Final Progress Report

Title: Utilizing Health Information Technology to Improve Health Care Quality: Implementation of a Computerized Cognitive Behavioral Therapy Protocol for Childhood Anxiety

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Organization: University of South Florida

Inclusive Dates of Project: 09/30/2011 – 03/29/2015

Federal Project Officer: Jon White

Acknowledgement of Agency Support: This work was supported by a grant to the first author from the Agency for Healthcare Research and Quality (R18HS018665). The content is solely the responsibility of the authors and does not represent the official views of the Agency for Healthcare Research and Quality.

Grant Number: 5R18HS018665-03

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Structured Abstract

Purpose: To examine the effectiveness, feasibility, and acceptability of an established computer-assisted cognitive behavioral therapy program (CCBT) among anxious children presenting at community mental health centers.

Scope: Anxiety disorders are common among children and untreated symptoms can have a profound effect on later functioning. Cognitive behavioral therapy (CBT) is the gold standard to treat anxiety in youth, however, dissemination of CBT is limited.

Methods: Children ages 7-13 with clinically significant anxiety were enrolled in this two phase treatment trial. In Phase I, 17 youth received the CCBT program. In Phase II, 100 youth were randomized to receive either the same CCBT program as in Phase I or treatment as usual (TAU) for the same duration. Clinical assessments were conducted by blinded raters at screening, mid-treatment, post-treatment, and a one month follow up was conducted in Phase II for treatment responders only.

Results: The majority of youth who received the computer-assisted CBT program in both phases were treatment responders and remitted of their primary anxiety diagnosis post-treatment. High levels of satisfaction with the computer-assisted CBT program were reported among participants and staff. In Phase II, those randomized to the computer-assisted CBT had more favorable outcomes on primary anxiety outcomes relative to TAU. Gains made in treatment were maintained at the follow up assessment for treatment responders. Data provide support that CCBT is an efficacious treatment for anxious youth when used within community mental centers.

Key Words: anxiety; children; computer-assisted cognitive behavioral therapy; community mental health centers

Purpose

Phase I

The primary focus of Phase I was to assess a computer-assisted cognitive behavioral therapy (CCBT) protocol for clarity, completeness, and feasibility in a pilot study of children ages 7-13 years, with clinically significant anxiety within a community mental health center setting. More specifically, **aim 1a)** examined a CCBT protocol among youth aged 7-13 years to determine its acceptability and feasibility; **aim 1b)** obtained feedback from consumers, providers, and administrators to help refine assessment and treatment delivery protocols and address barriers in preparation for a randomized trial.

Phase II

The second phase of this project consisted of a randomized controlled trial to determine the efficacy of the same CCBT protocol used in Phase I, relative to active patient-directed intervention (i.e., treatment as usual [TAU]) within a community mental health center population. Specifically**, aim 2a)** evaluated the acute efficacy of CCBT relative to TAU in youth with clinically significant anxiety disorders; **aim 2b)** examined whether CCBT resulted in improved global functioning; and reduced child- and parent-rated anxiety symptoms relative to TAU; **aim 2c)** examined the short-term durability of gains of CCBT responders.

Scope

One of the most common psychiatric problems youth suffer from is anxiety.[1-7] If untreated, symptoms of anxiety are often unremitting[8] and may intensify in adulthood.[9-11] In addition to causing impairment on the psychosocial functioning of youth, untreated anxiety symptoms can have a profound effect on later functioning, and an individuals' risk for experiencing occupational impairments and developing co-occurring mood or substance abuse disorders can be elevated (e.g., see Kendall, Safford, Flannery-Schroeder, & Webb, 2004). The largest multimodal treatment trial of pediatric anxiety to date (*N*=488),[12] suggests that cognitive behavioral therapy (CBT) and selective serotonin reuptake inhibitor medications in combination or alone were efficacious in the treatment of childhood anxiety, but a main concern of CBT is its lack of accessibility.[13-16]

To improve CBT dissemination, computer-based (stand-alone) and computer-assisted (in combination with face-to-face therapy) CBT programs have been developed. Evidence from randomized controlled trials suggest the efficacy of computer-based and CCBT in the treatment of anxiety disorders among youth.[17-20] Spence, Holmes, March, and Lipp[19] compared a CCBT treatment among youth with anxiety to a traditional face-to-face group CBT and to a waitlist (WL) control group (similar to the TAU condition in this study), and the results were encouraging in that individuals in both treatment conditions evidenced significantly greater reductions in anxiety symptoms as compared to those in WL. In a later study, Spence et al.[20] found comparable scores in the reduction of anxiety severity/impairment among youth who received internet-based CBT versus traditional face-to-face CBT. Additionally, both parents and children reported high satisfaction ratings in the internet based CBT condition, which were similar to the ratings of those who received clinic CBT.[20] March and colleagues[17] evaluated the efficacy of an Internet-based individual CBT for child anxiety and children in the Internet condition (as

compared to WL participants) showed significantly greater reductions in anxiety symptoms and these improvements were maintained at the 6-month follow-up period.[17]

Khanna and Kendall[18] conducted a randomized clinical trial evaluating the feasibility and effectiveness of Camp Cope-A-Lot[21] (CCAL), a CCBT protocol, compared to face-to-face individual cognitive-behavioral therapy (ICBT), and a computer-assisted education/support/attention (CESA) control condition in a university based research clinic. Youth were randomly assigned to one of the three conditions and the majority of youth in the ICBT and CCAL conditions no longer met the clinical cutoff for their primary anxiety disorder post-treatment, compared to only 19% who received CESA. Lastly, parents and children reported higher rates of satisfaction in the ICBT and CCAL conditions compared to those in CESA. These findings support the feasibility and acceptability of a CCBT modality, and inform the present study's efforts to disseminate such an intervention into community settings.

Taken as a whole, the extant literature supports the efficacy of CCBT for the treatment of youth suffering from clinically significant anxiety, as well as the feasibility of a standardized CCBT program (i.e., CCAL[21]) for these disorders. Computer-assisted programs may be an efficient and effective way to disseminate standardized care and evidence-based treatments across multiple facilities (i.e., school, community mental health centers, medical settings, training programs, social service agencies, counseling centers, private clinics) and could help to address concerns regarding the lack of evidence-based treatments available in community settings as well as patients' lack of access to mental health care facilities offering empirically supported treatments.[16,22,23] Yet, data regarding the efficacy of CCBT in community mental health centers is lacking.

The present study evaluated the feasibility of implementing a CCBT intervention among anxiety-disordered youth seeking treatment at community mental health centers (Phase I), followed by a randomized controlled trial (Phase II). While this study was coordinated by a primary university based research clinic, recruitment and all treatment sessions took place at three community mental health centers that serve families of lower socioeconomic status throughout Florida. An independent evaluator assessed primary outcomes, which included change in anxiety symptom severity, response rates, and remission rates. The implications of this study are significant, as CCBT may enable widespread dissemination of efficacious therapy for anxiety disorders among youth.

Methods

Study Design

All study procedures were approved by the local Institutional Review Board. Participants were recruited and screened through normal patient flow at three outpatient community mental health centers in Florida. Each site used an identical telephone screening procedure. A trained coordinator at each site asked questions to assess the presence of an anxiety disorder, and to obtain other relevant information (e.g., child age, diagnostic history). Callers who appeared to meet study inclusion/exclusion criteria and were interested in participating were given information about the study. Those who remained interested were scheduled for a screening visit, at which point a member of the research staff obtained informed consent from the parent and assent from the child. After consent was obtained, only then were all study procedures conducted. Eligible subjects were consecutively enrolled from January 2012 to June 2014.

All participants who met inclusion/exclusion criteria (see below) began the CCBT treatment within one week, respectively. In Phase I, an open trial was conducted to understand the organizational, patient, and clinician variables that may impact service delivery. In Phase I only, we conducted a focus group to address aim 1b. In Phase II, participants were randomly assigned in a 1:1 ratio into CCBT or treatment as usual (TAU). At study onset, a start-up meeting was held to train therapists and raters, and to coordinate data collection and clinical procedures across sites.

Participants

For Phase I (*N*=24), seven participants failed to meet inclusion/exclusion criteria (see below), leaving a final sample of 17. For Phase II (*N*=123), 23 failed to meet inclusion/exclusion criteria resulting in a final sample of 100 randomized.

Participants met the following inclusion criteria: a) outpatient boys and girls aged 7-13 years. This age range was chosen as the CCBT protocol used was developed for individuals of this age. b) primary anxiety diagnosis of: separation anxiety disorder (SAD), social phobia, generalized anxiety disorder (GAD), specific phobia, or panic disorder, as determined by the Anxiety Disorders Interview Schedule for DSM-IV–Child and Parent Versions[24] (ADIS-IV-C/P) with a Clinical Severity Rating (CSR) ≥4. Subjects with co-morbid non-anxiety disorders were enrolled as long as the anxiety disorder was primary (i.e., most impairing/distressing). Youth with primary diagnosis of OCD and PTSD, were excluded as the CCBT protocol used is not tailored to the unique treatment needs inherent to these diagnoses. c) Minimum score of 10 on the Pediatric Anxiety Rating Scale.[25] d) Reading ability ≥SS=85 on the Word Reading section of the Wide Range Achievement Test 4th Edition.[26]

Exclusion criteria were the following: a) receiving concurrent psychotherapy or other counseling services targeting anxiety (families were able to maintain or initiate services if randomized to TAU). b) Initiation of an antidepressant within 12 weeks before study enrollment or an antipsychotic 6 weeks before study enrollment. Antidepressants and antipsychotics were stable for 8 and 6 weeks prior to screening and remained stable throughout the study, although dosage reductions due to side effects were allowed in the CCBT condition (families were able to maintain or initiate services if randomized to TAU). c) Current clinically significant suicidality or individuals who have engaged in suicidal behaviors within 6 months of screening. d) Lifetime DSM-IV bipolar disorder, schizophrenia, psychosis, schizoaffective disorder, or autism spectrum disorder.

Treatment

The treatment protocol used, Camp Cope-A-Lot (CCAL),[21] is a CCBT intervention for children (aged 7 to 13 years) with anxiety. Developed by a team of researchers, child psychologists, programmers, and graphic designers, the CCBT protocol combines evidence-based CBT with state-of-the-art interactive computer technology. The program is based on the Coping Cat[27] treatment, a widely-used CBT protocol that is designed to treat anxiety disorders in youth and has shown long-term maintenance of gains.[28,29] The entire program is designed to be completed over 12 weeks, with the patient completing one “level” per week with therapist presence at every session. The first six levels of CCAL, primarily delivered over the computer, are coping skill-building levels (i.e., affective education, relaxation training, mis-identification and

labeling of anxiety-related cognition, problem solving). The remaining levels are completed with the assistance of the therapist and consist of gradual exposure to feared stimuli.

All therapists were master's level social workers or mental health counselors and were CBT-naïve prior to the start-up meeting. At this meeting, therapists were extensively trained in the CCBT protocol by an experienced clinician. Additionally, weekly phone meetings were held throughout the entire course of the study for therapists to discuss cases with an experienced clinician and discuss any questions related to the CCBT program.

Treatment as Usual (Phase II only)

Families randomized to TAU were free to initiate, continue, change, or refrain from receiving any psychotherapeutic or pharmacological interventions. The research team did not make any attempt to influence decisions. The use of a TAU arm provides an estimate of the average response that would be expected with standard care. The assessment schedule was identical for the CCBT and TAU arms through the post-treatment assessment.

During acute intervention, 55.3% (*n* = 26/47 completers) of participants in the TAU condition received psychological or psychiatric services including, psychotherapy (*n* = 22; 46.8%), medication management (*n* = 8; 17%), special education services (*n* = 5; 10.6%), case management services (*n* = 4; 8.5%), and family treatment/education (*n* = 3; 6.4%). Of those receiving services, 18 youth received one service (38.3%), 4 received two services (8.5%), 2 received three services (4.3%), and 2 received three or more services (4.3%).

Assessments

In Phases I and II, all eligible participants participated in three identical assessments: a screening assessment, mid-treatment assessment, and a post-treatment assessment. The latter two assessments were conducted after six sessions of CCAL and after all twelve sessions of CCAL. For those randomized to TAU in Phase II, the mid and post assessments were conducted after six and 12 weeks, respectively. For youth randomized to CCBT, a one-month follow-up assessment was conducted (for CCBT treatment responders only). At each assessment, participants were offered $30.00 USD compensation.

The study assessment battery was designed to provide information regarding the impact of treatment on anxiety severity, adaptive functioning, and comorbid symptoms across multiple relevant domains. The clinician-rated measures were administered by an independent evaluator (IE) blind to treatment condition. The IEs were housed at a university-based research center and conducted all assessments via a secure internet platform using a web camera with the parent and child separately.

Measures

ADIS-IV-C/P.[24] The ADIS-IV-C/P is a clinician-administered, semi-structured interview that assesses for the presence and severity of DSM-IV anxiety disorders as well as dysthymia and major depression, ADHD, conduct disorder, and oppositional-defiant disorder. For each diagnosis, a CSR score is assigned using a 0-8 scale to establish presence and severity.

PARS.[25] The PARS is a clinician-rated scale assessing anxiety symptoms and the associated severity and impairment in children over the past week. The 5-item PARS severity total score was used in this study.

Clinical Global Impression-Severity and -Improvement (CGI-Severity, CGI-Improvement).[30] The CGI-Severity is a widely used 7-point clinician rating of severity of psychopathology. Severity ratings range from 0 (no illness) to 6 (extremely severe). The CGI-Improvement is a 7-point rating of treatment response anchored by 0 ("very much improved") and 6 ("very much worse"). Participants rated on the CGI-Improvement with a 5 ("much improved") and 6 ("very much improved") were operationalized as treatment responders.

Service Assessment for Children and Adolescents-Service Use Scale (SACA).[31] The SACA is a standardized interview for parents, tapping use of mental health services across a broad spectrum (including outpatient, inpatient, and school-based).

Secondary Outcomes

Multidimensional Anxiety Scale-Child (MASC).[32] The MASC is a 39-item child-report questionnaire that assesses anxiety. The MASC has been used in a large multimodal clinical trial for pediatric anxiety disorders[12] and has very simple wording that is easy to understand for youth with anxiety.

Columbia Impairment Scale-Parent and -Child (CIS-Parent and -Child).[33] The CIS is a 13-item measure that assesses impairment in several domains of functioning, including interpersonal relations, functioning in school, and social impairment. Items are rated on a 4-point Likert scale, from 0 (no problem) to 3 (a very bad problem) and the CIS has demonstrated excellent psychometric properties.[33] The CIS-P and CIS-C are identical with the same response scale and item content.

Childhood Anxiety Impact Scale-Parent and -Child (CAIS-Parent and –Child).[34] The CAIS-Child and -Parent are similar measures that measure impact of the child's anxiety on his/her psychosocial functioning in certain situations over the past month.

Children's Depression Inventory (CDI).[35] The CDI, developed from the Beck Depression Inventory (BDI),[36] is a child-report measure of the severity of depressive symptoms. The measure has 27 items and has demonstrated good reliability and validity in clinical and non-clinical samples.[37]

Child Behavior Checklist (CBCL).[38] The CBCL is a psychometrically sound, 118-item scale that assesses specific child behaviors from the parent's perspective. The CBCL internalizing and externalizing subscales were used in this study to measure internalizing symptoms and disruptive behavior.

Barriers to Treatment - Participation Scale (BTPS).[39] The BTPS is a 44-item measure of perceived barriers to treatment. It assesses four areas that are potential barriers to treatment: stressors and obstacles that compete with treatment, treatment demands and issues, perceived relevance of treatment, and the relationship with the therapist. Items are rated on a 5-point Likert scale.

Client Satisfaction Questionnaire (CSQ-8).[40] Parent and child satisfaction will be assessed with an eight-item, self-report measure (e.g., "If you were to seek help again, would you come back to our program"; "How satisfied are you with the amount of help you have received"). The CSQ consists of eight items on a 4-point Likert scale with higher scores indicating greater satisfaction.

Results

Phase I

The results from Phase I are published in a peer reviewed journal[41] (see Crawford et al., 2013), which addresses aim 1a of this study. In Phase I, two participants were withdrawn due to scheduling difficulties and an unwillingness to continue. The remaining 15 participants completed all study procedures and demographic information is presented in Table 1. At the end of treatment, 11 of the 15 youth (73%) were classified as treatment responders and 13 youth (87%) experienced remission of their primary anxiety diagnosis. Further results regarding anxiety severity before and after treatment are presented in Table 2. When examining the feasibility and acceptability of the treatment as determined by the CSQ-8, both parents (M=29.87, SD=2.57) and children (M=27.40, SD=2.41) responded with high satisfaction. Additionally, non-responders to treatment reported more barriers to treatment (e.g., transportation issues, scheduling difficulties, life stressors) than responders ($t(13) = 3.18$, $p = .007$).

Phase I Focus Group

To address aim 1b of this study, a focus group was conducted with seven parents, six children, three therapists, three project coordinators, and three administrators who participated in the Phase I trial. The results are published in a peer reviewed journal[42] (see Salloum, Crawford, Storch, Lewin, 2015). Overall, focus group individuals (i.e., both consumers and providers) reported a positive experience regarding the implementation and participation in the CCAL program within a community mental health care setting.

Phase II

Phase II results are currently in submission for publication (see Storch, Salloum, King, Crawford, Andel, McBride, Lewin, 2015, under review). In Phase II, 49 youth were randomized to CCBT and 51 to TAU (see Figure 1). Participant demographics are summarized in Table 3. Four computer-assisted CBT and four TAU participants dropped out or were withdrawn before completion due to varied reasons (e.g., multiple no shows, unable to be contacted, or a higher level of care needed).

In Table 4, results for the group-by-time interaction are shown along with averages of scores across time points. Youth in the CCBT condition showed a more favorable change compared to those in TAU at the end of the acute intervention on all main outcome anxiety severity measures (i.e., CGI-S, PARS, ADIS-IV-C/P CSR). Thirty of the 49 (61.2%) youth randomized to CCBT were treatment responders versus 6/51 (11.8%) in the TAU group. At the post-treatment assessment, 27/49 (55.1%) of youth in the CCBT group were in remission of their primary anxiety diagnosis versus 9/51 (17.6%) of the TAU group. A more favorable reduction in parent-rated CBCL externalizing and internalizing behaviors was observed in the

CCBT group compared to those in the TAU group. Additionally, significant reductions in scores on the parent-rated CIS and CAIS were observed in the CCBT group compared to those in TAU.

To examine the short-term durability of treatment gains (aim 2c), youth in the CCBT group who were classified as treatment responders were re-assessed one month later (see Table 5). All youth maintained their treatment responder status at the one month follow-up. No significant differences in scores were observed from post-treatment to follow-up, except for a significant reduction in the CBCL internalizing subscale.

Discussion

Data from this two phase study provides support for the efficacy, acceptability, and feasibility of implementing a CCBT protocol, designed to treat youth with clinically significant anxiety, within a community mental health care setting. In Phase I, the majority of youth were classified as treatment responders (73%) and were in remission (87%) of their primary anxiety diagnosis. Additionally, significant reductions from pre- to post-treatment in anxiety and overall impairment severity were observed on clinician-, child-, and parent-rated outcomes. With regard to acceptability, the number of barriers encountered by this sample and the level of high satisfaction are similar to levels reported in previous research.[18,43] Based on the results of Phase I, a randomized controlled was conducted to confirm the efficacy of CCBT compared to the standard of care. In Phase II, both treatment response and remission rates were superior to those randomized to usual care. Furthermore, treatment responders maintained their gains one month later.

Limitations

Despite the rich clinical information gathered from the assessments between the IEs, parent, and child, this method may not be feasible in community mental health centers due to the amount of time required. In addition, the treatment protocol modality could have limited the individualization of treatment to the needs of each client and, depending on the design, could lack important therapeutic components. In Phase II, while the TAU condition allowed participants to seek treatment, only 55.3% received active intervention. Additionally, across both phases of the study, though recruitment was conducted across three geographically diverse clinics in Florida, majority of the sample identified as Caucasian.

Conclusions

Data from this study builds upon preliminary work by Khanna & Kendall,[18] and suggests the efficacy of CCBT when delivered in community mental health centers for treating anxious youth. Programs similar to the one used in this study, may reduce common treatment barriers families experience when trying to access treatment (e.g., cost, transportation, availability of services, time constraints). Lastly, CCBT programs may provide a platform to increase the dissemination of evidence-based practices in community-based settings.

Bibliography of Outputs

Presentations

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Table 1. Phase I participant demographics (*N*=17)

Characteristic	*n*
Primary Diagnosis (ADIS)	
Separation Anxiety	7
Generalized Anxiety	6
Social Phobia	3
Specific Phobia	1
Number of Comorbidities	
0	1
1	4
2	1
3	8
4+	3
Externalizing Disorders	35.3%
Medication Status	
Antidepressant	4
Antipsychotic	1
Stimulant	2
Ethnicity	
White	13
Hispanic	2
Middle Eastern	1
Other	1
Mother's highest education received	
High school or less	4
Some college/technical school	8
4-year College degree	2
Graduate degree	3
Father's highest education received	
High school or less	8
Some college/technical school	5
4-year College degree	2
Graduate degree	2

Note. Table referenced from Crawford et al., 2013.[41]

Table 2. Phase I comparisons of average values on study outcomes

	N	Baseline	Post-treatment	*t*-value	*p*-value	Cohen's *d*
PARS Severity	15	16.4 (2.7)	9.6 (4.0)	5.76	<.001	1.51
ADIS-IV-C/P CSR	15	5.7 (0.8)	2.5 (1.0)	10.78	<.001	2.88
MASC	15	49.5 (16.0)	30.0 (22.6)	4.35	<.001	1.19
CBCL						
Internalizing	15	15.0 (7.2)	11.9 (11.7)	1.20	.251	0.34
Externalizing	15	7.5 (10.1)	7.4 (10.9)	0.10	.936	0.02
CAIS-Ca	14	11.7 (10.7)	7.0 (9.2)	0.18	.858	0.47
CAIS-P	15	23.9 (14.1)	17.7 (16.5)	2.73	.016	0.66
CDI	15	7.6 (6.8)	2.7 (4.4)	2.62	.020	0.69
CIS-Ca	14	10.3 (8.3)	4.9 (5.8)	3.62	.003	0.67
CIS-P	15	16.9 (10.3)	11.5 (10.8)	3.20	.006	0.83
CGI-Severity	15	3.9 (0.8)	2.1 (0.6)	6.87	<.001	1.84

Notes. PARS = Pediatric Rating Scale; ADIS-IV-C/P CSR = Anxiety Disorders Interview Schedule for DSM-IV Clinical Severity Rating; MASC = Multidimensional Anxiety Scale for Children; CBCL = Child Behavior Checklist; CAIS-C/P = Childhood Anxiety Impact Scale-Child/Parent; CDI = Children's Depression Inventory; CIS-C/P = Columbia Impairment Scale-Child/Parent; CGI = Clinical Global Impression. Paired t-test statistic and Cohen's *d* for repeated measures were calculated. Table referenced from Crawford et al., 2013.[41]
[a]Post-treatment scores were not available for one participant.

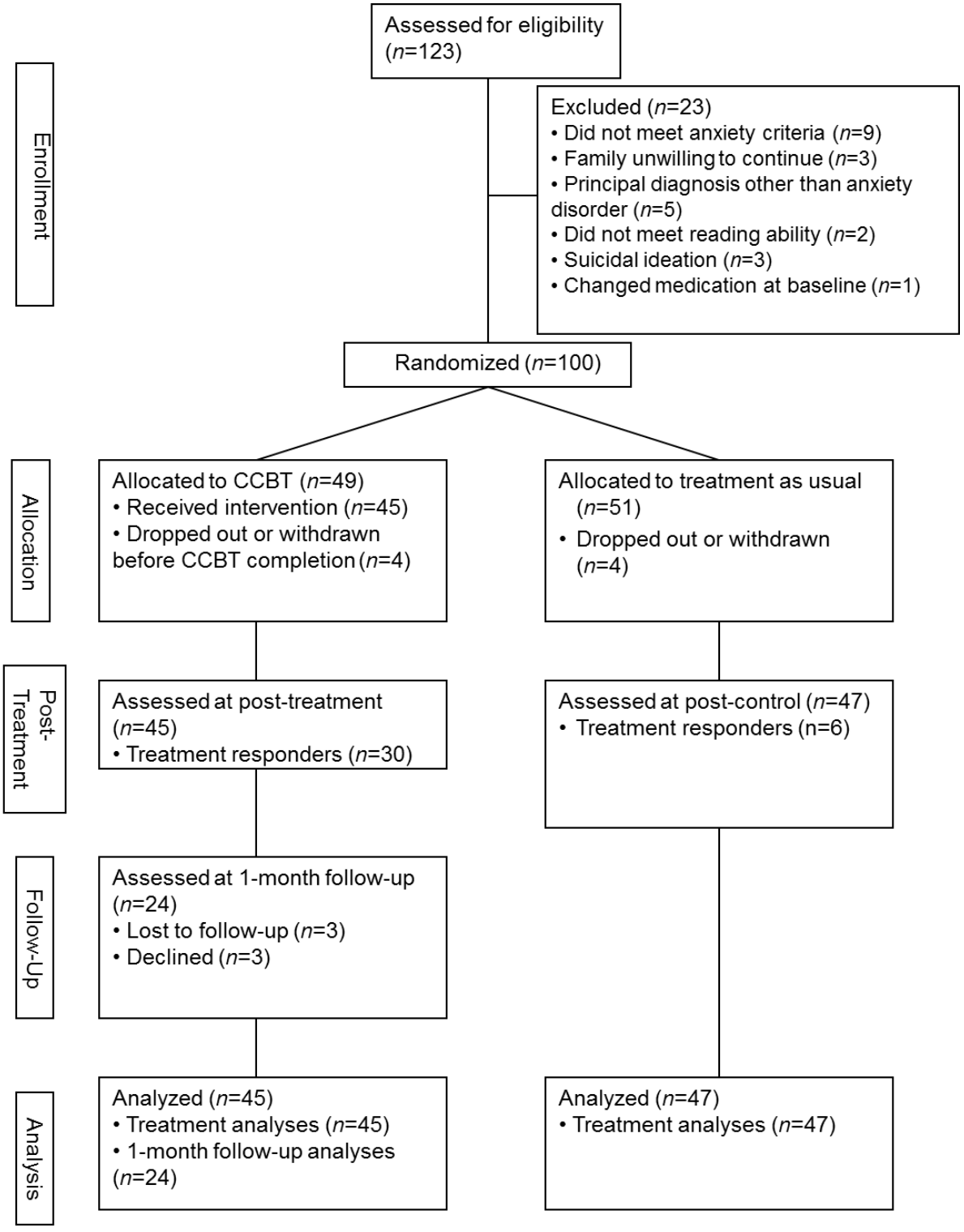
Table 3. Phase II demographic and clinical information by treatment condition (*N*=100)

Measure	CCBT n=49	TAU n=51	p-value
Child sex (male), n (%)	26 (53.1)	30 (58.8)	.562
Child age, years (M±SD)	9.4±1.8	10.2 ±1.8	.019
Parent (mother), n (%)	46 (93.9)	48 (94.1)	.716
Parent graduated from college, n (%)	25 (51.0)	26 (51.0)	.841
Child ethnicity/race			.368
Caucasian	38 (77.6)	34 (66.7)	
Hispanic	5 (10.2)	7 (13.7)	
Black	4 (8.2)	7 (13.7)	
Asian/Pacific Islander	2 (4.1)	1 (2.0)	
Other	0	2 (3.9)	
Living arrangement			.462
With both parents/same residence	24 (49.0)	25 (49.0)	
With both parents/different residences	6 (12.2)	5 (9.8)	
Single parent	6 (12.2)	12 (23.6)	
Biological parent and stepparent	3 (6.1)	2 (3.9)	
Grandparents	1 (2.0)	3 (5.9)	
Other	9 (18.4)	4 (7.8)	
Primary anxiety disorder, n (%)			
Separation anxiety	9 (18.4)	14 (27.5)	.410
Social phobia	13 (26.5)	13 (25.5)	.906
Specific phobia	4 (8.2)	5 (9.8)	.774
Panic disorder	1 (2.0)	0	--
GAD	22 (44.9)	19 (37.3)	.567
Other comorbid diagnoses			
Separation anxiety disorder	8 (16.3)	5 (9.8)	
Social phobia	7 (14.3)	3 (5.9)	
Specific phobia	6 (12.2)	9 (17.7)	
Agoraphobia with panic	0	1 (2.0)	
GAD	7 (14.3)	18 (35.3)	
OCD	2 (4.1)	4 (7.8)	
PTSD	2 (4.1)	0	
Dysthymia	0	3 (5.9)	
Major depressive disorder	3 (6.1)	3 (5.9)	
ADHD-inattentive	3 (6.1)	7 (13.7)	
ADHD-combined	14 (28.6)	9 (17.7)	
Conduct disorder	0	1 (2.0)	
ODD	3 (6.1)	4 (7.8)	
Selective mutism	2 (4.1)	3 (5.9)	
Enuresis	2 (4.1)	3 (4.1)	
Total n of diagnoses, mean±SD	3.1±0.9	3.1±1.2	.793

Currently on medication, n (%)	10 (20.4)	11 (21.6)	.887
Family income			.205
$40,000 or less	20 (44.4)	31 (62.0)	
$40,001-$90,000	15 (33.3)	10 (20.0)	
Over $90,000	10 (22.2)	9 (18.0)	

Note. CCBT=Computer-assisted cognitive-behavioral therapy; TAU=treatment as usual; PDD-NOS=pervasive developmental disorder not otherwise specified; SAD=separation anxiety disorder; OCD=obsessive-compulsive disorder; GAD=generalized anxiety disorder; ADHD=attention deficit hyperactivity disorder; MDD=major depressive disorder; ODD=oppositional defiant disorder; CD=conduct disorder; PTSD=post-traumatic stress disorder. Table referenced from (Storch, Salloum, King, Crawford, Andel, McBride, Lewin, 2015, under review).

Figure 1. Phase II study flow chart.



Note. Figure referenced from (Storch, Salloum, King, Crawford, Andel, McBride, Lewin, 2015, under review).

Table 4. Phase II results for primary and secondary outcomes at baseline, mid-test, and post-test

		Baseline			Mid-Test		Post-Test		Group x Time	
Measure	Group	n	Mean	SD	Mean	SD	Mean	SD	Estimate	Effect size d
Primary outcomes										
PARS-Severity	TAU	51	14.2	3.0	13.3	3.6	12.5	4.1		
	CCBT	49	14.4	2.9	11.2	4.0	9.8	4.6	-1.36**	0.52
CGI-Severity	TAU	51	3.5	0.5	3.3	0.7	3.2	0.9		
	CCBT	49	3.4	0.6	2.9	0.8	2.5	0.9	-0.30**	0.62
ADIS CSR of primary anxiety diagnosis	TAU	51	4.5	0.7	--	--	4.0	1.4		
	CCBT	49	4.6	0.7	--	--	3.0	1.3	-1.29***	0.76
Secondary outcomes										
CDI	TAU	50	11.0	9.2	--	--	9.4	8.4		
	CCBT	49	9.8	8.4	--	--	6.4	6.7	-2.16	0.19
CBCL-Internalizing	TAU	51	19.7	9.9	--	--	17.8	11.1		
	CCBT	49	17.3	8.0	--	--	10.9	8.1	-3.68**	0.79
CBCL-Externalizing	TAU	51	10.6	8.9	--	--	10.6	9.0		
	CCBT	49	11.2	8.8	--	--	7.1	6.8	-3.17*	0.75
CIS-Parent	TAU	51	17.4	10.1	--	--	16.9	11.8		
	CCBT	49	19.3	8.9	--	--	12.3	8.6	-6.08***	0.80
CAIS-Child	TAU	51	26.3	18.2	--	--	19.3	17.6		
	CCBT	49	23.8	16.0	--	--	14.5	15.8	-1.17	0.19
CAIS-Parent	TAU	51	31.5	15.9	--	--	25.2	15.6		
	CCBT	49	30.7	15.8	--	--	17.5	16.3	-6.77*	0.43
MASC	TAU	51	54.3	19.2	--	--	50.8	22.6		
	CCBT	49	54.2	17.5	--	--	44.6	18.1	-5.97	0.36

Note. *p<.05, **p<.01, ***p<.001. Estimates (unstandardized regression coefficients) are based on random effects models. The effect size d signifies the difference in average gain scores (baseline to post-test) between the treatment and control groups. CCBT=Computer-assisted cognitive-behavioral therapy; TAU=treatment as usual; PARS=Pediatric Anxiety Rating Scale; CGI-Severity=Clinical Global Impressions-Severity; ADIS=Anxiety Disorder Interview Schedule; CSR=Clinical Severity Rating; CDI=Children's Depression Inventory; CBCL=Child Behavior Checklist; CIS=Columbia Impairment Scale; CAIS=Childhood Anxiety Impact Scale; MASC=Multidimensional Anxiety Scale for Children. Table referenced from (Storch, Salloum, King, Crawford, Andel, McBride, Lewin, 2015, under review).

Table 5. Phase II comparisons at post-test and follow-up for the computer-assisted CBT subsample (*N*=24)

	Post-Test			Follow-up			
Measure	n	Mean	SD	Mean	SD	Paired t-test	Effect size d[b]
Primary outcomes							
PARS-Severity	24	6.8	3.4	6.0	3.0	0.96	0.22
CGI-Severity	24	2.0	0.7	1.8	0.5	1.45	0.27
ADIS CSR of primary anxiety diagnosis	24	2.3	1.1	1.8	1.2	1.63	0.43
Secondary outcomes							
CDI	23	4.4	5.0	7.6	10.6	-1.72	0.34
CBCL-Internal	24	7.5	5.6	4.5	3.9	3.57**	0.56
CBCL-External	24	5.0	6.8	4.3	6.0	0.99	0.13
CIS (parent)	24	5.8	8.6	6.7	6.6	-0.75	0.09
CAIS (child)	22	10.4	11.0	10.4	11.8	0.06	0.01
CAIS (parent)	24	8.0	8.1	7.1	6.6	0.76	0.11
MASC	22	45.3	18.3	41.4	18.2	1.55	0.30

Note. *p<.05, **p<.01, ***p<.001. The effect size d signifies the difference in scores between post-test and follow-up. PARS=Pediatric Anxiety Rating Scale; CGI-Severity=Clinical Global Impressions-Severity; ADIS=Anxiety Disorder Interview Schedule; CSR=Clinical Severity Rating; CDI=Children's Depression Inventory; CBCL=Child Behavior Checklist; CIS=Columbia Impairment Scale; CAIS=Childhood Anxiety Impact Scale; MASC=Multidimensional Anxiety Scale for Children. Table referenced from (Storch, Salloum, King, Crawford, Andel, McBride, Lewin, 2015, under review).