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ORIGINAL ARTICLE

One Year Follow-up to Modular Cognitive Behavioral Therapy for the Treatment of Pediatric Anxiety Disorders in an Elementary School Setting

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Abstract The current study sought to evaluate the relative long-term efficacy of a modularized cognitive behavioral therapy (CBT) program for children with anxiety disorders. Twenty four children (5–12 years old) randomly assigned to modular CBT or a 3-month waitlist participated in a 1-year follow-up assessment. Independent evaluators blind to treatment condition conducted structured diagnostic interviews, and caregivers and children completed symptom checklists at pre- and post-, and 1 year follow-up assessments. Analyses revealed that 71.4% of children who received CBT demonstrated a positive treatment response 1 year following treatment, and 83.3% were free of any anxiety diagnosis at 1 year follow-up. Analyses further revealed robust effects of intervention on diagnostic outcomes, caregiver- and child-report measures of anxiety at 1 year follow-up. Results provide evidence of an ongoing advantage on anxiety-specific outcomes for this modularized school-based CBT program 1 year post-treatment.

Keywords Cognitive behavioral therapy · Child anxiety disorders · Effectiveness tests · School-based treatment

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Background

Anxiety disorders are among the most prevalent of psychiatric problems for youth [1], affecting approximately 6–11% of school-age youth [2]. Pediatric anxiety disorders can carry substantial functional impairment which disrupt children's abilities to accomplish normal developmental tasks. They are associated with school refusal and failure [3–5], family and peer problems, and long-term negative outcomes like substance abuse, violence, and suicide [6, 7]. Left untreated, anxiety disorders and associated impairments can persist for months to years [8, 9].

Reviews of the literature suggest that cognitive behavioral therapy (CBT) is an efficacious method for reducing youth anxiety disorders and the functional impairments associated with them [10]. Available research also suggests that treatment effects are often maintained at 1 year, and even 6–7 year follow-up periods [11–13].

While CBT appears to be efficacious in controlled, clinical environments, the effectiveness of such programs disseminated into real-world settings, such as schools, is still uncertain. Several school-based clinical trials of CBT for youth anxiety have documented promising outcomes [14–17], although several methodological limitations merit caution when interpreting their effectiveness. For instance, the studies surveyed included youth with subclinical levels of anxiety, utilized quasi-experimental designs that randomized at the level of classroom or school rather than the individual child, and/or lacked information regarding treatment adherence. Furthermore, the treatments in all of these trials were provided in a group therapy format. While group therapy has several benefits, school-based mental health services in the U.S. are often provided in the form of one-on-one meetings with children or their caregivers [18]. Therefore, studies of group-based CBT may not be well-representative of the manner in which most school-based treatments are delivered, and manuals from such programs might not be tractable for individual clinician-patient interventions.

To our knowledge, only 1 individually delivered CBT treatment study for anxiety disorders has been evaluated in a school setting [19]. Using a randomized controlled design, Chiu et al. [19] reported robust short-term effectiveness for *Building Confidence*, a modular CBT for pediatric anxiety disorders [20], over a wait-list control condition to treat anxiety disorders in elementary school youth. In the current study, we investigated the relative long-term effectiveness of *Building Confidence* in maintaining treatment outcomes.

Methods

Participants

Participants included 24 children and their families who had completed treatment in a randomized, controlled trial examining the effectiveness of the *Building Confidence* program to treat anxiety disorders in an elementary school setting [19]. Chiu and colleagues [19] reported favorable immediate post-treatment outcomes, with 72.3% of CBT participants being labeled "treatment responders" on the Clinical Global Impressions-Improvement scale (see below for description), compared to only 5.6% of the waitlist participants. Furthermore, 95.5% of the CBT participants no longer met criteria for an anxiety disorder at the immediate post-treatment, compared to 16.7% of the WL group. Mean clinical severity ratings (ADIS-IV CSR, see below for description) at immediate post-treatment

were 2.19 (SD = 1.13) and 4.22 (SD = 1.36) for CBT and wait-list groups, respectively. Reported effect sizes for immediate post-treatment CGI-I and ADIS-IV CSR scores were 2.53 and 1.62, respectively, indicative of large effects [33]. The current paper presents the 1-year follow-up outcomes; hence, the two papers overlap with respect to baseline scores for participants, but not for treatment-related outcome data.

The sample at intake included 40 children with anxiety disorders (55% male) and their primary caregivers (80% female) [19]. Children were 5–12 years old ($M = 8.51$, SD = 1.74) and attended one of two elementary schools in a major metropolitan area of the western U.S. Children were identified by the school psychologist, school nurse, or their teachers.

Participants met *DSM-IV* criteria for a diagnosis of: separation anxiety disorder (SAD), social phobia (SP), or generalized anxiety disorder (GAD) based on a semi-structured interview (see below). They were not taking any psychiatric medication at the initial assessment or were taking a stable dose of psychiatric medication and stated an intention to maintain the same dose throughout the study. Families were excluded if: (a) the child was currently in child-focused psychotherapy (b) the family was currently in family therapy or a parenting class (c) either the child or the parents evidenced psychotic symptoms (d) the child began taking psychiatric medication or increased his/her dose of medication during the intervention, or (e) for any reason the child or parents appeared unable to participate in the intervention program.

Key details about the sample at 1-year follow-up are summarized here: 39 (97.5%) children completed the intervention and participated in the post-treatment assessment. Of these 39 children, 24 children (61.5%) participated in the 1-year follow-up assessment (Immediate Treatment (IT): n = 14; Wait List (WL): n = 10).

At intake, the 24 children available for 1 year follow-up ranged in age from 65.5 to 130.6 months (M = 94.69, SD = 17.58) and just over half were boys (n = 13; 57%). Most primary parents were mothers (n = 18; 82%) and most were married (n = 17; 70.8%). Over two-thirds of the responding parents had graduated from college (n = 17; 70.8%). The 1-year follow-up sample was 50% Caucasian, 12.5% multi-racial, 20.8% Latino, 12.5% African–American, and 4.2% Asian.

The remaining 16 of 39 (41.0%; IT: n = 7; WL: n = 9) children did not complete 1-year follow-up assessment. The parents of 4 children did not respond to researchers' requests for the follow-up assessment; 5 children changed schools during the follow-up interval; 3 children graduated; 3 children voluntarily withdrew from the study; and 1 participant's data was lost. Independent samples *t* tests revealed no significant differences in key demographic characteristics for those who were maintained versus those who were lost to attrition during the 1-year follow-up period (SES: $t = -1.34$, $p = .228$; Gender: $t = .684$, $p = .502$; Age: $t = 1.44$, $p = .158$).

Measures

Trained independent diagnosticians who were blind to the intervention condition of each family conducted diagnostic interviews before treatment, at immediate post-treatment, and at 1 year follow-up assessments. Independent evaluators used the *Anxiety Disorders Interview Schedule for DSM-IV: Child and Parent Versions* (ADIS-C/P) to assign *DSM-IV* diagnoses [21]. 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 [22, 23]. Independent evaluators 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.

The *Clinical Global Impressions (CGI)-Improvement* scale (CGI-I) provided a global rating of improvement in anxiety symptoms ranging from 1 (*completely recovered*) to 8 (*very much worse*) [24]. The independent evaluator made a rating on this scale at the post-treatment and one year follow-up assessments, after comparing the recent assessment with the pre-treatment assessment. Children receiving a rating of 1 or 2 (*completely recovered* or *very much better)* were considered "treatment responders."

Children completed the *Multidimensional Anxiety Scale for Children* (MASC-C) [25], a 39-item scale with robust psychometric properties [26]. The 4-point Likert-type scale ranged from 1 (*never true about me*) to 4 (*often true about me*). A parallel parent-report version of the MASC (MASC-P) was also administered. Mean scores are reported for both parent and child MASC. In the present study, alphas for the pretreatment, and post-treatment/post-waitlist, and 1 year follow-up assessments were 0.86, 0.89, and 0.92, respectively, for the child MASC total scale, and 0.88, 0.91, and 0.90, respectively, for the parent MASC total scale.

Procedure

This study was approved by a university-based IRB. The school psychologist, nurse, and teachers, upon identifying children with possible anxiety disorders, informed caregivers about the present study. Caregivers who were interested in the study contacted the study staff to schedule the pre-treatment assessment at school. 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 their diagnostic interviews and self-report measures.

Children who met inclusion/exclusion criteria were block randomized to either immediate treatment (IT) or a 3-month wait-list (WL) using a table of random numbers. Children were then randomly assigned to an available clinician. School staff designated a private room in the school appropriate for the intervention sessions. Children on the WL received the same CBT program immediately after the WL period. Assessment procedures were repeated at post-treatment and 1 year follow-up. Study completers were contacted by phone 12 months post-treatment and asked to return for follow-up diagnostic interviews (the ADIS-C/P), completion of study questionnaires (parent and child MASC, etc.), and for other behavioral measures not discussed in the current study.

Intervention Program

Clinicians were 13 UCLA doctoral students in clinical or educational psychology. Clinicians typically had at least 1 year of prior clinical experience with children, although few had any prior specific experience conducting cognitive behavioral therapy for youth anxiety disorders. Clinicians received specific training in the manualized, modular *Building Confidence* intervention [28] in two 5-h 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.

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. Modules for each session are selected on the basis of a simple algorithm adapted from [27]. This algorithm initially prescribes the

acquisition of basic coping skills such as developing coping thoughts, followed by a primary focus on exposure therapy sessions. Treatment is discontinued early if all clinical anxiety problems identified in the ADIS-C/P pretreatment interview have been successfully reduced to non-clinical levels in the judgment of both the clinician and the clinical supervisor, based on direct evidence. At least one 30-min consultation on specific behavioral strategies (i.e., a school-home note) is offered to the child's teacher and/or school nurse if agreed upon by children and caregivers.

Once various coping skills are mastered through practice and role-play [28], children and clinicians create a hierarchy in which feared situations are ordered from least to most distressing. Children then work their way up the hierarchy and are rewarded as they attempt anxiety-provoking activities with increasing difficulty (exposure tasks).

When caregivers participate in treatment, caregivers are given a psycho-education module and a module focused on promotion of children's autonomy through choices and self-help skills. Caregivers are also encouraged to participate in the hierarchy development module. When children begin exposures, caregivers are given a supplementary module on assisting with exposures at home, which also covers supportive communication skills such as active listening and selective attention.

The original clinical trial [19] provides evidence of treatment fidelity. To summarize, independent evaluators coded two randomly selected sessions from each participant in IT 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 clinicians in the study addressed the topics required in each caregiver and child module at a rate of 90.2% and 89.2%, respectively. Two coders rated a random sample of 10% of the coded tapes. Inter-rater agreement on the number of session goals met was strong (ICC = 0.90).

Results

Table 1 presents descriptive information on outcome measures for all study participants available at 1 year follow-up. As Chiu and colleagues [19] noted on the entire sample, there were no statistically significant pre-intervention group differences (IT vs. WL) on any of the demographic, child anxiety, or parenting variables.

Four children (IT: n = 1; WL: n = 3) received psychotherapy, social skills training, and/or anxiety medication during the follow-up period. Of these, 2 of the 4 children had an

Table 1 Anxiety scores for 3 time points

Variable	Baseline		Post		1 Year follow-up	
	M	SD	*M*	SD	*M*	SD
ADIS-IV CSR	4.70	0.56	2.96	1.30	2.52	1.24
Parent MASC	2.44	0.38	2.20	0.42	2.17	0.36
Child MASC	1.54	0.41	1.28	0.44	1.18	0.46
CGI-I	–	–	3.13	1.52	2.30	1.18

$N = 17$–24. Displayed means and standard deviations across 3 time points are limited to children who were maintained through 1 year follow-up assessment; ADIS-IV CSR = Anxiety Disorders Interview Schedule for DSM-IV-Clinician's Severity Rating; MASC = Multidimensional Anxiety Scale for Children; CGI = Clinical Global Impressions-Improvement Scale; Mean scores are reported for the parent and child MASC

anxiety diagnosis at post-treatment, and 1 of the 2 continued to meet criteria for an anxiety disorder at 1 year follow-up.

Positive diagnostic status was defined as a child meeting ADIS-C/P criteria for SAD, GAD, or SP anywhere in his/her primary diagnostic profile. Of the 24 total participants available for follow-up analyses (all of whom had received CBT by the follow-up period), 20 (83.3%) were diagnosis-free at 1 year follow-up; 4 individuals (16.7%) had a clinically significant diagnosis at 1 year follow-up (n = 1 GAD; n = 3 SP). During the follow-up period (in the IT condition only; 14 of the original 22 cases available), 2 (14.3%) treatment responders relapsed (n = 1 SP, n = 1 GAD). Only one child (in IT group) met diagnostic criteria at immediate post-treatment (GAD). However, this individual was unable for 1 year follow-up assessment, and therefore, their status at 1 year follow-up is unknown.

A rating of 1 or 2 (*completely recovered* or *very much better*) on the CGI was also used as a criterion for treatment response. Of the 24 total participants available for follow-up analyses: 15 of 24 (62.5%) were "treatment responders;" and in the IT condition only: 10 of 14 (71.4%) children met the criteria for being a "treatment responder."

Using the entire sample (IT and WL) available at follow-up, within-subjects (paired) *t* tests were employed to test the effectiveness of *Building Confidence* from pre-test to 1 year follow-up. Analyses revealed robust effects of intervention at 1 year follow-up for all variables: ADIS-IV CSR [$t(23) = 9.40$, $p = .000$]; MASC-P [$t(17) = 3.108$, $p = .006$]; and MASC-C [$t(26) = 4.486$, $p = .000$]. Similar analyses using last observation carried (LOCF) forward did not alter the results. Furthermore, paired *t* tests using LOCF with the IT condition subjects only did not alter the significance of the results.

Discussion

The current study sought to evaluate the relative long-term efficacy of a modularized CBT program for child anxiety [20]. Consistent with previous research literature, we report evidence of robust treatment effects at 1 year follow-up. Specifically, 71.4% of children who received CBT (among IT group) demonstrated a positive treatment response one year following treatment, and 83.3% (among all participants) were free of any anxiety diagnosis at 1 year follow-up. The diagnostic profiles for children were similar to those at post-assessment, with a small minority of children relapsing (2 of 14). Furthermore, a minority of children sought further therapy or started a new psychiatric medication during the follow-up period, but most of these children had carried a diagnosis at post-treatment. In brief, the results provide evidence of an ongoing advantage on anxiety-specific outcomes for this modularized school-based CBT program 1 year post-treatment.

The results of the current evaluation compare favorably to the 1 year outcomes from the original laboratory-based clinical trial [29], providing supportive evidence for the transportability of *Building Confidence* [20] into school settings. More broadly, results of the present investigation are similar to long-term outcomes in group-administered, school-based CBT interventions for pediatric anxiety disorders [14, 17, 30, 31]. The current evaluation expanded upon these previous studies by including only children with clinically diagnosed levels of anxiety rather than sub-clinical levels (or "features") of anxiety [30, 32], utilizing random assignment at the level of the individual, rather than the school [17], and by implementing a one-on-one, personalized intervention. This last aspect is especially relevant given the relatively greater use of individual—as opposed to group-based service formats in usual care in U.S. elementary schools [18].

Taken together, the results illustrate the long-term potency of this modular, algorithm-driven CBT intervention implemented in an individual format (with optional family, teacher and school nurse involvement) in an elementary school environment. Despite the many promising findings of the current study however, results should be considered preliminary. Specifically, results at 1 year post-treatment are based on a small sample of children. Furthermore, the study suffered high attrition during the follow-up period, which may have introduced selection bias (although it should be noted that we did not find any significant differences in key demographic characteristics between those lost to follow-up and those included in the current analyses). Finally, the study would have benefited from the inclusion of therapist ratings of clinical improvement. Subsequent evaluations should examine the effectiveness of *Building Confidence* for treating youth anxiety disorders when delivered by school-based service providers, as well as comparison trials against usual care. Although many steps remain to be taken in the field of school-based mental health, this study offered valuable data examining the feasibility of implementing CBT for anxiety disorders in elementary schools, and advanced our understanding of the effectiveness of such programs.

Summary

The current study found evidence of an ongoing advantage of a school-based CBT program for child anxiety disorders at a 1-year follow-up assessment. Results illustrate how a modular, algorithm-driven CBT intervention implemented in an individual format (with optional family, teacher and school nurse involvement) can retain its long-term potency even when faced with challenges affecting service provision in the elementary school environment. The results should also be considered in light of several methodological strengths, including the use of random assignment and individualized care, independent evaluators, tests of treatment fidelity, and psychometrically strong measures, as well as limitations, particularly a modest sample size. Future research might include assessing the success of this program against usual care when delivered by school-based service providers.

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