</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>8. My worrying thoughts keep going, no matter how hard I try to put them out of my head</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>9. When I am confused, worrying helps me sort things out</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>10. I can’t stop thinking of the things that I</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>
worry about

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>11.</td>
<td>I try hard to keep track of the thoughts that I have in my head</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>12.</td>
<td>I should be able to tell myself to stop and start thinking about things whenever I want to</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>13.</td>
<td>Worrying might make me go crazy</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>14.</td>
<td>I am always thinking about the thoughts in my head</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>15.</td>
<td>I pay a lot of attention to the way that I think</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>16.</td>
<td>Worrying helps me feel better</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>17.</td>
<td>If I can’t stop my thoughts, I am no good</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>18.</td>
<td>Once I start worrying about something, I cannot stop</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>19.</td>
<td>If I can’t stop my thoughts, bad things will happen</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>20.</td>
<td>Worrying helps me solve problems</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>21.</td>
<td>It is bad to think about certain things</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>22.</td>
<td>If I couldn’t be in control of what I think, I would fall apart</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>23.</td>
<td>I need to worry in order to get my work done</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>24.</td>
<td>I think about my thoughts over and over</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

*Please ensure that you have responded to all items - Thank You.*
We would like to get some of your opinions about the treatment your child received in the Mindfulness Treatment Program. Please answer each of the following questions as honestly as possible. Circle the number which best reflects your feelings. Circle the term “Not Applicable” if the question does not apply to you. Remember, there are no right or wrong answers.

<table>
<thead>
<tr>
<th>Question</th>
<th>Not at all</th>
<th>Somewhat</th>
<th>Very Much</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. How much did this treatment make sense to you in terms of decreasing your child’s anxiety?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2. How much do you think the treatment helped your child cope with anxiety?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3. How much do you think the treatment helped your child decrease his/her anxiety?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4. How confident would you be in recommending this treatment to a friend’s child who was having difficulties with anxiety?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5. How helpful do you think the in-session exercises were for treating your child’s anxiety?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6. How helpful do you believe the out-of-session practices were for treating your child’s anxiety?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7. Overall, how much do you think your child’s anxiety improved by the end of the treatment?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8. How much do you think your child will use the skills and strategies that he/she learned in treatment in the future?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9. How much do you agree with this statement: “My child’s therapist was supportive.”</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10. How do you agree with this statement: “My child’s therapist presented information to me clearly.”</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>11. How satisfied were you with the amount you were involved with your child’s treatment?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
Please use the space below to answer the following questions. We appreciate your honest opinions. There are no right or wrong answers. If you need more space, you may use the back of this sheet.

1. What did you find most helpful about the treatment you and your child received at the Center? Please explain.

2. What part of treatment was least helpful? Please explain.

3. What was the most important thing you learned throughout the course of your child’s treatment?

4. How would you describe this treatment to a friend whose child also has anxiety? What advice would you give him/her based on what you learned at the Center?

5. What would you change about the mindfulness treatment at the Center?

6. Would you have preferred to be more or less involved with your child’s treatment? Please explain.

7. If discontinuing your participation in the treatment, please give reasons for discontinuation. If not applicable, just leave this space blank.

8. Please use the space below to make any comments or suggestions that you might have about the mindfulness treatment.
We would like to get some of your opinions about the treatment you received in the Mindfulness Treatment Program. Please answer each of the following questions as honestly as possible. Circle the number which best reflects your feelings. Circle the term “Not Applicable” if the question does not apply to you. Remember, there are no right or wrong answers.

<table>
<thead>
<tr>
<th>Question</th>
<th>Not at all</th>
<th>Somewhat</th>
<th>Very Much</th>
<th>N/A</th>
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</thead>
<tbody>
<tr>
<td>1. How much did this treatment make sense to you in terms of decreasing your anxiety?</td>
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<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2. How much do you think the treatment helped you cope with anxiety?</td>
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<td>2</td>
<td>3</td>
<td>4</td>
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<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5. How helpful do you think the in-session exercises were for helping your anxiety?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6. How helpful do you think the out-of-session practices were for helping your anxiety?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7. Overall, how much do you think your anxiety got better by the end of the treatment?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8. How much do you think you will use the skills and strategies that you learned in treatment in the future?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9. How much do you agree with this statement: “My therapist was supportive.”</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10. How do you agree with this statement: “My therapist taught me the skills clearly.”</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>11. How satisfied were you with the amount your parent was involved with treatment?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>12. If you weren’t satisfied with your parent’s level of involvement, do you wish your parent had more or less involvement with your treatment?</td>
<td>Less</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
Please use the space below to answer the following questions. We appreciate your honest opinions. There are no right or wrong answers. If you need more space, you may use the back of this sheet.

1. What did you find most helpful about the treatment you received at the Center? Please explain.

2. What part of treatment was least helpful? Please explain.

3. What was the most important thing you learned throughout the treatment?

4. How would you describe this treatment to a friend whose child also has anxiety? What advice would you give him/her based on what you learned at the Center?

5. What would you change about the mindfulness treatment at the Center?

6. Did you find it helpful to have your parent(s) involved in treatment? Would you have liked them to be more or less involved? Please explain.

7. What was the best session for you? Please explain.

8. What was the worst session for you? Please explain.

9. If discontinuing your participation in the project, please give reasons for discontinuation.

10. Please use the space below to make any comments or suggestions that you might have about the mindfulness treatment.
References


patients based on the practice of mindfulness meditation: Theoretical
considerations and preliminary results. *General Hospital Psychiatry*, 4, 33-47.
doi:10.1016/0163-8343(82)90026-3


meditation for the self-regulation of chronic pain. *Journal of Behavioral
Medicine*, 8, 163-190. doi: 10.1007/BF00845519

meditation-based program for the self-regulation of chronic pain: Treatment
doi:10.1097/00002508-198602030-00004

Kabat-Zinn, J., Massion, A.O., Kristeller, J., Peterson, L. G., Fletcher, K. E., Pbert, L., et
al. (1992). Effectiveness of a meditation-based stress reduction program in the

disorder: epidemiology, diagnosis, and management. *Paediatric Drugs*, 11, 171-
183. doi:10.2165/00148581-200911030-00003

clinical trial. *Journal of Consulting and Clinical Psychology*, 62, 100-110. doi:
10.1037/0022-006X.62.1.100


Behavioral Psychology/Psicología Conductual: Revista Internacional Clínica y de la Salud, 17, 41-66.


Curriculum Vitae

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Education

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Pre-Doctoral Internship at the Boston Consortium in Clinical Psychology
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Training Director: R. Keith Shaw, Ph.D., Stephen Quinn, Ph.D.
Clinical Child Psychology Rotation: The SPARK Center
Clinical Adult Psychology Rotation: Center for Returning Veterans – VA Boston Healthcare System Jamaica Plain Campus
Appointments: Clinical Fellow in Psychiatry, Harvard Medical School; Teaching Fellow in Psychiatry, Boston University School of Medicine

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Doctoral Candidate in Clinical Psychology, anticipated 2014
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Advisor: Martha C. Tompson, Ph.D.
The Center for Anxiety and Related Disorders (CARD)
Advisor: Donna B. Pincus, Ph.D.
Dissertation: Children with Generalized Anxiety Disorder: Developing a Mindfulness Intervention

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Boston, MA
Master of Arts in Clinical Psychology
Master’s Thesis: Stress Generation in a Family Context: The Role of Youth Depressive Symptoms and Family Stress

2002 – 2006
Bowdoin College
Brunswick, ME
Bachelor of Arts in Psychology, English (minor)
Honors and Awards

2011 Clara Mayo Research Fellowship, $8,070.00
Boston University

2008 American Psychopathological Association (APPA) Conference Travel Award
Boston University

2005 Kibbe Science Fellowship
Bowdoin College

2004 Freeman Fellowship for Study in Asia
Bowdoin College

Clinical Experience

Sept 2013 – present The Boston Consortium in Clinical Psychology Boston, MA
Pre-Doctoral Psychology Intern
Training Director: R. Keith Shaw, Ph.D., Stephen Quinn, Ph.D.

Clinical Child Psychology Rotation:
Boston Medical Center, Department of Pediatrics – The SPARK Center (Supporting Parents and Resilient Kids)
Executive Director: Martha Vibbert, Ph.D.
Supervisors: Cynthia Chase, Ph.D., Martha Vibbert, Ph.D.

Conducting individual therapy and developmental and psychological assessments for children ages 0-5 affected with complicated medical conditions (including neuro-developmental challenges, failure to thrive, and HIV/AIDS) as well as families involved with the MA Department of Children and Families. Attending weekly didactics/trainings. Receiving weekly individual and group clinical supervision.

Clinical Adult Psychology Rotation:
Center for Returning Veterans – VA Boston Healthcare Systems Jamaica Plain Campus.
Director: Erin S. Daly, Ph.D.
Supervisor: Jill P. Scott, Ph.D.

Conducting assessments and individual therapy for male and female returning veterans from Operation Enduring Freedom (OEF), Operation Iraqi Freedom (OIF), and Operation New Dawn (OND), who are experiencing a range of adjustment and mental health difficulties (including adjustment disorders, PTSD, depression, anxiety disorders, substance abuse). Conducting weekly intake assessments. Attending weekly differential diagnosis and treatment planning meetings. Receiving comprehensive and ongoing didactics in the use of evidence-based treatments as well as weekly individual and group clinical supervision.
May 2012 – July 2013  **Systems of Support (SOS) Study**  
**Boston University**

*Protocol Therapist*

*Principal Investigator/Supervisor: Martha C. Tompson, Ph.D.*

An NIMH funded 2-site randomized controlled trial to evaluate the efficacy of a family focused treatment as compared to individual psychotherapy for childhood depressive disorders. Trained in the use of Family-Focused Treatment (FFT) and Client-Centered Therapy. Conducting FFT with children with depression and their families.

Aug 2008 – July 2013  **Child and Adolescent Fear and Anxiety Program and Early Childhood Interventions Program at the Center for Anxiety and Related Disorders**

**Boston University**

*Practicum – Clinician*

*Co-Directors: Donna B. Pincus, Ph.D., Jonathan S. Comer, Ph.D.*

*Supervisors: Donna B. Pincus, Ph.D., Jonathan S. Comer, Ph.D., Ovsanna Leyfer, Ph.D., Ryan Madigan, Psy.D., Matthew Hersh, Ph.D., Jennifer Trachtenberg, Ph.D., Sarah W. Whitton, Ph.D.*

Provided individual and group cognitive-behavioral therapy for children and adolescents with various anxiety disorder diagnoses, including Separation Anxiety Disorder, Generalized Anxiety Disorder, Social Phobia, Trichotillomania, Specific Phobia, Obsessive-Compulsive Disorder, and Selective Mutism. Conducted semistructured clinical assessments using the Anxiety Disorders Interview Schedule for the DSM-IV, Child/Parent Version (ADIS-IV-C/P). Attended weekly differential diagnosis and treatment planning meetings. Received comprehensive and ongoing didactics in the use of evidence-based treatments for anxiety disorders as well as weekly clinical supervision.

Sept 2011 – May 2012  **Psychology Assessment Center**

**Massachusetts General Hospital**

*Practicum – Clinical Assessor*

*Supervisors: Kay Seligsohn, Ph.D., Margaret Pulsifer, Ph.D.*

Developed test administration and scoring skills, including cognitive, academic, neuropsychological and some projective tests. Developed behavioral observation and interpretation skills. Exposure to a variety of medical and behavioral/emotional diagnoses. Attended weekly didactic seminars. Received one hour of weekly supervision. In addition, observed neuropsychological evaluations conducted by MGH staff and post-doctoral fellows.
Aug 2011, 2012  
**Summer Treatment Program for Selective Mutism (BU Brave Buddies)**  
**Boston University** Boston, MA  
*Clinician*  
*Director/Supervisor: Jami Furr, Ph.D.*

Administered behavioral treatment in a one-week intensive group format to children ages 3-7 diagnosed with Selective Mutism. The BU Brave Buddies Camp simulated a classroom environment, which provided guided opportunities for these children to interact with a number of new children and adults, participate in classroom-like activities, engage in field trips, and play socializing games that promote verbal participation and spontaneous speaking. Responsibilities included co-leading group sessions, assisting with camp activities, and joining the campers on exposure tasks.

Aug 2010 – June 2010  
**The Manville School at Judge Baker Children’s Center** Boston, MA  
*Practicum – Clinical Extern*  
*Supervisor: James Slavet, Ph.D.*

Served as a clinical case manager and primary clinical mental health treatment provider for children ages 7-16 in a therapeutic day school. Conducted weekly psychotherapy for children diagnosed with Depression, Anxiety, Bipolar, and Autistic Spectrum Disorders. Led weekly meetings with classroom teachers, educational specialists, behavioral health counselors, parents, and external health providers for therapy cases. Co-led a 9-week-long CBT parent management training group for parents of Manville students and co-led a 6-week-long CBT group for siblings of Manville students focusing on coping with a family member with mental health difficulties. Administered psychological and educational testing to assist in treatment planning and the development of Individualized Education Plans (IEP). Provided applied behavioral consultation to classroom staff to assist in developing and achieving individual student behavioral and educational goals.

Sept 2009 – July 2010  
**Psychological Services Center**  
**Boston University** Boston, MA  
*Practicum – Clinician*  
*Director: Lisa Smith, Ph.D.*  
*Supervisor: Aisha Usmani, Ph.D.*

Conducted individual cognitive-behavioral therapy for adults with various mood and anxiety disorders. Received weekly live observation as well as individual and group clinical supervision. Responsibilities included conducting intake assessments using the Anxiety Disorders Interview Schedule (ADIS), case conceptualization, treatment planning, and intervention administration.
Sept 2009 – July 2010  Neuropsychological Testing at the Psychological Services Center  
Boston University  
Practicum – Clinician  
Director: Lisa Smith, Ph.D.  
Supervisor: Rosemary Toomey, Ph.D.  

Administered and interpreted various tests of intelligence, achievement, memory, attention, and executive functioning. Received comprehensive didactic instruction and observation experience in test administration, scoring procedures, testing theory, and interpretation. Responsibilities included assessment conceptualization, test administration, and writing integrative summary reports.

June 2009, 2010  Summer Treatment Program for Separation Anxiety Disorder  
Boston University  
Protocol Clinician  
Supervisor: Lauren C. Santucci, M.A.  

Administered cognitive-behavioral treatment (CBT) in a one-week intensive summer camp format to girls ages 7 to 12 diagnosed with Separation Anxiety Disorder. Responsibilities included co-leading CBT group sessions, assisting with camp activities, and joining the campers on exposure tasks (e.g. field trips that required separation from parents/guardians).

Research Experience

Boston University  
Principal Investigator  
Readers: Martha C. Tompson, Ph.D., Donna B. Pincus, Ph.D., Boston University; Lisa S. Coyne, Ph.D., Suffolk University  

Proposed and received acceptance for dissertation entitled: “Children with Generalized Anxiety Disorder: Developing a Mindfulness Intervention.” Received IRB approval. Conducting ongoing subject recruitment, providing a 6-week mindfulness treatment for children ages 9-12 with primary Generalized Anxiety Disorder, and conducting data collection and analysis.

Sept 2012 – July 2013  A Controlled Trial of Telemethods to Expand the Availability of Parent-Child Interaction Therapy for Disruptive Preschoolers  
Boston University  
Independent Evaluator  
Principal Investigator/Supervisor: Jonathan S. Comer, Ph.D.  

A study funded by the Charles H. Hood Foundation Child Health
Research Award evaluating internet-delivered Parent-Child Interaction Therapy (PCIT) versus a waitlist control for the treatment of disruptive behavior disorders in young children. Conducted pre- and post-treatment internet-delivered diagnostic assessments with study participants using the Kiddie-Disruptive Behavior Disorders Schedule for Preschool Children (KDBD) and Dyadic Parent-Child Interaction Coding System (DPICS).

Aug 2011 – July 2013  **Evaluating the feasibility of Internet-delivered Parent-Child Interaction Therapy**
**Boston University** Boston, MA

*Independent Evaluator*

*Principal Investigator/Supervisor: Jonathan S. Comer, Ph.D.*

An NIMH-funded study evaluating internet-delivered versus in-clinic-delivered Parent-Child Interaction Therapy (PCIT) for the treatment of disruptive behavior disorders in young children. Conducted pre- and post-treatment diagnostic assessments with study participants using the Kiddie-Disruptive Behavior Disorders Schedule for Preschool Children (KDBD) and Dyadic Parent-Child Interaction Coding System (DPICS).

**Boston University** Boston, MA

*Independent Evaluator*

*Principal Investigator/Supervisor: Jonathan S. Comer, Ph.D.*

A pilot feasibility study funded by the International Obsessive Compulsive Disorder Foundation (IOCDF) evaluating internet-delivered family-based Exposure and Response Prevention (EX/RP) for the treatment of obsessive-compulsive disorder in young children. Conducted pre- and post-treatment diagnostic assessments with study participants using the Anxiety Disorders Interview Schedule for the DSM-IV, Child/Parent Version (ADIS-IV-C/P).

Aug 2009 – July 2013  **Systems of Support (SOS) Study**
**Boston University** Boston, MA

*Project Diagnostician*

*Principal Investigator/Supervisor: Martha C. Tompson, Ph.D.*

An NIMH funded 2-site randomized controlled trial to evaluate the efficacy of a family focused treatment as compared to individual psychotherapy for childhood depressive disorders. Responsibilities included conducting diagnostic assessments of children aged 7-15 and their parents; providing feedback reports to parents; drafting and editing consent and assent forms for IRB approval; brainstorming and implementing recruitment strategies; rating treatment adherence. Trained in the use of Family-Focused Treatment and Client-Centered Therapy.
Aug 2008 – July 2009  **Families’ and Children’s Adjustment Study**  
**Boston University**  
Project Diagnostician  
Principal Investigator: Martha C. Tompson, Ph.D.  
Supervisors: Martha C. Tompson, Ph.D., Claudette B. Pierre, Ph.D.  

An NIMH funded research study exploring the links between risk and vulnerability in the development of child psychopathology, specifically the impact of expressed emotion, life events and maternal depression. Responsibilities included conducting in-home diagnostic assessments of children aged 8-12 and their mothers; writing feedback letters to participants summarizing assessments conducted and general impressions of individual and family functioning; and co-rating assessments for reliability.

June 2006 – June 2008  **Family Development and Treatment Lab**  
**Boston University**  
Research Assistant  
Director: Martha C. Tompson, Ph.D.  
Supervisor: Claudette B. Pierre, Ph.D.  

Responsibilities included administration of multiple clinical and psychosocial assessments to children aged 8-12 and their mothers; writing feedback letters to participants; assisting with grant writing and submission; conducting literature reviews; participant recruitment and scheduling; creating coding manuals for study measures; and supervising undergraduate research assistants in coding and scoring of lab data.

Jan – April 2005  **The Anna Freud Centre**  
London, UK  
Research Assistant Extern  
Advisor: Saul Hillman, MSc.  

Transcribed and coded data for the Story Stems Standardisation Project, a study assessing children’s expectations and perceptions of family roles, attachments and relationships. Assisted a graduate student in conducting interviews for The Chinese Soho Project, a qualitative study on the impact of immigration on Chinese families living in the UK and the effect of immigration on the parent-child relationship.
Sept 2005 – May 2006  **Developmental Psychology Lab**  
**Bowdoin College**  
*Research Assistant*  
*Advisor: Samuel P. Putnam, Ph.D.*

Coded 100 videotapes on child behavior during a delay-of-gratification task. Performed library research and assisted in drafting an introduction for a research article.

May – Aug 2005  **Neuropsychology Lab**  
**Bowdoin College**  
*Research Assistant*  
*Advisor: Richmond R. Thompson, Ph.D.*

Awarded Kibbe Science Fellowship and conducted 5 studies, including pilot tests, researching peripheral manipulations on social approach behavior in male goldfish using Isoproterenol, Atropine, and Substance P. Significantly found that Substance P increases ventilation rate in goldfish.

Jan – May 2004  **Bowdoin’s Children’s Center**  
**Bowdoin College**  
*Undergraduate Intern*  
*Advisor: Suzanne B. Lovett, Ph.D.*

Worked with preschool children in conjunction with Bowdoin’s Infant and Child Development course. Supervised and observed different preschooler activities. Correlated observations with course work and implemented studies that were learned in class.

**Supervision and Teaching Experience**

Sept 2011 – July 2013  **Child Program at the Center for Anxiety and Related Disorders**  
**Boston University**  
*Volunteer Coordinator*  
*Supervisor: Jami Furr, Ph.D.*

Provided oversight to a group of undergraduate student research assistants for the Child Program at the Center for Anxiety and Related Disorder. Provided didactic seminars through which volunteers learned professional development issues and current research in the field of childhood anxiety.

Oct 2011, 2012  **Clinical Seminar Series at the Psychological Services Center**  
**Boston University**  
*Guest Lecturer*  
*Supervisor: Lisa Smith, Ph.D.*
Taught a 2-hour seminar course on relaxation and mindfulness treatment skills to 2nd year clinical psychology doctoral students.

Sept 2011 – July 2012  **Psychological Services Center**  
**Boston University**  
*Graduate Student Supervisor*  
*Supervisor: Lisa Smith, Ph.D.*

Clinical supervisor to a junior graduate student clinician in the provision of empirically supported treatments to a caseload of two adult and two child patients with range of diagnoses. Provided live and taped observation of therapy and training in case conceptualization and treatment planning. Received weekly didactics and supervision with a licensed clinical supervisor.

Jan – May 2012  **Undergraduate Abnormal Psychology Course**  
**Boston University**  
*Teaching Fellow*  
*Advisor: Donna B. Pincus, Ph.D.*

Taught four weekly one-hour discussion sections of Abnormal Psychology. Met individually with students to provide extra help with course material. Other responsibilities included: creating and grading examinations and grading papers.

Sept – Dec 2011  **Undergraduate Introductory Psychology Course**  
**Boston University**  
*Teaching Fellow*  
*Advisor: Barak Caine, Ph.D.*

Taught four weekly one-hour discussion sections of Introductory Psychology. Met individually with students to provide extra help with course material. Other responsibilities included: creating and grading examinations, and grading papers.

Jan – May 2010, 2011  **Family Development and Treatment Laboratory**  
**Boston University**  
*Undergraduate Directed Study Supervisor*  
*Supervisor: Martha C. Tompson, Ph.D.*

Mentored two undergraduate psychology students in the creation of a directed study research paper and conference poster submission. Responsibilities included: teaching literature review skills, overseeing creation of topic, and editing and critiquing paper outlines and drafts.

Sept 2008 – Aug 2009  **Family Development and Treatment Laboratory**  
**Boston University**  
*Life Stress Interview Training Coordinator*
Supervisors: Martha C. Tompson, Ph.D., Claudette B. Pierre, Ph.D.

Trained doctoral-level graduate students and undergraduates in rating the ULCA Life Stress Interview, coordinated life stress events coding group of six coders, developed ongoing reliability assessments of coding, and trained research assistants in coding of project measures and supervised progress.

Sept – Dec 2005

**Introductory Psychology Course**

**Bowdoin College**

**Teaching Assistant**

**Advisor:** Richmond R. Thompson, Ph.D.

Facilitated weekly study group sessions and met with students to provide extra help with the course material.

**Publications**


**Manuscripts Under Review/In Preparation**


**Symposia**


Mindfulness, ACT, and DBT for Childhood Internalizing Disorders. Symposium presented at the 46th annual convention of the Association for Behavioral and Cognitive Therapies (ABCT), National Harbor, MD.


Poster Presentations


Clinical and Community Service Presentations


Chan, P. T., & Cooper-Vince, C. (2011, Aug). CBT Child Anxiety Presentation. 1 hour training provided to Children’s Hospital Boston providers.


Ad Hoc Reviewer

July 2012       Journal of Adolescent Health
May 2012        Cognitive and Behavioral Practice
Feb 2012        Journal of Clinical Child and Adolescent Psychology
Nov 2011        Journal of Anxiety Disorders
Jun 2011        Child Psychiatry and Human Development

Professional Affiliations

APA: American Psychological Association, 2009 – present
  • Division 53: Society of Clinical Child and Adolescent Psychology, 2010 – present

ABCT: Association for Behavioral and Cognitive Therapies, 2007 – present
  • Child and Adolescent Anxiety Special Interest Group, 2010 – present
  • Child and Adolescent Depression Special Interest Group, 2013 – present

Leadership Positions

Doctoral Clinical Psychology Program, Boston University
  • Inter-class Student Coordinator, 2009 – 2013
  • Diversity Committee, 2008 – 2013
  • Student Representative to Clinical Psychology Faculty, 2008