

Treating Anxiety Disorders in Inner City Schools: Results from a Pilot Randomized Controlled Trial Comparing CBT and Usual Care

Golda S. Ginsburg · Kimberly D. Becker · Tess K. Drazdowski · Jenn-Yun Tein

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Abstract

Background The effectiveness of cognitive-behavioral treatment (CBT) in inner city schools, when delivered by novice CBT clinicians, and compared to usual care (UC), is unknown.

Objective This pilot study addressed this issue by comparing a modular CBT for anxiety disorders to UC in a sample of 32 volunteer youth (mean age 10.28 years, 63% female, 84% African American) seen in school-based mental health programs.

Methods Youth were randomly assigned to CBT ($n = 17$) or UC ($n = 15$); independent evaluators conducted diagnostic interviews with children and parents at pre- and post-intervention, and at a one-month follow-up.

Results Based on intent-to-treat analyses, no differences were found in response rates between groups with 50 and 42% of the children in CBT, compared to 46 and 57% in UC no longer meeting criteria for an anxiety disorder at post-treatment and follow-up respectively. Similar improvements in global functioning were also found in both treatment groups. Baseline predictors of a positive treatment response included lower anxiety, fewer maladaptive thoughts, less exposure to urban hassles, and lower levels of parenting stress.

G. S. Ginsburg (✉) · K. D. Becker · T. K. Drazdowski
Division of Child and Adolescent Psychiatry, Department of Psychiatry and Behavioral Sciences,
The Johns Hopkins University School of Medicine, 550 North Broadway/Suite 202, Baltimore,
MD 21205, USA
e-mail: gginsbu@jhmi.edu

Present Address:

K. D. Becker
Department of Mental Health, The Johns Hopkins University School of Public Health, Baltimore,
MD, USA

Present Address:

T. K. Drazdowski
Department of Psychology, Virginia Commonwealth University, Richmond, VA, USA

J.-Y. Tein
Department of Psychology, Arizona State University, Tempe, AZ, USA

Therapist use of more CBT session structure elements and greater competence in implementing these elements was also related to a positive treatment response.

Conclusions Findings from this small pilot failed to show that CBT was superior to UC when delivered by school-based clinicians. Large scale comparative effectiveness trials are needed to determine whether CBT leads to superior clinical outcomes prior to dissemination.

Keywords Anxiety disorders · Cognitive-behavioral treatment · Children · School-based

Introduction

Anxiety disorders are among the most common conditions affecting youth, with prevalence rates between 2 and 19% (Costello et al. 2004). Anxiety in childhood is associated with significant impairment in school performance, social functioning, and family relationships. Reviews of the psychosocial treatment literature for anxiety disorders in children suggest that cognitive behavioral therapy (CBT) is efficacious (e.g., Silverman et al. 2008), leading to a clinically meaningful response in approximately 60% of youth (Walkup et al. 2008). Although the CBT studies are exemplary in several ways (e.g., inclusion of standardized assessments, randomization, prospective designs, clinically meaningful outcome criteria) they have important limitations such as reliance on expert CBT clinicians and stringent entry criteria. These limitations have led several researchers to question the “transportability” of this treatment and its efficacy when delivered in diverse contexts (e.g., schools, community mental health centers) with youth of diverse racial and ethnic backgrounds, and by novice CBT clinicians (e.g., Southam-Gerow et al. 2010). This pilot study addressed these issues by attempting to examine the efficacy of CBT, compared to usual care (UC), for anxiety disorders when delivered by novice CBT school-based counselors with inner city children.

The school context has been described as an optimal setting for treatment delivery for several reasons (see Ginsburg et al. 2008). Schools are a setting in which many anxiety-related problems occur (e.g., anxiety related to peers, academic performance, school violence). As such, school-based anxiety treatment can enhance the generalizability of treatment because participants can practice their new skills in “real life” situations at school and with peers. In addition, school-based clinicians are onsite and can intervene in ways that outpatient clinic-based therapists cannot such as by being available on a daily basis to facilitate practice (e.g., in the hallways) or providing support and feedback during out of session exposures that occur on school grounds. Delivery of anxiety treatments in the school is also important because excessive anxiety has debilitating effects on children’s academic performance and learning (Beidel and Turner 1988; Sarason et al. 1960; Zatz and Chassin 1985). On a practical level, school-based interventions are more accessible and affordable than community clinics or hospital-based services and utilization rates are also higher (Weist and Evans 2005), highlighting the need to evaluate and improve the care received in this setting.

Several school-based anxiety treatment studies have evaluated CBT and reported response rates similar to clinical trials conducted in academic research settings (e.g., Masia-Warner et al. 2005). However, the majority of these school-based anxiety treatment studies have similar limitations to efficacy studies (e.g., used expert CBT therapists rather than school-based clinicians, predominately Caucasian samples, strict inclusion criteria). Only two published studies have examined the effectiveness of CBT for anxiety using novice CBT therapists in community settings (neither was conducted in schools). The

results from both raise questions about the potency of CBT relative to UC. Thus, additional research is needed.

The first study compared CBT to UC among anxious youth ($N = 54$) ages 7 to 14 seen in a community mental health clinic in Australia (Barrington et al. 2005). Youth in both groups showed improvements over time (i.e., at post-, 3-, 6-, and 12-month follow-ups), but no between group differences were found. The second study randomized therapists (21 in UC; 18 in CBT) and anxious youth ($N = 48$; ages 8–15; 15% African American) in six community mental health clinics to CBT (i.e., the Coping Cat) or UC (Southam-Gerow et al. 2010). Similar to the Barrington et al. study, children in both conditions improved at similar rates (e.g., at the end of treatment over half the children in both groups no longer met diagnostic criteria for their primary anxiety disorder), but no between group differences were found. This pattern of findings held true on most outcome measures including child and parent reports of anxiety, reductions in comorbid symptoms, treatment duration, and therapy costs. The only significant group difference was that youth receiving CBT, compared to UC, received fewer additional therapeutic services.

The present pilot study adds to this small literature by examining the effectiveness of CBT relative to UC when delivered by novice CBT school-based clinicians. In addition to looking at reductions in anxiety outcomes and improvement in global functioning, the current study sought to contribute new knowledge by examining clinical and therapeutic factors that were associated with better treatment outcomes.

Method

Participants

Child participants were 32 volunteers recruited through school-based mental health clinics in 14 public schools in Baltimore City. Inclusion/exclusion criteria for children were: (1) between the ages of 7 and 17, (2) presence of one of the following anxiety disorders: generalized (GAD), social (SOP), separation (SAD), specific (SP), or anxiety not otherwise specified (ANOS), (3) no medical or psychiatric conditions (e.g., suicidality) contraindicating study intervention and (4) not currently receiving treatment for anxiety reduction. Children were also excluded if they failed a previous trial of CBT for anxiety within the previous 2 years judged by at least 10 hierarchy-based CBT sessions, including homework assignments and exposure exercises. Children were included if they were on stable medication for another psychiatric disorder (e.g., Ritalin for attention deficit/hyperactive disorder). The primary anxiety disorders for the sample are presented in Table 1. Sixty-three percent had a comorbid disorder; the most common comorbid disorders were GAD (25%), SOP (25%), SP (22%), SAD (13%), major depressive disorder (3%), oppositional defiant disorder (ODD, 3%) and enuresis (3%). Additional demographic information about the sample appears in Table 1.

Eleven school-based therapists delivered the intervention to youth participants across 14 schools. All therapists were female and nine (81.8%) were Caucasian. Approximately half (54.5%) were state licensed. Their educational background reflected a variety of professional specialties, including social work (63.6%), counseling (18.2%), psychology (9.1%), and art therapy (9.1%). The majority (90.9%) of clinicians had a masters degree and one had a doctoral degree. On average, clinicians had 4.86 ($SD = 3.59$) years of clinical experience and 4.55 ($SD = 3.14$) years of experience working with youth. They characterized their theoretical orientation as behavioral (27.3%), cognitive behavioral (27.3%),

Table 1 Baseline characteristics of participants and group comparisons

	CBT (<i>n</i> = 17)	UC (<i>n</i> = 15)	Differences
Child's mean age (SD)	11.12 (2.75)	9.33 (2.06)	$t_{(30)} = 2.05^*$
Child gender [% (<i>n</i>) female]	70.6 (12)	53.3 (8)	$\chi^2 (1, N = 32) = 1.01$
Race [% (<i>n</i>) African American]	87.5 (14)	86.7 (13)	$\chi^2 (2, N = 31) = 1.34$
Marital status [% (<i>n</i>) married]	31.3 (5)	15.4 (2)	$\chi^2 (3, N = 29) = 3.63$
Family income [% (<i>n</i>) \$12,000–\$20,999]	26.7 (4)	46.2 (6)	$t_{(26)} = 0.12$
Children with comorbid diagnosis [% (<i>n</i>)]	64.7 (11)	60.0 (9)	$\chi^2 (1, N = 32) = 0.08$
BSI—global severity index mean (SD)	0.62 (0.65)	0.54 (0.64)	$t_{(24)} = 0.32$
PSI—S/F mean (SD)	79.89 (19.59)	82.24 (25.66)	$t_{(26)} = 0.28$
Urban hassles index mean (SD)	20.83 (9.43)	22.10 (8.30)	$t_{(28)} = 0.28$
Primary anxiety disorder % (<i>n</i>)			
Generalized anxiety	35.3 (6)	53.3 (8)	
Social	29.4 (5)	20.0 (3)	
Separation	23.5 (4)	26.7 (4)	
Specific phobia	5.9 (1)	0.0 (0)	
Anxiety NOS	5.9 (1)	0.0 (0)	

CBT Cognitive Behavioral Therapy, UC Usual Care, BSI Brief Symptom Inventory, PSI Parenting Stress Index, NOS Not Otherwise Specified

* $p < .05$

eclectic (27.3%), and other (9.1%). One clinician reported having no primary theoretical orientation. Therapists provided treatment to youth in both conditions under supervision.

Measures

Anxiety Disorders and Symptoms

Anxiety Disorders Interview Schedule for DSM-IV, Parent and Child Versions (ADIS-C/P; Silverman and Albano 1996). The ADIS-C/P is the gold standard semi-structured diagnostic interview for anxiety disorders in youth and was used to determine child diagnostic status. Composite impairment ratings (Clinician Severity Rating, CSR) were generated for each diagnosis based on separate interviews with the parent and child and were used to determine all diagnoses (primary diagnoses were the “worst” or most disabling condition). CSR ratings range from 0 to 8 and a “4” is the minimum required for a diagnosis. Psychometrics are favorable and the interview is sensitive to treatment effects (e.g., Walkup et al. 2008). This measure was completed by an independent evaluator (IE).

Screen for Child Anxiety—Related Emotional Disorders-Parent and Child Versions (SCARED; Birmaher et al. 1997, 1999). The SCARED was used to assess a broad range of anxiety symptoms. The SCARED is a widely used 41-item questionnaire with evidence of reliability and validity (Birmaher et al. 1997, 1999). SCARED total scores were used, derived by summing all 41 items (0 = *not true or hardly ever true*, 1 = *somewhat true or sometimes true*, 2 = *very true or often true*); higher scores reflected higher anxiety. Internal consistency was .84 and .92 respectively for the child- and parent-report SCARED total scores for the present sample.

Clinical Global Impression—Severity (CGI-S) and Improvement (CGI-I) Scales (Guy 1976). The CGI-S score provided a global rating of anxiety severity in the past week

ranging from 1 (*not at all ill*) to 7 (*extremely ill*); while the CGI-I provided a global rating of clinical improvement in anxiety for the past week (relative to baseline) ranging from 1 (*very much improved*) to 7 (*very much worse*). The CGI scales have been used extensively in child treatment trials and have demonstrated sensitivity to treatment effects (e.g., Walkup et al. 2008). Youth receiving a score of 1 or 2 on the CGI-I were considered treatment responders. These measures were completed by an IE.

Child Functioning and Other Child Symptoms

Global Assessment Scale for Children (CGAS; Shaffer et al. 1983). The CGAS provided a measure of global impairment and functioning on a scale of 1 (*lowest*) to 100 (*highest*). Psychometric properties are favorable and scores have been found sensitive to CBT for anxiety (e.g., Walkup et al. 2008). Higher scores reflect better functioning. This measure was completed by an IE.

Children's Automatic Thoughts Scale (CATS; Schniering and Rapee 2002). The CATS is a 40-item measure assessing maladaptive cognitions involving social threat, physical threat, personal failure, and hostility. Children indicated the frequency with which they had each thought during the previous week using a five-point Likert-type scale (0 = *not at all* to 4 = *all the time*). A total score was derived by summing each item score. Psychometric properties, including test re-test and discriminant validity, have been found favorable (Schniering and Lynham 2007). Internal consistency for the present sample was .91.

Strengths and Difficulties Questionnaire (SDQ; Goodman 1997). The SDQ is a parent-report 26-item questionnaire to assess comorbid symptoms of children (e.g., conduct problems, hyperactivity problems, peer problems). Parents responded to items using a three-point Likert-type scale describing the degree to which statements were true about their child (0 = *not true*, 1 = *somewhat true*, 2 = *certainly true*). A total score was obtained by summing the items; higher scores reflected higher levels of difficulties. The psychometric properties of this measure have been found favorable (Goodman et al. 2003). Internal consistency for the present study was .81.

Additional Measures

Demographic Information Questionnaire. Demographic information was obtained from parents and school and clinic records. Variables included child age, gender, race, family income, and parental marital status.

Brief Symptom Inventory (BSI; Derogatis and Melisaratos 1983). The BSI, completed by parents, is a 55-item measure of parental psychopathology. Both convergent and construct validity have been demonstrated for this measure (Boulet and Boss 1991). The present study used the total severity score, the Global Severity Index ($\alpha = .97$).

Parenting Stress Index—Short Form (PSI/SF; Abidin 1995). The PSI was used to assess parental stress and difficulties in the parent–child relationship. The measure contains a total of 36 items rated by parents on a five-point Likert-type scale with a range of 1 (*strongly disagree*) to 5 (*strongly agree*). The total score was used in the current study, with higher scores indicating greater perceived parental stress. Internal consistency for the total score for the present sample was .93.

Urban Hassles Index (UHI; Miller et al. 2002; Miller and Townsend 2005). The UHI is a 32-item child-report questionnaire designed to measure stressors youth face in the urban environment. We added nine items to assess additional urban hassles (e.g., “You had to hide someplace because of shootings in your neighborhood”), based on feedback from our

study participants during the early phase of this project (see Ginsburg et al. 2008). Children responded to items using a three-point Likert-type scale describing the frequency with which they faced different stressors (0 = *never* to 2 = *a lot*). A total score was calculated and higher scores represented a greater number of hassles. Internal consistency for the present sample was .82.

Therapy-Related Measures as Predictors of Treatment Response

Treatment Adherence and Therapist Competence (TATC) was developed for this study and is a 29-item measure completed by IEs while reviewing audiotapes of CBT and UC treatment sessions. The TATC contains three subscales: (1) CBT content adherence (8 items), (2) CBT session structure components (8 items), and (3) nonspecific factors (13 items). Items on the CBT content adherence subscale correspond to each CBT module (e.g., psychoeducation about anxiety, exposure, cognitive restructuring). Using a codebook (available from the first author), an IE indicated the degree to which the therapist included CBT content (yes/no) and the degree to which the therapist adhered to the module using a four-point Likert-type scale (0 = *poor* [$<50\%$ of module content delivered] to 3 = *good* [at least 90% of module content delivered]). A second coder, trained to a reliability criterion of $\kappa = .80$, coded items from the remaining two subscales. The CBT session structure component subscale included items such as agenda-setting and homework assignment, components which are generally specific to CBT. For each item, the IE rated the presence/absence of the component, as well as the competence of the therapist in using the component on a four-point Likert-type scale (0 = *poor* to 3 = *very good*). The third subscale reflected nonspecific therapeutic variables (e.g., therapist assessed child's comprehension of material, maintained a positive working relationship) that have been linked to treatment outcomes. The IE rated the items on a four-point Likert-type scale (0 = *poor* to 3 = *very good*).

All therapy sessions were audiotaped and 25% were coded using the above methods. Because the same clinicians delivered both the CBT and UC interventions, it was important to examine treatment differentiation within clinicians. Therefore, for the present analyses, one CBT and one UC case from each clinician were selected. For eight clinicians, this involved the first CBT and the first UC cases they enrolled in the study. For one clinician, the attendance of the first CBT case was less than 4 sessions; therefore, the second CBT case she enrolled was selected. Two tapes from each case were randomly selected for coding. One tape was selected from sessions one through four and the other from sessions five and higher, yielding a total of 36 sessions split evenly between the two treatment conditions.

Perception of Therapeutic Relationship Scale (PTR; Kendall et al. 1997). The PTR is a seven-item five-point scale (range 1–5) completed by the child and used to assess perceptions of the quality of the therapeutic relationship, with higher scores indicating higher quality relationship. This measure has been used in previous CBT clinical trials with anxious youth (Kendall et al. 1997). The internal consistency of this measure for youth in the current study was .86.

Treatment Conditions

CBT

The CBT used in this study was adapted to a modular format based on empirically supported anxiety CBT manuals (Kendall 1990; Kendall 1994; Silverman et al. 1999a, b). A modular approach, which has been used in previous studies (Chorpita et al. 2004; Weisz

et al. 2011) was selected because it is more clinician-friendly and flexible (i.e., therapists emphasize modules that are most relevant for each child) than manualized treatments. Thus, it was expected to enhance the utility and adoption of the intervention. The modules included: psychoeducation, exposure, rewards, cognitive restructuring, problem solving, relaxation, and relapse prevention. Parent modules (e.g., psychoeducation, rewards, exposure) were also included. Each therapist was given a therapy box which included handouts and other materials to use in the therapy with children. There were a total of eight modules designed to be delivered over 12 weeks. With the exception of psychoeducation and exposure, module inclusion and sequencing was not predetermined, thereby permitting the treatment to be tailored to each youth's needs. Treatment adherence to the CBT condition and differentiation from UC condition was enhanced with the use of detailed written modules and handouts, as well as weekly supervision by the first two authors.

Usual Care (UC)

This condition focused on providing children therapeutic interventions that did not include CBT strategies. Therapy represented usual care for that clinician (e.g., art, play, or supportive therapy). Therapists were provided with instructions about how to avoid including components of CBT such as directly reinforcing approach behavior via a hierarchy or directly challenging fear-evoking cognitions. Therapists were also provided with an attention control manual to use if they desired.

Treatment Format

Treatment sessions in both conditions were administered in an individual format. Treatment sessions were conducted in the school counselor's office during the school day and designed to fit into a class period (generally 30–45 min). Efforts were made to vary the day and time of the therapy session so that students did not miss out on academic classes or assignments.

Parental Involvement (Both Conditions)

Because parental participation in school-based treatment is low, the CBT and UC were designed to be individual–child focused therapies. However, consistent with Kendall's Coping Cat manual (Kendall 1990) therapists were encouraged to involve parents in at least three sessions for both conditions. The purpose of these sessions was to inform parents about their child's treatment, to provide support to parents if needed, and to teach parents relevant CBT skills (CBT condition only).

Independent Evaluators (IEs)

IEs conducted all post- and follow-up assessments. IEs were masters or doctoral level psychologists trained in the use of the ADIS-C/P and all other measures. Scores on all measures were reviewed by a senior clinician who was blind to treatment condition.

Procedure

Children were recruited through teachers, parents, or principals. Eighty-two students were referred to the study through a variety of sources, including clinician's caseload, teachers,

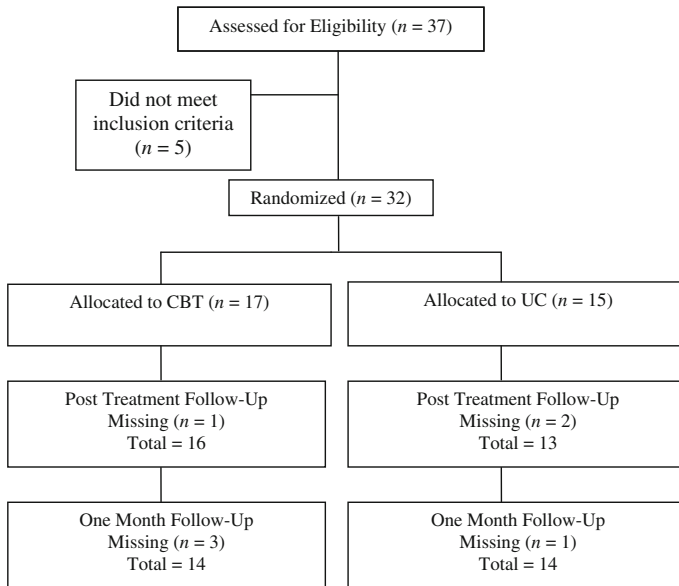


Fig. 1 Subject flow diagram

other school staff, and parents. Of these, 45 youth (55%) could not be assessed (primarily because parents could not be located to sign consent). We obtained parental consent for and completed an initial evaluation with 37 youths (45% of total referrals). All evaluations (using the measures described above) were completed by study staff in the child's school. Five of the 37 youths were ineligible because they did not meet criteria for an anxiety disorder. Thirty-two youths met eligibility criteria (none declined participation) and were randomized 1:1 into either CBT ($n = 17$) or UC ($n = 15$). Randomization was conducted using the website randomization.com and separate randomization plans were created for each clinician. Twenty-nine of 32 youths (91%) completed post-treatment evaluations. Twenty-eight of 32 youths (88%) completed a one-month follow-up (see Fig. 1). The study was approved by the Johns Hopkins University School of Medicine Institutional Review Board.

Data Analysis Plan

Baseline equivalence between UC and CBT on demographic and clinical variables was tested using χ^2 (for categorical variables) or t -statistics (for continuous variables). To examine program effects on the outcome variables, two analytical approaches were used. First, differences between the UC and CBT groups at each assessment after the intervention were tested using logistic regression for diagnostic measures and analysis of covariance (ANCOVA) for continuous measures. Baseline scores were included in the analysis as covariates. For the continuous variables that had no baseline measure, we controlled for the pretest ADIS-C/P CSR. In the second approach, for the measures that were assessed at each time point (pre-intervention, post-intervention, one-month follow-up), differences of growth or trajectory rates over time between UC and CBT were examined under the longitudinal mixed modeling framework (Singer and Willett 2003).

We examined whether there were improvements over time (e.g., positive growth rates for child functioning and negative growth rates for anxiety and behavioral problems) for both UC and CBT and whether CBT had significantly larger improvements than UC. We were also interested in finding whether baseline clinical variables and therapy-related variables affected anxiety outcomes above and beyond the treatment condition. We computed partial correlations of these variables with the anxiety outcomes (IE, child, and parent reports), partialling out the treatment group effect. We conducted all of the analyses using SAS (Version 9.2).

Except for coded scores on therapist adherence and therapist competence, all analyses on treatment effects used an intent-to-treat approach. All of the missing data were managed using multiple imputation (MI) strategies (Little and Rubin 1987; Schafer 1997), using the SAS multiple imputation procedure (e.g., PROC MI and PROC MIANALYSIS). Although a small number of imputations is needed in general (see Little and Rubin 1987), we conducted 500 imputations due to the small sample size. The total percent of missing information across the studied variables was 11%.

Results

Baseline Group Comparisons

T-tests for continuous variables and Chi-square analyses for categorical variables were used to examine differences on demographic and clinical variables between the two intervention groups at baseline (see Table 1). Children in CBT were significantly older than the children in the UC (mean age in years = 11.12 vs. 9.33; $p < .05$). No group differences were found on any other demographic or clinical variables, including child gender, race, parent marital status, family income, comorbid diagnoses, parent symptom level, parenting stress level, child urban hassles level, or primary diagnoses (all $ps > .05$).

Attrition

The attrition rate (i.e., the percent of subjects who did not complete a post and/or follow-up assessment) for the entire sample was 12.5%; 3 out of 17 in the CBT condition and 1 out of 15 in the UC condition. Fisher's Exact test showed the attrition rates did not differ between the two groups ($p = .18$).

Intervention Attendance

Children in CBT attended an average of 7.29 sessions (range was 0 to 13); children in UC attended an average of 8.53 sessions, with a range of 3 to 13. Session dosage was similar across CBT and UC conditions $t(30) = 1.06$, $p > .05$. Missed sessions were most often a result of child absenteeism from school, shortened school week due to holidays, professional development days, or school-wide testing.

Treatment Adherence/Differentiation

Based on the TATC, CBT content was delivered in 100% of CBT sessions, compared to 55.6% of UC sessions, providing some evidence of treatment differentiation, but also

indicating that many of the UC cases received some elements of CBT. When CBT material was covered in session, therapist adherence to the module was higher in the CBT ($M = 2.69$, $SD = 0.35$) than in the UC condition ($M = 1.27$, $SD = 0.43$), $t(30) = 6.71$, $p < .001$. A similar number of CBT session structure components (e.g., agenda setting, homework) were present in CBT ($M = 7.50$, $SD = 0.50$) and UC ($M = 7.61$, $SD = 0.49$) treatment sessions, $t(30) = 0.48$, *ns*. However, clinicians demonstrated greater competence with these components when delivering CBT ($M = 2.66$, $SD = 0.44$) than when delivering UC ($M = 1.67$, $SD = 0.29$), $t(30) = 5.58$, $p < .001$. Finally, clinicians also demonstrated greater competence with nonspecifics (e.g., assessing child comprehension of material, maintaining positive relationship with child) when delivering CBT ($M = 3.32$, $SD = 0.37$) than when delivering UC ($M = 2.82$, $SD = 0.27$), $t(30) = 3.30$, $p < .001$.

Primary Outcomes Analyses

Child Anxiety Diagnoses, Symptoms, and Responder Status

Table 2 shows the percent of children classified as a treatment responder (CGI-I of 1 or 2), as well as those no longer meeting diagnostic criteria for their primary or any anxiety disorder at post-intervention and one-month follow-up assessments. Using the intent-to-treat sample no significant group differences were found between CBT and UC on any of these measures.

Child Anxiety Severity

In addition to sample means and standard deviations, Table 3 presents the statistics of the comparisons between CBT and UC at post-intervention and one-month follow-up on ADIS-C/P CSR, child and parent SCARED, and CGI-S from the ANCOVA. Controlling for the baseline scores, the ANCOVAs showed no significant differences between CBT and UC on the anxiety severity assessments at each post-intervention assessment point. The results of the longitudinal mixed modeling analyses showed that there were no significant

Table 2 Percentage and treatment effects on anxiety outcomes and logistic regression results for program effects

	Group		B (CIL, CIH)	Wald χ^2	p	Odds ratio
	CBT (n = 17)	UC (n = 15)				
CGI-I (% 1, 2 responder)						
Post	41.2	46.7	-.07 (-1.11, .39)	.11	.80	.94 (.33, 1.48)
F-1	64.7	53.3	.39 (-.36, 1.16)	1.17	.34	1.49 (.70, 3.17)
No primary dx (%)						
Post	26.7	42.9	-.36 (-1.11, .39)	.91	.36	.70 (.32, 1.48)
F-1	42.9	50.0	-.17 (-.88, .84)	.35	.64	.84 (.41, 1.69)
No anxiety dx (%)						
Post	50.0	46.2	.04 (-.66, .73)	.07	.84	1.04 (.52, 2.09)
F-1	42.9	57.1	.24 (-.47, .94)	.59	.54	1.27 (.63, 2.56)

B Averaged logistic regression coefficient across 500 imputed data sets, CBT Cognitive Behavioral Therapy, UC Usual Care Group, CGI-I Clinical Global Impressions Scale—Improvement, dx diagnosis

Table 3 Mean scores (and standard deviations) on anxiety measures and ANCOVA results for treatment effects

	Group [actual means (SD)]		B (95% CI)	<i>t</i>	<i>p</i>	Cohen's <i>d</i>
	CBT (<i>n</i> = 17)	UC (<i>n</i> = 15)				
ADIS-C/P CSR						
Pre	5.35 (0.79)	4.93 (0.80)				
Post	4.82 (0.87)	4.38 (0.52)	.09 (−.62, .80)	.27	.79	.10
F-1	4.25 (0.46)	4.43 (0.53)	−.08 (−.55, .38)	−.39	.70	.14
SCARED-child						
Pre	33.74 (8.59)	35.65 (14.57)				
Post	25.26 (11.95)	22.37 (14.57)	4.18 (−5.55, 13.90)	.88	.38	.32
F-1	20.79 (10.42)	21.73 (13.78)	1.25 (−7.97, 10.47)	.28	.78	.10
SCARED-parent						
Pre	23.56 (15.57)	25.59 (12.94)				
Post	20.07 (14.94)	18.70 (17.58)	.10 (−12.80, 13.00)	.02	.99	.01
F-1	23.46 (17.60)	15.36 (13.20)	4.59 (−13.02, 22.20)	.55	.59	.20
CGI-S						
Pre	5.56 (0.56)	4.93 (0.70)				
Post	3.93 (1.22)	3.21 (1.12)	0.70 (−0.20, 1.61)	1.59	.12	.58
F-1	3.50 (1.22)	3.21 (1.12)	0.36 (−0.68, 1.41)	.71	.48	.25

Following Rosenthal's (1994) suggestion, Cohen's *d* can be calculated as $d = t(n_1 + n_2) / (\sqrt{df})(\sqrt{n_1 n_2})$, where *t* is the *t* statistic; *n*₁ and *n*₂ are the sample sizes for the treatment and control groups, and *df* is the degree of freedom

B Averaged unstandardized regression weight across 500 imputed data sets, *CBT* Cognitive Behavioral Therapy, *UC* Usual Care, *ADIS- C CSR* Anxiety Disorders Interview Schedule- Child Version clinical severity rating, *SCARED* Screen for Child Anxiety Related Emotional Disorders, *CGI-S* Clinical Global Impressions Scale—Severity

differences between the two intervention groups on the growth patterns or changes of scores over time. However, children's anxiety levels significantly reduced overtime for both groups, as measured by ADIS-C/P CSR [−.12 (unstandardized regression; 95% CI: −.24, −.005), $t(62) = -2.13$, $p = .04$], child SCARED [−3.73 (95% CI: −5.32, −2.13), $t(62) = -4.76$, $p < .0001$], and CGI-S [−.49 (95% CI: −.66, −.33), $t(62) = -5.96$, $p < .0001$].

Outcomes Related to Children's Functioning and Other Symptoms

Using similar analytical strategies to those reported above, we examined differences between CBT and UC on post-intervention and one-month follow-up assessments on the CGAS, CATS, and SDQ. Controlling for the baseline scores, the ANCOVAs showed no significant differences between CBT and UC on these variables at either post-intervention assessments. The growth rates over time were also examined on the CGAS, CATS, and SDQ using longitudinal mixed model analyses. The growth rates between CBT and UC were not significantly different; however, for both groups, there were significant increases on CGAS [3.66 (95% CI: 2.44, 4.88), $t(62) = 6.12$, $p < .0001$] and significant reductions on SDQ [−1.40 (95% CI: −2.69, −.11), $t(62) = -2.25$, $p = .04$] over time.

Predictors of Treatment Response

Partial correlations (*pr*) were conducted to examine whether baseline severity of child anxiety symptoms (as measured by the SCARED-C, P), urban hassles (UHI), negative thoughts (CATS), parental stress and symptoms (PSI and BSI), and therapeutic variables (i.e., therapeutic relationship, CBT adherence, CBT session structure and quality, and therapist competence in nonspecifics of therapy) affected the child anxiety outcomes. Outcomes were assessed using IE (CGI-S, CGI-I, and presence of anxiety disorder on the ADIS-C/P), child (SCARED-C), and parent (SCARED-P) reports at post-intervention and one-month follow-up, controlling for intervention condition (see Table 4).

Among the child baseline variables, higher anxiety severity, higher number of urban hassles, and more frequent negative thoughts were associated with higher levels of child anxiety at post-intervention and/or one-month follow-up (based on SCARED-C). Among the baseline parental variables examined, parents with higher scores on the PSI reported higher levels of child anxiety over time (based on SCARED-P). Among the therapy-related variables, greater use of CBT session structure components and greater competence in implementing these components were associated with better treatment response (i.e., less anxiety or absence of diagnosis) at post-intervention and/or one-month follow-up.

Discussion

This pilot study compared the effectiveness of CBT versus UC in reducing anxiety symptoms when delivered by novice CBT school-based clinicians to an urban population of predominantly African American youth. Results indicated that both treatments (approximately 7 to 9 sessions) resulted in significant and clinically meaningful improvements in anxiety symptoms and functioning; however, there were no differences in treatment outcomes between the two groups. In exploratory analyses, several predictors of treatment response were identified.

Anxiety Diagnoses and Symptoms

Treatment response rates (based on the CGI-I, completed by IEs) at post-intervention and one-month follow-up for youth in both treatment conditions ranged from 41 to 65%. These rates are similar to results of the Child/Adolescent Anxiety Multi-modal Study (CAMS) trial, in which 60% of youth in the CBT arm were rated as “responders” using the CGI-I (Walkup et al. 2008). The percentage of youth no longer meeting diagnostic criteria for *any* anxiety disorder (43–50%) was also similar to recently published data from the CAMS, in which the rate of youth who no longer met diagnostic criteria for social, separation, or generalized anxiety disorders for the CBT arm (after 12 weeks of treatment) was 46% (Ginsburg et al. 2011). The response rates in the current study were also similar to those reported in reviews (e.g., see Silverman et al. 2008), though they were somewhat lower than those reported in other school-based studies (Masia et al. 2007).

Similar to the pattern found for response rates, reductions in anxiety symptoms were also significantly lower over time in both groups with no differences between the treatment groups. For instance, scores on the child SCARED reduced 12 to 14 points over time (close to one standard deviation; $ES = .80$). This reduction in child-reported anxiety symptoms was also similar also to those reported in previous clinical trials of CBT for anxious youth (Silverman et al. 2008).

Table 4 Partial correlations of predictors of treatment response

Predictors	Child anxiety outcome measures									
	Child					Parent				
	SCARED-C					SCARED-P				
	Post	F-1	F-1	Post	F-1	Post	F-1	Post	F-1	Post
<i>Child</i>										
SCARED-C	.40*	.35*	-.07	.28	.32 (<i>p</i> = .07)	-.13	-.19	-.10	-.23	
UHI	.35*	.20	-.18	-.13	.10	.10	.07	.10	-.02	
CATS	.45*	.31 (<i>p</i> = .08)	-.06	.18	.17	-.10	.01	-.15	-.10	
<i>Parent</i>										
PSI	.04	.21 (<i>p</i> = .07)	.33	.05	.11	.01	-.11	.05	-.07	
BSI	-.08	.05	.20	-.07	.08	.13	-.05	.10	-.08	
<i>Therapeutic</i>										
PTR- child	-.07	-.02	.04	.07	.03	-.01	-.10	-.01	.05	
CBT adherence	.12	-.20	-.30	.26	-.05	-.39	.001	-.39	.02	
CBT session structure (<i>n</i>)	-.23	-.19	.23	-.57*	-.57*	.35	.28	.23	.61**	
CBT session structure quality	-.09	.03	-.002	-.41	-.49*	.30	.51*	.05	.49*	
Nonspecifics	-.20	-.26	.21	-.16	-.12	.21	.11	.11	.16	

BSI Brief Symptom Inventory, *CATS* Children's Automatic Thoughts Scale, *CBT* Cognitive Behavioral Therapy, *PSI* Parenting Stress Index, *CGI-I* Clinical Global Impression—Improvement, *CGI-S* Clinical Global Impression—Severity, *Dx* Disorder, *PTR* Perception of Therapeutic Relationship, *SCARED-C* Screen for Child Anxiety—Related Emotional Disorders- Child Version, *SCARED-P* Screen for Child Anxiety—Related Emotional Disorders- Parent Version, *UHI* Urban Hassles Index

* *p* < .05, ** *p* < .01

While the current findings indicate that novice CBT clinicians, with minimal training and supervision, can achieve response rates similar to those in efficacy trials, they also raise questions about why CBT was not found to be more effective than UC. It may be that the small sample, restricted statistical power, and/or unique participants in the current study precluded obtaining reliable indicators of efficacy (Kraemer et al. 2006) and thus no conclusions can be drawn from this study (or from the other published studies with small samples that have also found no differences in symptom reduction between CBT and UC) and a larger definitive effectiveness study is needed. However, some data from larger trials comparing CBT to education support have also failed to find significant differences in treatment outcomes (e.g., Silverman et al. 1999a). Thus, isolating the reasons why CBT was not superior to UC awaits further study.

It may also be that clinicians in both arms used enough CBT to dilute treatment effects (56% of therapy session tapes rated in the UC condition were found to include CBT). The use of the same therapist for both conditions may have facilitated “spill over” effects in the UC condition, despite being coached to not use CBT. Finally, the quality of the CBT, while higher in the CBT condition, may not have been of sufficient power to lead to differential treatment effects. Most clinicians only treated one or two anxious participants using CBT; therefore, it might have been difficult for them to achieve a level of proficiency required to bring about robust treatment effects. One solution may be to use fewer therapists who see a greater number of youth in each treatment arm.

Global Functioning and Additional Outcomes

Similar to findings on anxiety diagnoses and symptoms, no significant differences between CBT and UC were found on measures of global functioning or other outcomes (i.e., maladaptive thoughts or comorbid symptoms). However, for both groups, significant improvements over time were found with respect to global functioning and parent-rated symptoms of child psychopathology. These findings are consistent with other published studies on CBT (e.g., Walkup et al. 2008) that have shown treatment not only improves anxiety symptoms, but also appears to improve global functioning and comorbid symptoms.

Predictors of Treatment Response

In an effort to contribute new knowledge and identify factors that lead to enhanced outcomes, we examined 10 clinical variables (three child, two parent, and five therapy-related) as predictors of treatment response. The child variables (baseline anxiety severity, urban hassles, and negative thoughts) were only related to child-reported outcomes (and marginally related to the CGI-S). Specifically, children who reported higher baseline anxiety also reported higher anxiety severity at post- and one-month follow-up. In general, although this result was only found for the child SCARED, it is consistent with other studies (e.g., Ginsburg et al., 2011) that have reported higher severity of anxiety to be predictive of poorer outcomes, suggesting that additional interventions (e.g., medication), a longer duration of treatment, or alternative treatments may be useful for improving outcomes among youth whose anxiety is most severe at the initiation of treatment.

A greater number of urban hassles at baseline (e.g., walking past abandoned buildings, living in an unsafe area, fear of confrontation with strangers) were also associated with higher levels of anxiety at post-intervention. While both of these measures are based on child-reports and may reflect reporter bias, they may also suggest that reducing exposure to

and improving coping strategies directly related to these urban experiences may help reduce anxiety symptoms and/or improve treatment effectiveness for anxiety disorders.

Another child predictor of treatment response was maladaptive cognitions. Specifically, children who endorsed more negative thoughts about themselves at baseline (e.g., I can't do anything right, I am worthless, I'm going to look silly, I'm going to get hurt) had higher anxiety levels at post-intervention (based on the child SCARED). These findings are consistent with published data from large clinical trials of depression (e.g., Ginsburg et al. 2009) where researchers found that youth who endorsed higher levels of maladaptive cognitions at baseline were less likely to show improvements post-treatment; and meditational analyses in child anxiety trials (Treadwell and Kendall 1996) indicating that reductions in maladaptive cognitions during treatment led to greater improvements. Theoretically, these findings support extant cognitive theories that emphasize the role of cognitions and negative self-talk in the development and maintenance of anxiety. By extension, they suggest that additional interventions (or more sessions) targeting these maladaptive cognitions may be needed for this population in order to improve clinical outcomes.

With respect to parental variables, parents who were themselves experiencing high levels of parenting stress and a strained parent–child relationship at baseline also reported fewer gains in their child at follow-up. Given that these variables were not related to IE or child-rated anxiety symptoms, it may be that parents' own distress level influenced their ratings of their child (Najman et al. 2000) rather than reflecting the child's level of change in anxiety symptoms. Nonetheless, given that parents' stress level and perceived relationship with their child likely influences their behaviors toward their children, addressing parental stress and related cognitions may help change parents' perceptions of their children's anxiety symptoms to be more consistent with IE and child reports.

Finally, with respect to the therapy-related variables, the more therapists used CBT session structure components (e.g., setting an agenda, reviewing the last session and previously assigned homework, reviewing the child's progress with earning points and rewards earned by doing therapy tasks, and assigning homework to be completed before next session) and the greater competence they demonstrated in implementing these components, the greater the treatment response. These components may have promoted a process that enhanced goal setting and monitoring of child symptoms and compliance that in turn allowed therapists to adjust their intervention to improve child outcomes. Taken together, these findings provide some support for the use of CBT session structure components and better training for clinicians. Surprisingly, non-specific factors (e.g., having a positive working relationship) and therapist-rated compliance with treatment were not related to treatment response.

Limitations

As noted above, the small sample size limited power to detect intervention effects—both in terms of outcomes as well as predictors. Larger effectiveness trials are needed to help determine if CBT results in improved outcomes over UC and to identify additional predictors or moderators of treatment response. Addressing several design factors, such as using different clinicians in treatment conditions, is essential. In addition, given that children in both groups showed improvements, the inclusion of a no intervention or wait-list control group could assist in determining whether anxiety symptoms would have reduced over this time period on their own. Published studies comparing CBT to wait-list controls, however, have shown a low response rate in wait-list groups (Kendall 1994).

Expanding the nature of the outcomes examined to include school-relevant variables is another important next step.

The results of this study were also limited in their generalizability, as the schools and participants were located in the inner city and included primarily African American participants. The findings may also have limited generalizability because of the small sample size (and attrition), and more specifically the small number of youth from many sites, as these youth may not have been representative of the study population. Finally, numerous difficulties encountered in the school setting likely compromised study implementation including time constraints on clinicians related to billing (which restricted their availability to take advantage of supervision and training), competing demands on the school clinicians' time (e.g., to do school-wide crisis intervention work or prevention), and school schedule conflicts such as testing and holidays, which interrupted the frequency of treatment sessions (for additional challenges in working in these schools see Ginsburg et al. 2008). The discordance in the racial/ethnic characteristics of the clinicians versus students may have also reduced attendance and improvement in both treatment arms.

Clinical Implications and Future Directions

Overall, results suggest that relatively brief (7 to 9 sessions) school-based interventions can result in significant reductions in anxiety symptoms among inner city youth. Novice CBT clinicians can be trained to implement this treatment successfully, and some may be employing CBT as part of usual care. In light of these preliminary data showing that several clinical variables at baseline (i.e., higher child anxiety severity and maladaptive cognitions, higher parenting stress) are associated with poorer outcomes, additional interventions that target these factors should be considered in order to optimize outcomes. Findings that more CBT session structure components and a higher quality of CBT session structure implementation were associated with better outcomes, suggest that the inclusion of these components and enhanced training to improve their implementation (e.g., supervision) should be emphasized. Weaving ideographic methods into larger RCTs may also help gain a better understanding of individual variations in treatment response, leading to improved personalization of treatments and better outcomes (Taylor and Weems 2011).

Finally, future studies must also determine the optimal approach for intervening with youth in inner city schools. On the one hand, there is growing recognition that schools provide an ideal context to intervene with inner city youth who are underserved and less likely to access care in outpatient or hospital-based settings (Ginsburg et al. 2008; Weems et al. 2009). However, the optimal techniques of identifying these youth (e.g., school screening versus referral) await further investigation. In the current study, we relied on the natural referral process used in the schools for youth who needed treatment; however, many anxious youth were not identified using this method. While a school-wide screening might help identify more anxious youth, schools have varying interest in this approach and there is also a cost-benefit tradeoff. Recent work by Weems and colleagues (Weems et al. 2010; Weems 2008) describes a model for screening and intervening in schools by highlighting the costs of not intervening as well as the value of addressing school-relevant targets, such as test anxiety, that may have a greater appeal for children, parents, and school personnel. On a final note, given that most schools are not year round, exploring additional settings where inner city anxious youth can access prevention and/or effective treatment, such as recreation centers or camps (Ehrenreich-May and Bilek 2011) would be worthwhile.

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