Effectiveness of Modular CBT for Child Anxiety in Elementary Schools

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Most randomized controlled trials of cognitive–behavioral therapy (CBT) for children with anxiety disorders have evaluated treatment efficacy using recruited samples treated in research settings. Clinical trials in school settings are needed to determine if CBT can be effective when delivered in real world settings. This study evaluated a modular CBT program for childhood anxiety disorders in two elementary schools. Forty children (5–12 years old) with anxiety disorders, referred by teachers and school staff, were randomly assigned to modular CBT or a 3-month waitlist. Clinicians worked with individual families as well as teachers and school staff. Evaluators blind to treatment condition conducted structured diagnostic interviews and caregivers and children completed symptom checklists at pre- and posttreatment. The primary study outcome, the Clinical Global Impressions-Improvement scale, yielded a positive treatment response at posttreatment for 95.0% of CBT participants, as compared with only 16.7% of the waitlist participants. CBT also outperformed the waitlist on diagnostic outcomes and caregiver-report measures of anxiety. Treatment effects did not extend beyond anxiety diagnoses and symptoms. Results suggest that modular CBT delivered within the elementary school setting may be effective for the treatment of child anxiety disorders. A replication of the study results with a larger sample is indicated.

Keywords: cognitive–behavioral therapy, elementary school children, anxiety disorders, effectiveness, school-based treatment

Although cognitive–behavioral therapy (CBT) for child anxiety disorders is considered “probably efficacious” (Silverman, Pina, & Viswesvaran, 2008), less is known about how CBT performs when delivered in real world settings. Determining whether the positive effects of CBT programs for child anxiety disorders can be achieved in different real world settings represents an important goal for the field (Weisz, Jensen, & McLeod, 2005). Children can receive mental health care services in a number of settings, raising the question of
where researchers might productively focus efforts to transport CBT programs. Out of the different settings available, school settings may represent a logical first choice.

Schools often are considered the de facto provider of mental health care for U.S. youth (Strein, Hoagwood, & Cohn, 2003), and hold promise as a provider of mental health services (Rones & Hoagwood, 2000). Although schools are in a unique position to address youth mental health needs, evidence-based treatment practices have been slow to filter from research settings to school settings (Schaeffer et al., 2005). Given schools’ direct access to affected children and the impact anxiety disorders have on students’ functioning, schools may be an ideal setting to deliver CBT programs for child anxiety. About 6% to 11% of school-age children meet diagnostic criteria for an anxiety disorder at any given time (Briggs-Gowan, Horwitz, Schwab-Stone, Leventhal, & Leaf, 2000). In children, anxiety disorders are associated with high rates of school refusal (Kearney, 2003), poor academic performance (Ma, 1999), and impairments in school functioning (Mychailyszyn, Mendez, & Kendall, 2010). Moreover, it is common for anxious children to experience functional impairments in social and family domains (e.g., Langley, Bergman, McCracken, & Piacentini, 2004; Wood, 2006). Untreated, these disorders tend to persist over months or years (Beidel, Fink, & Turner, 1996). It is evident that anxious children face many challenges in the school setting. Delivering CBT programs in school settings may increase the number of children who receive treatment for anxiety. The goal of this article is to evaluate how a CBT program performs when delivered in the elementary school setting.

A few clinical trials of CBT for anxiety conducted in schools have shown promising results (e.g., Bernstein, Layne, Egan, & Tennison, 2005; Ginsburg & Drake, 2002; Masia Warner, Fisher, Shroot, Rathor, & Klein, 2007). Although groundbreaking, these trials have a few limitations such as nonclinical youth samples, quasi-experimental designs, or lack of treatment fidelity data. Moreover, the treatments were all provided in a group therapy format. Although group therapy has a number of advantages (e.g., cost-effective), school-based mental health services in the U.S. are often provided in the form of one-on-one meetings with caregivers and children (Walsh, Barrett, & DePaul, 2007). To our knowledge, individual child- and family-based CBT treatments for anxiety disorders have not been evaluated in a school setting for elementary school-aged youth.

Investigators have acknowledged that interventions may need to be modified when transported to real-world settings such as an elementary school (Atkins, Graczyk, Frazier, & Abdul-Adil, 2003; Weisz et al., 2005). Limited and inconsistent caregiver availability presents as a primary barrier to school-based treatment. Although the potential for interacting with teachers and peers is a strength of working in schools, it is important to accommodate a school’s community and culture (Atkins et al., 2003; Mychailyszyn et al., 2010), necessitating refinements to treatment manuals such as using a modular design (Weisz & Chorpita, 2012). As compared with the many extant fixed-session CBT manuals, modular designs allow clinicians to continuously tailor treatments to the children’s individual needs while using interventions common to many efficacious treatment protocols for a given disorder (e.g., exposure for anxiety disorders; Chorpita & Daleiden, 2009). In a recent study comparing modular treatment against standard manualized treatments and usual care for youth depression, anxiety, and conduct problems, youths receiving modular treatment were significantly better on their target treatment problems and overall psychopathology compared with standard treatment and usual care (Weisz et al., 2012). Modularity is also likely to appeal to clinicians employed in real world settings who are concerned about the flexibility of manualized treatments by making flexibility an explicit intention of the intervention protocol (Kendall, Chu, Gifford, Hayes, & Nauta, 1998).

To encourage successful delivery of CBT for anxiety in the school environment, the Building Confidence intervention manual (Wood & McLeod, 2008), a CBT program for children with anxiety disorders, was changed into a modular format. A randomized controlled trial was conducted to test whether this intervention is effective in the treatment of child anxiety disorders when delivered on-site in elementary schools. It was hypothesized that modular CBT would outperform a waitlist condition in reducing anxiety symptoms and diagnoses.
Method

Participants

Families. Forty children with anxiety disorders (55% male) and their primary caregivers (80% female) participated in this study. Children were 5–12 years old (M/H11005 8.51, SD/H11005 1.74) and attended one of two elementary schools in a major metropolitan area of the western U.S. The sample was ethnically diverse. Sixteen children (40%) self-identified as Caucasian, six (15%) as African American, two (5%) as Asian or Asian Pacific Islander, seven (17.5%) as Latino or Hispanic, and nine (22.5%) as mixed race (e.g., African American and Pacific Islander). In terms of gross household annual income, seven families (17.5%) reported earning less than $40,000, seven families (17.5%) reported earning between $40,000–$70,000, 25 (62.5%) families reported earning over $90,000, and one family (2.5%) declined to report. The majority of the caregivers were married (67.5%). Although two caregivers (5.0%) declined to report on marital status, the remaining caregivers reported being single (5.0%), separated (2.5%), divorced (7.5%), living with boyfriend or girlfriend (10%), or engaged (2.5%).

Social phobia (SP; n = 21; 52.5%) and separation anxiety disorder (SAD; n = 21; 52.5%) were the most common anxiety disorders represented in the sample at pretreatment, and generalized anxiety disorder (GAD; n = 15; 37.5%) was the least common. Fourteen children (35%) met criteria for more than one anxiety disorder. Other comorbid diagnoses included attention– deficit/hyperactivity disorder (n = 6; 15.0%), obsessive– compulsive disorder (n = 2; 5.0%), and oppositional– defiant disorder (n = 3; 7.5%).

Clinicians. Clinicians were 13 UCLA doctoral students in clinical or educational psychology. Clinicians received training in the modular Building Confidence intervention in two 5-hr workshops prior to seeing cases for the study. A practice case was completed by clinicians before treating children for the clinical trial. Group supervision was provided by doctoral-level psychologists on a weekly basis.

Measures

Trained evaluators (six doctoral students in clinical or educational psychology) who were blind to the condition of each family conducted diagnostic interviews at the start of the study and at the conclusion of treatment or after waiting 3 months on the waitlist. Evaluators used the Anxiety Disorders Interview Schedule for DSM–IV: Child and Parent Versions (ADIS-C/P; Silverman & Albano, 1996) to assign DSM–IV diagnoses. The ADIS-C/P is a semi-structured interview assessing the major childhood anxiety, mood, and externalizing DSM–IV disorders, and it possesses favorable psychometric properties (Silverman, Saavedra, & Pina, 2001; Wood, Piacentini, Bergman, McCracken, & Barrios, 2002). The psychometric properties of the ADIS-C/P is acceptable for youth ranging in age from 6–18 (Marin, Rey, & Silverman, in press). Training involved attending a presentation on the administration of the interview, attending eight ADIS training meetings, practice interviewing and coding of audio taped ADIS interviews, and matching on diagnostic ratings for at least one interview using the ADIS-IV with a previously trained diagnostician. At each assessment, the evaluator made ratings on the ADIS-C/P Clinical Severity Rating (CSR; 0 = not at all, 4 = some, 8 = very, very much) for each assigned diagnosis. Diagnoses with ratings of 4 or above are considered within the clinical range (Silverman & Albano, 1996). Evaluators interviewed caregivers and youth separately. When reports were discrepant between the child and caregiver interviews, procedures detailed by Silverman and Albano (1996) were followed, such that a symptom was considered present if either the caregiver or child endorsed the symptom.

The Clinical Global Impressions (CGI)– Improvement Scale (e.g., Guy, 1976; RUPP, 2001) provided a global rating of improvement in anxiety symptoms ranging from 1 (completely recovered) to 8 (very much worse). The evaluator made a rating on this scale at the posttreatment and postwaitlist assessments after comparing the recent assessment with the pretreatment assessment. CGI-I ratings were based on the evaluator’s interview (e.g., the ADIS) and the other assessment materials (e.g., questionnaires). The same evaluator conducted the pretreatment and posttreatment/wait-list assess-
ments. Children receiving a rating of 1, 2, or 3 (completely recovered, very much better, or much better) were considered treatment responders. Approximately 20% of the cases were randomly selected for reliability assessment of the ADIS-IV CSR and CGI-I ratings. Agreement was in the “excellent” range (ICCs: SAD, .95; SP, .89; GAD, .91; CGI-I, .88; see Cicchetti, 1994). Kappas indicating agreement on the presence of anxiety diagnoses were also strong (Kappas: SAD, .86; SP, 1.0; GAD, .82; Landis & Koch, 1977).

Self-report measures were also completed at the assessments. Children completed the Multidimensional Anxiety Scale for Children (MASC; March, 1998), a 39-item scale with robust psychometric properties (March, Parker, Sullivan, Stallings, & Conners, 1997). The 39 items follow a 4-point Likert scale ranging from 1 (never true) to 4 (often true). The MASC total scale has demonstrated strong psychometric properties in past research (Baldwin & Dadds, 2007; March, 1998). A parallel parent-report version of the MASC (cf. Wood et al., 2002) was also administered. T scores are not available for the parent MASC; thus, raw scores are reported for both parent and child MASC. In the present study, alphas for the pretreatment and posttreatment/postwaitlist assessments were .86 and .89, respectively, for the child MASC total scale, and .88 and .91, respectively, for the parent MASC total scale.

Caregivers completed the 1991 version of the Child Behavior Checklist (CBCL; Achenbach, 1991), a widely used 118-item standardized measure assessing symptoms across a broad range of clinical problems with a 0 (not true) to 2 (often true) rating scale. The CBCL is a commonly used measure of psychopathology, facilitating comparisons of the present results with other child anxiety treatment studies. Following Barrett, Dadds, and Rapee (1996), the Internalizing broadband scale T score was used. The CBCL has been used with acceptable levels of reliability and validity to measure behavior problems of children aged 4–16 in a variety of cultural settings (Achenbach et al., 1990).

Procedure

The study authors approached two school districts as well as an independent elementary school to participate in the present study. All agreed to participate. Two elementary schools were chosen. One of the schools was nominated by one of the school districts. The other school was chosen based on proximity to the research laboratory. At the two participating elementary schools, 167 children were identified and referred by the school psychologist, school nurse, or nominated by teachers. The school psychologist, school nurse, or teacher made the initial contact with the caregivers of identified children. A concurrent method of recruitment was through a parallel, ongoing study of anxiety in typical children at one of the study’s school sites, in which all participating children in randomly selected classrooms completed the MASC. Children exceeding the clinical cutoff on the MASC were reported to the school psychologist, who in turn made a clinical determination if the child was potentially appropriate for anxiety treatment. Caregivers who were interested in the study contacted the study staff to schedule the pretreatment assessment at school.

Eighty-four (50.29%) of the identified families completed the pretreatment assessment. In the majority of cases (85%), the mother served as the primary informant for assessments. On the day of the assessment, caregivers gave written informed consent and children gave assent (written or verbal, depending on their age) to participate in the study. Families also completed diagnostic interviews and self-report measures at this appointment. Families were assessed individually. Research assistants administered the questionnaires to the child while the evaluator met with the caregiver. This study was approved by a university-based IRB.

Consistent with other child anxiety clinical trials (e.g., Kendall et al., 1997), the primary entry criteria was presence of at least one of three anxiety disorders at a clinical level. Children met the following inclusion criteria: (a) a primary DSM–IV diagnosis of SAD, SP, or GAD; (b) no psychiatric medication use or stable use of psychiatric medication for at least 1 month at the time of the pretreatment assessment; and (c) if medication was being used, families agreed to maintain that dose throughout the study (cf. Mendelowitz et al., 1999). Families were excluded if the child was currently in psychotherapy (n = 3). See the Figure 1 CONSORT diagram for details of the study’s patient flow.
Children who met inclusion/exclusion criteria were randomized to either immediate treatment CBT or a 3-month waitlist, stratifying children based on age and gender; hence, when a child of a particular age and gender was randomized to one of the conditions, then the next child with similar characteristics was automatically assigned to the other condition. School staff designated a private room in the school appropriate for intervention sessions. Sessions were conducted during the school day or immediately after school, depending on caregiver availability. Posttreatment assessments were completed within a week of termination by the same evaluator who conducted the pretreatment assessment; postwaitlist assessments were conducted by the same evaluator who conducted the pretreatment assessment 3 months after the pretreatment assessment but before initiating CBT. Recruitment began in January 2005 and ended in April 2008.

**Intervention Program**

The modular *Building Confidence* program contains several child modules, caregiver modules, one teacher module, and one school nurse module. Session order is not predetermined but chosen to reflect the needs of the child. Children can participate in as few as one and as many as sixteen 60-min weekly sessions, depending on symptom remission. Caregivers are encouraged but not required to participate in the treatment. When caregivers were present, the session was divided into roughly equal segments of meeting with the caregiver alone, the child alone, and the caregiver and child together. Modules for each session are selected on the basis of a simple algorithm adapted from Chorpita, Taylor, Francis, Moffitt, and Austin (2004). This algorithm initially prescribes the acquisition of basic coping skills such as developing coping
thoughts, followed by a primary focus on exposure therapy sessions unless barriers to
the efficacy of exposure are identified. If barriers occur, supplementary modules are
selected and implemented based on decision rules until exposures become successful.
Treatment is discontinued early if all clinical anxiety problems identified in the ADIS-C/P
pretreatment interview have been successfully reduced to nonclinical levels in the judg-
ment of both the clinician and the clinical supervisor, based on the child’s success at
engaging in the behaviors at the top of his or her fear hierarchy. At least one 30-min con-
sultation on specific behavioral strategies (e.g., a school–home note) is offered to the
child’s teacher and school nurse if caregivers agree.

Several skills are taught to children for coping with anxiety. Affect recognition, thought
awareness, positive self-talk, and exposure are taught using an acronym, KICK: Knowing I’m
Nervous, Icky Thoughts, Calm Thoughts, and Keep Practicing (see Wood & McLeod, 2008).
Once skills are mastered through practice and role-play, children and clinicians create a hier-
archy in which feared situations are ordered from least to most distressing. Children work
their way up the hierarchy and are rewarded as they attempt anxiety-provoking activities with
increasing difficulty (exposure tasks). Children and clinicians work together to devise KICK
plans for children to cope at each step of the hierarchy. Given the importance of develop-
mental considerations when treating child anxiety (McLeod, Jensen-Doss, Wheat, & Becker,
2013), the manual offers guidance on presenting the material and leading the child through prac-
tice exercises in a way consistent with each child’s developmental level.

When caregivers participate in treatment, caregivers are given a psychoeducation module
and a module focused on promotion of children’s autonomy through choices and self-help
skills. Caregivers are also encouraged to partic-
ipate in the hierarchy development module.
When children begin exposures, caregivers are
given a supplementary module on assisting with
exposures at home, which also covers support-
ive communication skills such as active listen-
ing and selective attention. This module is often
repeated. Several modules can be used to ad-
dress barriers to the use of exposure, including
a module on rewards, family roles, talk-time
(special playtime), building friendships, or host-
ing playdates.

Data Analysis

Some baseline and postassessment data were missing from the dataset. 1 Multiple im-
putation was performed to handle missing data. Before imputation, logit models were
conducted to test whether other variables in the dataset predicted whether a measure had
missing values. These analyses suggested that data were missing completely at random. The
application of multiple imputation in the present study involved three steps. In the first
step, the Imputation by Chained Equations (ICE; Royston, 2004) program (Version
1.4.6) was run in Stata Version 10.0 (Stata-
corp, 2007) to generate 10 multiply imputed
datasets. Step two involved generating im-
puted data in each of the imputed datasets in
preparation for data analysis. Lastly, diagno-
tic and symptom outcomes were compared
between conditions. Stata’s MIM program
(Carlin, Galati, & Royston, 2008), a package
to analyze multiply imputed data, was used to
perform statistical analyses on each of the 10
complete datasets and aggregate across these
imputed datasets to generate overall point es-
timates and standard errors. The MIM pro-
gram applied Rubin’s rules (Rubin, 1987) in
estimating the combined parameter estimates,
standard errors, and confidence intervals.
Data analyses were conducted on an intent-
to-treat basis—all children randomized to one
of the conditions were included in the analy-
ses, even if they dropped out of treatment
(n = 1).

Separate binary logistic regressions were per-
formed across imputed datasets to assess the
treatment effect on treatment responder status
(CGI-I ≤ 3) and presence of an anxiety diag-
nosis (ADIS-IV CSR > 4). Separate linear re-
gressions were performed on the imputed data-
sets to evaluate the impact of the intervention on
the parent MASC total scale, child MASC total
scale, and CBCL Internalizing scale scores.

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1 Percentage of missing data on primary study measures ranged between 0% and 5% of cases at the pretreatment assessment and between 0% and 7.5% of cases at the postassessment.
Posttreatment/postwaitlist scores were regressed onto treatment condition while controlling for pretreatment scores.

Results

Pretreatment Comparability

Pretreatment differences on demographic variables (i.e., age, gender, ethnic background, parent gender, parent college education, parent born in U.S., parent marital status) and medication use between conditions were evaluated with t tests and chi-square statistics and found to be nonsignificant. Two children randomized to the waitlist control group were taking stimulant medication whereas no children in the modular CBT group were on medication of any kind at the pretreatment assessment. Between-groups tests of baseline differences on the parent MASC, \( t(36) = -0.25, p = .805 \), child MASC, \( t(37) = -1.15, p = .256 \), and CBCL Internalizing broadband scale, \( t(37) = 0.62, p = .539 \), also revealed no significant differences. Table 1 displays descriptive statistics for these symptom measures.

Intervention Adherence

Two sessions from each modular CBT participant were randomly selected for fidelity evaluation. Trained research assistants who were blind to study hypotheses rated session audiotapes using a checklist corresponding to the primary topics to be covered in each module. Raters noted each prescribed item as they listened to the sessions. Results indicated that modular CBT clinicians addressed the topics required in each caregiver and child module at a rate of 90.20% and 89.20%, respectively. Two coders co-rated a random sample of 10% of the coded tapes. Interrater agreement on the number of session goals met was strong (ICC = .90).

Implementation of Modular Therapy

One child randomized to modular CBT withdrew from the study before starting therapy. All other children in the modular CBT condition received 10–16 CBT sessions (\( M = 14.00, SD = 2.14 \)). All children in this condition had caregiver participation in at least one session; most of the sessions (82.1%) included both caregivers and children; the remaining sessions (17.9%) were attended by only children. Over half (55%) of the child CBT sessions involved conducting the in vivo exposure module and about half (53.6%) of the caregiver sessions were devoted to providing support while negotiating exposures. On average, each child received one session of the core coping skills in the KICK plan. All participating caregivers had at least one session of the following modules: intake, treatment plan, encouraging independence, rewards, and fear hierarchy. Family problem solving, playdates/friendship, talk-time, and finding new roles modules were used less frequently. With the exception of the youth who withdrew from treatment prior to the first session, each of the 21 youths in the imme-

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Anxiety Scores for the Cognitive Behavioral Therapy (CBT) and Waitlist (WL) Conditions for Multiply Imputed Datasets</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline</td>
</tr>
<tr>
<td></td>
<td>CBT</td>
</tr>
<tr>
<td></td>
<td>M</td>
</tr>
<tr>
<td>ADIS CSR</td>
<td>4.68</td>
</tr>
<tr>
<td>CBCL-Int</td>
<td>59.38</td>
</tr>
<tr>
<td>Parent MASC</td>
<td>56.08</td>
</tr>
<tr>
<td>Child MASC</td>
<td>63.37</td>
</tr>
<tr>
<td>CGI-I</td>
<td>—</td>
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</tbody>
</table>

Note. Means are based on values averaged across the ten multiply imputed datasets. ADIS-CSR = Anxiety Disorders Interview Schedule-Clinician’s Severity Rating; CBCL-Int = Child Behavior Checklist–Internalizing Scale T-Score; MASC = Multidimensional Anxiety Scale for Children; CGI-I = Clinical Global Impressions–Improvement Scale. Raw scores are reported for the parent and child MASC.
diate treatment group received at least one teacher consultation ($M = 1.14, SD = .48$, range 1–3). All eight of the youths who were identified by the school nurse received an additional consultation with the nurse. Consultations provided nurses with specific behavioral strategies to manage students who avoided other aspects of school by frequently visiting the school nurse’s office.

**Treatment Outcome**

See Table 2 for logistic and linear regression results. Almost all of the youth (95.0%) in the modular CBT group were treatment responders whereas only 16.7% of the waitlist group met the CGI-I criteria for positive treatment response. Paralleling the CGI results, almost all of the (95.5%) children in the modular CBT group no longer met criteria for any anxiety disorder at the posttreatment/waitlist assessment, compared with three (16.7%) youth in the waitlist group. Both logistic regression models were statistically significant. Effect sizes were calculated by comparing postassessment means, ($\text{mean}_{\text{WL}} - \text{mean}_{\text{IT}}$)/$SD_{\text{POOLED}}$ (Cohen, 1988). Effect sizes for postassessment ADIS-IV CSR scores were 1.62, indicating large effects (Cohen, 1988).

For the parent MASC, results revealed a statistically significant difference between the modular CBT and waitlist groups in posttreatment/postwaitlist scores, after controlling for pretreatment scores ($p = .027$; see Table 2). A comparable statistical trend, although just marginally significant, was found for the child MASC ($p = .91$). In comparison with the waitlist group, posttest scores in the modular CBT group on the MASC were on average 9.55 points lower according to caregiver report and 8.27 points lower from the child’s perspective. Posttreatment/postwaitlist CBCL Internalizing scores were not statistically different between groups. Effect sizes were small to medium for the postassessment child MASC (ES = 0.28),

### Table 2

**Linear and Binary Logistic Regression Analyses for Condition Predicting Posttreatment Outcomes**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coef.</th>
<th>Std. Err.</th>
<th>T</th>
<th>p</th>
<th>95% CI</th>
<th>FMI</th>
<th>Min dof$^a$</th>
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</thead>
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<tr>
<td>Treatment responder</td>
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<td></td>
<td></td>
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<tr>
<td>Constant</td>
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<td>0.63</td>
<td>-2.54</td>
<td>.011</td>
<td>-2.85 - 0.37</td>
<td>.00</td>
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</tr>
<tr>
<td>Condition</td>
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<td>(97.49)</td>
<td>1.21</td>
<td>(117.74)</td>
<td>3.79 .000</td>
<td>2.21</td>
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<tr>
<td>Constant</td>
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<td>0.63</td>
<td>-2.54</td>
<td>.011</td>
<td>-2.85 - 0.37</td>
<td>.00</td>
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</tr>
<tr>
<td>Condition</td>
<td>4.65</td>
<td>(105.00)</td>
<td>1.20</td>
<td>(126.33)</td>
<td>3.87 .000</td>
<td>2.29</td>
<td>7.01 .00</td>
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<td>CBCL Internalizing</td>
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<tr>
<td>Constant</td>
<td>23.75</td>
<td>10.64</td>
<td>2.23</td>
<td>.04</td>
<td>1.86 45.64</td>
<td>.20</td>
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<td>Condition</td>
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<td>3.07</td>
<td>-1.24</td>
<td>.22</td>
<td>-10.1 2.43</td>
<td>.06</td>
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</tr>
<tr>
<td>Parent MASC</td>
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<td></td>
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<td></td>
<td></td>
<td>29.7</td>
</tr>
<tr>
<td>Constant</td>
<td>17.82</td>
<td>8.64</td>
<td>2.06</td>
<td>.05</td>
<td>0.17 35.47</td>
<td>.12</td>
<td></td>
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<tr>
<td>Condition</td>
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<td>-2.32</td>
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<td>-17.9 -1.18</td>
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<td>Child MASC</td>
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<td>10.16</td>
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<td>.07</td>
<td>-1.71 40.03</td>
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<tr>
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<td>4.75</td>
<td>-1.74</td>
<td>.091</td>
<td>-17.9 1.39</td>
<td>.00</td>
<td></td>
</tr>
</tbody>
</table>

**Note.** All analyses were conducted across the 10 multiply imputed datasets. Minimum observations = 40 for each analysis. Treatment Responder and Diagnosis-Free Status are binary variables coded as 1 for yes and 0 for no. Odds ratios and accompanying standard errors are reported in parentheses for binary logistic regressions. For the CBCL Internalizing Scale, Parent MASC, and Child MASC, posttreatment/postwaitlist scores were regressed onto treatment condition while controlling for pretreatment scores. Raw scores are reported for the Parent and Child MASC, MASC = Multidimensional Anxiety Scale for Children. CBCL Internalizing = Child Behavior Checklist Internalizing Scale. For binary logistic regressions, Coef. = logit. For linear regressions, Coef. = unstandardized coefficient. FMI = Fraction of Missing Information. FMI indicates the degree to which the parameter estimate varies dependent on how much data varies between the 10 imputed datasets. Min Dof = Minimum degrees of freedom calculated by incorporating variance between and within the imputed datasets.

$^a$ The calculated degrees of freedom for the multiply-imputed database can be much larger than the complete-data degrees of freedom. This can occur when there is only a small proportion of missing data and when the complete-data degrees of freedom is small.
parent MASC (ES = 0.59), and CBCL Internalizing scale scores (ES = 0.47).²³

Discussion

The present findings suggest that the modular school-based CBT protocol evaluated in this study may be effective for the treatment of anxiety disorders in elementary schoolchildren. Children who received modular CBT experienced greater caregiver reported anxiety symptom reduction, and marginally greater child reported anxiety symptom reduction, compared with children in the waitlist condition. Modular CBT children were also most likely to be anxiety diagnosis-free according to evaluators’ ratings at posttreatment and postwaitlist. Specifically, 95% of children who received modular CBT demonstrated a positive treatment response by the end of treatment and were free of any anxiety diagnosis. In comparison, at the end of a 3-month waitlist, only 16.7% of children demonstrated a positive treatment response and only 16.7% did not have an anxiety disorder. Overall, results on anxiety-specific outcome indices provided evidence in favor of the effectiveness of the school-based modular CBT program compared with the waitlist condition.

The diagnostic remission rate in this study exceeded the typical remission range (50%–80%) seen in previous efficacy trials of CBT for child anxiety disorders conducted in research laboratories (Silverman et al., 2008), a potentially promising indicator. The diagnostic remission rate in this study was also appreciably higher relative to the recovery rate of 79% found in the initial laboratory-based study of the Building Confidence program (Wood, Piacentini, Southam-Gerow, Chu, & Sigman, 2006), and higher than group-based CBT programs for anxiety tested in school settings, which have demonstrated recovery rates ranging from 59% (e.g., Masia Warner et al., 2007) to 79% (e.g., Bernstein et al., 2005).

The higher remission rate in the present study may be due to the modular design. This design allowed clinicians to vary the treatment content and duration to fit the needs of each child. As a consequence of this design, some participants in the present study received a higher dose of therapy compared with participants who received the 9-session CBT program evaluated by Bernstein, Layne, Egan, and Tennison (2005) as well as a more personalized intervention. The higher remission rate may also be explained in part by considering what qualifies as “diagnosis free.” Although 95.5% of the modular CBT sample no longer met criteria for an anxiety disorder diagnosis, a substantial proportion of those children demonstrated subthreshold clinical symptoms. Approximately 50% of the children in the modular CBT condition who were considered diagnosis-free at posttreatment received an ADIS-IV CSR rating of a 3, just below the cutoff of 4. Although the diagnostic remission rate may appear inflated due to the several children who were just below the diagnostic cutoff, it is important to note that the rate of positive treatment response remained high (95%), suggesting that children who completed treatment with subthreshold levels of anxiety symptoms began treatment with considerably higher symptom levels.

Unlike most efficacy trials of CBT for child anxiety that have used the CBCL Internalizing scale (e.g., Barrett, Dadds, & Rapee, 1996; Kendall et al., 1997), the present study did not find a significant difference between modular CBT and waitlist on overall internalizing symptoms. There are several possible explanations for this finding. Although the initial efficacy trial of the Building Confidence program (Wood et al., 2006) included four youths with major depressive disorder or dysthymia, youth in the present study did not have comorbid depressive disorders. In the present sample, mean baseline CBCL Internalizing scale T scores fell below 65, the clinical severity cutoff. Thus, though children met criteria for at least one anxiety disorder, their overall level of internalizing symptoms was relatively low at pretreatment.

² Analyses were also conducted using the “last observation carried forward” (LOCF) method of imputation. To create the LOCF dataset, missing values on baseline measures were replaced with the mean scale score from the entire sample of participants and missing postassessment scores were imputed from each case’s baseline value. Given that the CGI-I did not have a baseline measurement, the one case with a missing CGI-I variable was given a score of 5, reflecting no change from the baseline assessment. The pattern of statistically significant results was identical between analyses conducted with the multiply imputed database and with the LOCF method of imputation.
³ We also conducted analyses using pre- to post change scores. These analyses produced the same pattern of significant findings with the exception of the Child MASC, which became conventionally significant, p < .05.
leaving little room for improvement with treatment. In addition, the treatment focused on the symptoms of specific anxiety disorders rather than broader internalizing symptoms.

Only half of the families who were nominated by school staff agreed to participate in the screening process, suggesting that broad-based education for school providers and caregivers on the nature of clinical anxiety may be beneficial. Psychoeducation may help school staff and caregivers identify the features of anxiety. This may also help caregivers reticent about mental health services to see the potential value in early intervention. Such education efforts may be particularly important given that programs addressing internalizing problems in schools are rare in comparison with programs targeting externalizing behavior problems (Hoagwood et al., 2007).

This study represents an important step in the arena of effectiveness research as implementing CBT programs for child anxiety disorders in school settings has been identified as an area of need (Silverman et al., 2008). Efforts evaluating whether treatments tested in lab settings can produce positive effects when delivered in real-world service settings help to close the research–practice gap by increasing the relevance of research to practice.

The significant advance of this study from the previous laboratory-based efficacy trial (Wood et al., 2006) was the provision of a modular version of the treatment in a school-based setting. Results illustrate how a modular CBT program delivered in an individual format (with family, teacher, and school nurse involvement) can retain its potency when faced with challenges affecting service provision in the school environment. This is important given the relatively greater use of individual as opposed to group services formats in U.S. elementary schools, and the current American School Counselor Association’s National Model that emphasizes integrating families and teachers into children’s school mental health interventions (Walsh et al., 2007). However, limitations to the study should be noted. The omission of a primary outcome measure assessing functioning is a limitation of the current work. Future studies should incorporate measures of functioning to enhance our understanding of effects beyond symptomatology. Additionally, although a waitlist control group provides a good test of the effects of the treatment compared with no treatment, it is unclear whether the modular CBT program would have outperformed other treatment approaches. The next step would be to evaluate how the modular CBT program fares compared with other school-based services. Furthermore, as children in the waitlist condition received treatment after the postwaitlist assessment, longer-term follow-up analyses were not possible, though we have published nonexperimental follow-up data on this trial exhibiting good stability of treatment effects over 1 year (Galla et al., 2012). It would also be informative to train school-based clinicians to deliver the modular CBT program and determine if similar findings emerge relative to a waitlist condition. This step would permit evaluation of whether training procedures need to be adapted for school personnel to implement the modular intervention successfully. Progressing in a stepwise fashion toward testing the research with “real-world” constraints is consistent with treatment dissemination models (Weisz et al., 2005). Future directions also include testing the treatment in a similarly designed trial with a larger sample size to enable examination of potential treatment moderators (e.g., developmental level). A larger sample size might also permit evaluation of whether involvement in adjunct school interventions and supports might enhance the effect of treatment. Although the current study design is not equipped to answer questions about the relative effectiveness of therapy modules, studies evaluating the impact of module selection and sequencing on the specificity of clinical outcomes would make an important contribution to our understanding of modular intervention. Efforts to examine the feasibility of implementing CBT for anxiety disorders in elementary schools advance our understanding of the effectiveness of these programs and highlight modifications that might be necessary to overcome barriers to successful implementation.

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