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School-Based Interventions for Anxious Children: 3-, 6-, and 12-Month Follow-ups

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Abstract

Objective—To follow 61 participants (7–11 years old) from a study that compared three school-based interventions for anxious children: group cognitive-behavioral therapy (CBT) for children, group CBT for children plus parent training, and no-treatment control to determine whether posttreatment benefits are sustained longitudinally.

Method—Parent, child, and clinician report measures of child anxiety were completed at 3, 6, and 12 months posttreatment. Semistructured diagnostic interviews were administered at 6- and 12-month follow-ups. For initial analyses, the group CBT and group CBT plus parent training conditions were collapsed into one group and compared to control. When significant results were found, each active treatment group was compared to control.

Results—Across several measures, the collapsed CBT group sustained significant improvement in anxiety severity and impairment across a 12-month period compared to control. There were no significant differences between the three groups on remission of baseline anxiety disorders or incidence of new anxiety disorders during the follow-up. Several parent-report measures at 3 and 6 months posttreatment suggested that group CBT for children plus parent training provided additional benefit over the group CBT for children when each was compared to the control group.

Conclusions—School-based CBT appears effective in decreasing anxiety symptoms up to 12 months posttreatment for anxious children.

Keywords

anxiety; cognitive-behavioral therapy; school-based interventions; follow-up study

Intervention studies have examined the short-term efficacy and longitudinal follow-up of cognitive-behavioral therapy (CBT) for treating childhood anxiety disorders. These studies consistently demonstrate that individual^{1,2} and group^{3,4} CBT are more efficacious than waitlist control (WLC) and treatment benefits are maintained over time. However, most intervention studies comparing CBT to WLC offered CBT to the control participants during^{5,6} or immediately following the active treatment phase.¹ Therefore, the longitudinal phase of these studies does not retain a control group. This is problematic because without a

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sustained control group, it is impossible to know whether effects are due to treatment or other factors (e.g., maturation, passage of time). It is important to retain a control group because some children with anxiety disorders improve without treatment.⁷

In the majority of intervention studies, participants are from clinical samples. It is important to study other samples of anxious children (e.g., community, non-clinical) so that results can be generalized to populations with varying demographic and severity characteristics. Nonclinical samples typically include children with lower levels of anxiety severity than clinical samples. The effects of early intervention on anxiety can be evaluated in nonclinical samples.

Dadds and colleagues⁸ were the first to explore the benefits of early intervention in a school-based sample of anxious children in Australia. Children with mild to moderate anxiety ($N=128$) were randomly assigned to 10 weeks of group CBT or monitoring. After 10 weeks, both groups showed similar remission rates of baseline anxiety diagnoses and there was no significant difference in diagnostic status between the CBT and monitoring conditions. However, at 6-month follow-up, improvements were maintained by children in the CBT condition and not by children in the monitoring condition.

The present study expands the literature by comparing the longitudinal outcomes of a nonclinical school-based sample of anxious children from the United States who received 9 weeks of group CBT for children, group CBT for children plus parent training, and no-treatment control. The control group remained intact until after the 6-month follow-up assessment. At posttreatment, clinician-, child-, and parent-report measures of child anxiety demonstrated significant benefits for the two group CBT conditions over the control condition.⁹ When parent training was concurrent with child group CBT, additional reductions in child anxiety severity were reported at posttreatment on parent measures compared to children who received group CBT only. Except for Dadds et al.,⁸ this is the only study to our knowledge that investigates the long-term treatment outcomes of anxious children from a nonclinical sample.

Our study, similar to that of Dadds et al.,⁸ is one of the first to retain a control group through the follow-up period. After 6-month follow-up, participants in the control group were offered treatment. Participants who agreed to treatment were randomized to group CBT for children or group CBT for children plus parent training. Some participants did not choose to receive treatment; therefore, these children ($n=12$) were used as a small control group at 12-month follow-up. Thus, this study advances the literature by evaluating whether CBT effects are maintained at 12 months while controlling for maturation effects.

The goal of the present study is to determine whether benefits of child group CBT compared to no-treatment control are maintained up to 12 months posttreatment in anxious children who participated in the Bernstein et al.⁹ intervention study. For the purposes of these comparisons, the two child CBT conditions (i.e., group CBT, group CBT plus parent training) were combined into a collapsed treatment group for initial analyses.

It is hypothesized that children in the collapsed CBT group will maintain treatment gains at 3-, 6-, and 12-month follow-up assessments by demonstrating significantly greater improvements in severity of anxiety and associated impairment compared to participants in the control condition. It is also hypothesized that children in the collapsed CBT group will be significantly more likely to show remission of baseline primary anxiety diagnosis and less likely to have onset of new anxiety diagnoses at 6- and 12-month follow-ups when compared to participants in the control condition. It is predicted that children who participated in the group CBT plus parent training will show significantly greater

improvement in anxiety severity and impairment on parent-report measures when compared directly to children who participated in the group CBT only.

METHOD

Participants

The University's institutional review board approved this study. Written consent from parents and written assent from children were obtained for screening and again for treatment and follow-up. Potential participants were screened in three public elementary schools in the same school district. Schools were matched on size of the student body, percentage of students receiving free or reduced-rate lunches (a proxy measure of lower socioeconomic status), and percentage of minority students. Based on the child Multidimensional Anxiety Scale for Children (MASC)¹⁰ Total Anxiety *T* score ≥ 58 and/or teacher nomination, 208 of 453 students were identified as anxious at screening. Anxiety Disorders Interview Schedule (ADIS) for *DSM-IV*, Child and Parent Interview Schedules¹¹ were administered to 101 students (107 were unreachable, ineligible, or uninterested). Of those interviewed, 61 were enrolled, 23 were excluded primarily because their anxiety symptoms were too mild [clinician severity rating (CSR) < 2 on the ADIS] or they had attention-deficit/hyperactivity disorder or conduct disorder, and 17 declined to participate.

Sixty-one children (66% females) 7 to 11 years of age participated. Most participants were white (97%), and the average socioeconomic status was 40.5 ± 8.4 corresponding to middle class.¹² Sixty-two percent of children lived with both parents, 33% had parents who were divorced, and 5% lived with mothers who had never married. At pretreatment, participants met *DSM-IV* criteria (75%) or were subthreshold (25%) for separation anxiety disorder (SAD), generalized anxiety disorder (GAD), and/or social phobia (SP). Subthreshold designation was determined by meeting at least one *DSM-IV* criterion for the anxiety diagnosis with associated CSR of ≥ 2 on the ADIS. Primary diagnoses were 20 with GAD, 12 with SP, 9 with SAD, 12 with GAD and SP, 3 with SP and SAD, 3 with GAD and SAD, and 2 with GAD, SP, and SAD.

Treatment Groups

Schools were randomly assigned to one of three conditions: group CBT for children, group CBT for children plus parent training group, or no-treatment control group.⁹ Child group CBT was a 9-week anxiety intervention plus two booster sessions using the manual-based FRIENDS program.¹³ The FRIENDS program consists of the six components of CBT¹⁴ and has been demonstrated to be efficacious in a randomized clinical trial.¹⁵ In the group CBT plus parent training, parents participated in a 9-week concurrent parent training group that used an expanded version of the FRIENDS program. The parent training consisted of the six components of CBT,¹⁴ as well as parental anxiety and stress management, behavioral contracting, and clarification of the impact of child anxiety on family functioning.⁹ Each group had a primary therapist experienced in CBT. Cotherapists were graduate students and interns in psychology. All of the therapists were members of the research team, not school personnel. Parent and child group sessions were conducted at the local elementary schools. Families in the control group were encouraged to seek treatment for their anxious children while awaiting CBT that was offered after the 6-month follow-up assessment, but no children received treatment during the waiting period.

Treatment conditions had the following number of participants: group CBT for children ($n = 20$), group CBT for children plus parent training ($n = 17$), and no-treatment control ($n = 24$). Analyses (χ^2 , one-way analysis of variance [ANOVA], Kruskal-Wallis) were conducted at baseline to assess the equivalency of the three groups. Results showed that the groups were

balanced on demographic variables (e.g., sex, age, socioeconomic status), diagnostic status, and anxiety severity/impairment.⁹ Three children from group CBT and two children from group CBT plus parent training were non-completers because they missed more than two of the nine CBT sessions. Forty-nine children (80%) participated in the 3-month follow-up, 54 (89%) participated in the 6-month follow-up, and 51 (84%) participated in the 12-month follow-up assessments. After the 6-month follow-up assessment, children in the control group were offered CBT. Twelve of the 24 control participants chose to receive CBT. Five were randomly assigned to group CBT, and seven were randomly assigned to group CBT plus parent training. Independent-samples *t* tests were conducted at baseline to assess the equivalency of the 12 control children who agreed to participate in treatment and the 12 control children who chose not to participate in treatment after 6 months. Results showed that the groups were balanced on demographics and anxiety severity/impairment.

Procedure

Participants and parents completed follow-up assessments at 3, 6, and 12 months posttreatment. At 3-month follow-up assessment, questionnaires were sent to the families and they were asked to return them in provided envelopes. The 6- and 12-month follow-up assessments were completed at the families' homes, school, or community library.

The battery of questionnaires at each follow-up assessment included child and parent MASC,¹⁰ parent Screen for Child Anxiety Related Emotional Disorders (SCARED),¹⁶ and Clinical Global Impressions (CGI) Improvement scale¹⁷ completed by parents. At 6- and 12-month follow-up assessments, independent evaluators administered the ADIS to children and parents. Independent evaluators were enrolled in a psychology doctoral program, had a master's degree in psychology, or had a bachelor's degree with graduate course work in psychology. Independent evaluators were blinded to treatment condition at each school, and procedures were used to help maintain the blind. All of the evaluators conducted interviews at all three schools. Participants were randomly assigned to evaluators at each assessment point. Families were instructed not to divulge their condition to interviewers.

Instruments

ADIS—The ADIS is a semistructured interview used to evaluate anxiety and other disorders.¹¹ The CSR of the ADIS measures severity and impairment and is based on the degree to which the child's symptoms interfere with daily functioning. The CSR is obtained from the child and parent by using anchors ranging from 0 (not at all) to 8 (very, very much). A composite CSR is generated based on the clinician's overall impression of the child's degree of impairment based on information gathered during the parent and child interviews. Parent, child, and composite CSRs were obtained for each diagnosis in which symptoms were endorsed by the child and/or parent. Primary anxiety diagnoses were established by considering severity (i.e., highest composite CSR) and diagnostic status (i.e., meets *DSM-IV* criteria versus subthreshold).

MASC—Child and parent versions of the MASC are 39-item ratings of the child's anxiety symptoms based on the past 2 weeks. The child version has adequate test-retest reliability and high convergent and divergent validities¹⁰; the parent version has moderate to strong internal reliability across subscales.¹⁸

SCARED—The SCARED is a 41-item parent rating of the child's anxiety symptoms. The SCARED has good internal consistency, test-retest reliability, and discriminative validity.¹⁶

CGI—Parents completed the CGI Improvement scale to measure change in children's symptoms. The rating is based on a seven-point Likert scale that ranges from 1 (very much improved) to 7 (very much worse).

Data Analysis

For each outcome measure, a group (two level: CBT versus control) \times time (two level: baseline versus mean of posttreatment, 3-, and 6-month assessments) repeated-measures ANOVA was conducted to assess treatment effects on the SCARED, child MASC, parent MASC, CGI, parent CSR, child CSR, and composite CSR. Significant group \times time interactions support treatment effects. Next, to assess change in treatment effects over time, a group (two level: CBT versus control) \times time (two level: baseline versus mean of posttreatment, 3-, and 6-month assessments) repeated-measures ANOVA was conducted, adjusting for baseline. Simple effects analyses are also reported comparing each follow-up assessment to baseline. When results indicated that outcome for collapsed CBT participants was superior to the outcome for control participants, treatment outcomes for the separate CBT groups were compared to that of the control group. The 12-month assessment data were not included in the repeated-measures ANOVA because the control group was offered treatment after the 6-month assessment. Twelve control children chose to receive treatment; therefore, they were no longer included in the control group. The remaining 12 chose not to receive treatment and composed the control group. Due to this change in the composition of the control group, separate one-way ANOVAs were conducted to assess treatment effects among groups at 12 months posttreatment. Effect sizes were calculated when significant differences were found between groups. Chi-square analyses were used to test for differences in diagnostic status between groups at 6 and 12 months.

RESULTS

Table 1 provides the means and SDs of the outcome variables discussed below. Table 2 provides the findings when the CBT treatment groups are compared to the control condition. The two active treatment conditions did not differ on the primary outcome measures when directly compared to one another.

Parent Ratings of Anxiety in Children

MASC—Significant improvement was found from baseline to 6-month follow-up for the collapsed treatment group relative to the control group ($F_{1,58} = 9.06, p = .004$). No change in treatment effect was found across the three follow-up assessments ($F_{2,90} = 0.31$, not significant [NS]), indicating a sustained treatment effect. Simple effects analyses showed significant treatment effects for each follow-up assessment: posttreatment, $F_{1,58} = 8.61, p = .005$; 3 months, $F_{1,47} = 4.49, p = .039$; 6 months, $F_{1,50} = 7.71, p = .008$; and 12 months, $F_{1,34} = 7.52, p = .010$.

SCARED—Significant improvement was found from baseline to 6-month follow-up for the collapsed treatment group relative to the control group ($F_{1,57} = 13.11, p = .001$). No change in treatment effect was found across the three follow-up assessments ($F_{2,88} = 0.22$, NS), indicating a sustained treatment effect. Simple effects analyses demonstrated significant treatment effects for each follow-up assessment: posttreatment, $F_{1,57} = 15.44, p = .000$; 3 months, $F_{1,46} = 9.30, p = .004$; 6 months, $F_{1,49} = 7.35, p = .009$; and 12 months, $F_{1,35} = 14.27, p = .001$. The significant treatment effect found at 6-month follow-up was driven more by improvement in the group CBT plus parent training condition versus the group CBT condition. The participants in group CBT plus parent training showed significantly greater improvement on the SCARED compared to the control group at 6-month follow-up;

however, there were no significant differences between the group CBT condition and the control group at that time point.

Child Rating of Anxiety

No change was observed on the child MASC from baseline to 6-month follow-up for the collapsed treatment group relative to the control group ($F_{1,58} = 0.03, p = .872$). Simple effects analyses revealed no significant treatment effects at posttreatment ($F_{1,58} = 0.22, p = .640$), 3 months ($F_{1,47} = 1.22, p = .275$), 6 months ($F_{1,50} = 0.20, p = .656$), or 12 months ($F_{1,35} = 0.140, p = .710$).

Anxiety Severity and Impairment From the ADIS

Composite CSR—Trend-level improvement was found from baseline to 6-month follow-up for the collapsed treatment group relative to the control group ($F_{1,59} = 3.85, p = .054$). Simple effects analyses suggest that the overall treatment effect was driven more by initial posttreatment effects ($F_{1,59} = 4.64, p = .035$) than effects at 6-month follow-up ($F_{1,52} = 3.32, p = .074$). Significant treatment effects were found at 12-month follow-up ($F_{1,37} = 5.89, p = .020$).

Child CSR—Trend-level improvement was found from baseline to 6-month follow-up for the collapsed treatment group relative to the control group ($F_{1,59} = 3.12, p = .083$). Simple effects analyses suggest that the overall trend was driven more by initial posttreatment effects ($F_{1,59} = 4.55, p = .037$) than effects at 6-month follow-up ($F_{1,51} = 1.41, NS$). Significant treatment effects were found at 12-month follow-up ($F_{1,36} = 4.22, p = .047$).

Parent CSR—Trend-level improvement was found from baseline to 6-month follow-up for the collapsed treatment group relative to the control group ($F_{1,59} = 3.49, p = .067$). Simple effects analyses suggest that the trend level overall effect was driven more by effects at 6 months ($F_{1,52} = 4.99, p = .030$) than initial posttreatment effects ($F_{1,59} = 1.05, NS$). Significant treatment effects were not found at 12-month follow-up ($F_{1,37} = 1.17, p = .286$). The significant treatment effect found at 6 months was driven more by improvement in the group CBT plus parent training condition versus the group CBT condition. The participants in the group CBT plus parent training showed significantly greater improvement on the parent CSR compared to control group at 6-month follow-up; however, there were no significant differences between the group CBT condition and control group at that time point.

Improvement in Anxiety Symptoms

Significant improvement based on the CGI was found across the 6-month follow-up assessment for the collapsed treatment group relative to the control group ($F_{1,58} = 9.26, p = .004$). No change in treatment effect was found across the three follow-up assessments ($F_{2,82} = 2.39, NS$), indicating a sustained treatment effect. Simple effects analyses showed significant treatment effects for 3 months ($F_{1,45} = 8.00, p = .007$) and 6 months ($F_{1,48} = 7.61, p = .008$). A trend was found for posttreatment assessment ($F_{1,58} = 2.83, p = .098$). Significant treatment effects were not found at 12-month follow-up ($F_{1,35} = 0.004, p = .947$). The significant treatment effect found at 3- and 6-month follow-ups was driven more by improvement in the group CBT plus parent training condition than the group CBT condition. The participants in the group CBT plus parent training showed significantly greater improvement on the CGI compared to the control group at 3- and 6-month follow-ups; however, there were no significant differences between the group CBT condition and the control group at these time points.

Effect Sizes

Effect sizes were calculated for each outcome measure that demonstrated CBT was superior to the control condition (Table 2).

Remission of Primary Anxiety Diagnoses

Of the 61 participants at baseline, 75% ($n = 46$) met *DSM-IV* criteria for their primary anxiety disorder, whereas 25% ($n = 15$) had subthreshold primary anxiety disorders. Eighty-nine percent (41 of 46) of the participants who met *DSM-IV* criteria at baseline completed the 6-month assessment. Of the 41 participants, 75% (9 of 12) of participants in group CBT plus parent training, 86% (12 of 14) of participants in group CBT, and 60% (9 of 15) of participants in the control condition no longer met criteria for their primary anxiety diagnosis at 6 months. Chi-square analyses did not show a significant association among the three groups on diagnostic status at 6 months ($\chi^2 = 2.47$, NS), indicating that a similar percentage of children from the treatment and control groups were free of their primary anxiety diagnosis at 6 months.

Thirty-two participants (12 from group CBT plus parent training, 12 from group CBT, and eight from control) who met *DSM-IV* criteria at baseline completed the 12-month follow-up assessment. Of the 32 participants, 83% (10 of 12) of participants in the CBT plus parent training group, 92% (11 of 12) of participants in the group CBT, and 88% (seven of eight) of participants in the control condition no longer met *DSM-IV* criteria for their primary anxiety diagnosis at 12 months. Chi-square analyses revealed no significant association between group and diagnostic status at 12 months ($\chi^2 = .38$, NS).

New-Onset Anxiety Diagnoses

Of the 61 participants at baseline, 20% ($n = 12$) met *DSM-IV* criteria for all three anxiety disorders examined in the present study (SAD, GAD, and SP). Of the 49 participants who did not meet criteria for all of the anxiety disorders, 44 participants completed the post-treatment and 6-month follow-up assessments. Of the 44 participants, 15% (2 of 13) in group CBT plus parent training, 29% (4 of 14) in group CBT, and 29% (5 of 17) of participants in the control condition met *DSM-IV* criteria for a new anxiety disorder (SAD, GAD, and/or SP). Chi-square analyses revealed no significant association between treatment group and new diagnostic status at follow-up ($\chi^2 = .91$, $p = .63$). The majority of new diagnoses were present at posttreatment (64%; 7 of 11). New diagnoses of the children were five with GAD, five with SP, and one with GAD and SAD.

DISCUSSION

The present study offers an important contribution to the pediatric CBT literature because the study retains a control group through 6 months posttreatment. Furthermore, 12 participants in the control group declined treatment at 6 months, so they were used as a small control group at 12-month follow-up. Thus, maintenance of treatment benefits for anxious children is controlled for the passage of time. The majority of previous CBT studies offered treatment to WLC during or immediately after the active treatment phase.^{5,6} Although those studies demonstrated maintenance of improvement in anxiety symptoms and remission of baseline anxiety diagnoses at follow-ups, it is impossible to determine whether the benefits were due to CBT intervention, passage of time, both variables, or other variables.

The positive treatment outcomes in the present study are primarily documented on parent-report measures. These findings support the first hypothesis that children in the CBT groups will maintain treatment gains across the 12-month follow-up compared to participants in the

control condition. There are two possible explanations for this finding. First, most of the measures in this study were from the parent perspective (i.e., CGI, parent MASC, parent SCARED, parent CSR). Second, parents who participate in research may have a rater bias toward reporting positive outcomes.

Based on our definition of remission (i.e., primary *DSM-IV* anxiety diagnosis no longer present), there was no significant difference between the collapsed CBT group and control group at 6- and 12-month follow-ups. These findings may be explained by the observations that few anxiety diagnoses were found at 6- and 12-month follow-ups across all three conditions and the small sample. The lack of significant differences between CBT groups and control group on remission of primary anxiety diagnoses may also be explained because *DSM-IV* diagnosis is a dichotomous variable. All of the other outcome measures are continuous variables that allow more precise detection of subtle changes in a child longitudinally. Furthermore, children in this study had mild to moderate anxiety symptoms and 25% were subthreshold for a *DSM-IV* anxiety diagnosis at pretreatment. Therefore, the magnitude of change that could be detected was limited, making the chance of detecting significant changes in diagnostic status more difficult. In addition, mild anxiety disorders are more likely than severe anxiety disorders to remit without intervention.¹⁹ Our findings provide a better understanding of the progression of anxiety diagnoses in a nonclinical sample and suggest that with or without intervention some anxiety disorders remit.

In the present study, children who received CBT and children in the control condition showed no significant difference in incidence of new anxiety disorders at 6 and 12 months posttreatment. Three factors may account for our findings. In this study, SAD, GAD, and SP were tracked. Some participants had two or three of these disorders at baseline. Thus, they had little room to develop a new anxiety disorder. Furthermore, the sample size was small and the follow-up period was relatively short. This pattern of improvement is different from the pattern of diagnostic change reported by Dadds et al.^{8,20} They found that children in the CBT and monitoring groups showed similar improvement in diagnostic status at posttreatment, but at 6-month follow-up, the groups differed significantly. Children who received CBT continued to improve while children in the monitoring group relapsed. However, at 12-month follow-up, the groups converged again and there were no significant differences in diagnostic status (treatment group increased in diagnoses; monitoring group decreased in diagnoses). At 24 months, the difference between groups reemerged with the treatment group showing the lowest rate of diagnoses. Based on the Dadds et al.^{8,20} study pattern of diagnostic status, significant differences in diagnostic status may appear in our treatment groups beyond the 12-month follow-up. Because no significant differences were found across 12 months in remission and incidence of new anxiety disorders between those who received CBT and control participants, our second hypothesis was not supported.

When compared directly, there were no significant differences on outcome measures between group CBT and group CBT plus parent training, and, thus, our third hypothesis was not supported. However, children in the group CBT plus parent training condition showed significantly greater improvement in anxiety symptoms compared to the control group on several measures, whereas the children in the group CBT condition did not differ from the control group on these same measures (Table 2). In addition, some effect sizes (i.e., CGI, parent CSR) were larger in the CBT plus parent training compared to the CBT-only group (Table 2). These findings suggest that adding the parent component may provide additional benefits for anxious children, but benefits are not great enough to show statistical significance when the CBT interventions are compared directly.

Previous research shows mixed results when a parent or family component is added to child CBT. Two studies demonstrated no added benefits when parents were involved with their

child's CBT treatment for anxiety.^{21,22} In contrast, Wood and colleagues²³ showed that children in a family CBT program showed significantly greater improvement in anxiety symptoms and at a faster rate than children in a group CBT program. The family program targeted parental intrusiveness and autonomy-granting factors that are central to maintenance of child anxiety.²⁴ Success of family treatment was likely due to teaching of specific parenting strategies aimed at maladaptive family patterns of behavior. In the present study, the additional benefits of group CBT plus parent training may be partly due to the comprehensive nature of our parent training.

The follow-up assessments show that group CBT is superior to no treatment for anxious children from a nonclinical sample with symptoms of SAD, GAD, and/or SP. Children who participated in group CBT demonstrated significantly greater improvement in anxiety severity and associated impairment through 12-month follow-up compared with children who received no intervention. These results suggest that CBT is effective up to 12 months posttreatment for children with anxiety disorders of mild to moderate severity. The continued benefit of CBT at follow-up assessments shows that early interventions may be beneficial in reducing the impact of anxiety across time. It is important to note that the CBT program was community based and conducted with children and their parents in the school setting. Thus, community-based group CBT may be an effective intervention for treating anxious children.

Limitations of the present study include a relatively small sample size. In addition, the participants in this study were from suburban, middle-class, white families. Therefore, it is unknown whether findings can be generalized to different demographics.

The present study suggests that it is beneficial for anxious children to participate in an early intervention program that targets anxiety. These programs have been successfully implemented in Australia as part of the curriculum within the school setting by training classroom teachers to lead groups using the FRIENDS manual.²⁵ This approach would be a cost-effective way to teach children to recognize their anxious thoughts and behaviors and provide them with coping skills to reduce anxiety. Implementation of these programs within the school setting would likely lead to a reduction in the number of anxious children needing mental health services in the future. Funding is needed to successfully implement these programs in schools in the United States.

Further research is warranted to better understand the effectiveness of treatments for childhood anxiety disorders. There are inconsistent findings regarding the relative benefit of different CBT formats (e.g., individual, group, family). Recent studies suggest that the type of information presented in the parent or family component is critical in determining the effectiveness of the intervention.²³ In addition, comparison of the outcomes of CBT protocols in community versus clinic settings would be interesting. Research has shown that CBT is effective in treating childhood anxiety disorders in each setting; however, the outcomes have not been directly compared. Future studies should include children from diverse ethnic and socioeconomic backgrounds so that results can be generalized to the majority of children in the United States. Although CBT is recognized as an effective intervention for childhood anxiety disorders, there is limited information regarding comparison to other treatment types. Studies in progress are addressing this issue by comparing treatment modalities (e.g., medication, CBT, medication plus CBT, pill placebo) for anxious children.²⁶

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REFERENCES

1. Barrett PM, Dadds MR, Rapee RM. Family treatment of childhood anxiety: a controlled trial. *J Consult Clin Psychol.* 1996; 64:333–342. [PubMed: 8871418]
2. Kendall PC, Flannery-Schroeder E, Panichelli-Mindel SM, Southam-Gerow M, Henin A, Warman M. Therapy for youths with anxiety disorders: a second randomized clinical trial. *J Consult Clin Psychol.* 1997; 65:366–380. [PubMed: 9170760]
3. Flannery-Schroeder EC, Kendall PC. Group and individual cognitive-behavioral treatments for youth with anxiety disorders: a randomized clinical trial. *Cognit Ther Res.* 2000; 24:251–278.
4. Manassis K, Mendlowitz SL, Scapillato D, et al. Group and individual cognitive-behavioral therapy for childhood anxiety disorders: a randomized trial. *J Am Acad Child Adolesc Psychiatry.* 2002; 41:1423–1430. [PubMed: 12447028]
5. Flannery-Schroeder EC, Choudhury MS, Kendall PC. Group and individual cognitive-behavioral treatments for youth with anxiety disorders: 1-year follow-up. *Cognit Ther Res.* 2005; 29:253–259.
6. Kendall PC. Treating anxiety disorders in children: results of a randomized clinical trial. *J Consult Clin Psychol.* 1994; 62:100–110. [PubMed: 8034812]
7. Last CG, Perrin S, Hersen M, Kazdin AE. A prospective study of childhood anxiety disorders. *J Am Acad Child Adolesc Psychiatry.* 1996; 35:1502–1510. [PubMed: 8936917]
8. Dadds MR, Spence SH, Holland DE, Barrett PM, Laurens KR. Prevention and early intervention for anxiety disorders: a controlled trial. *J Consult Clin Psychol.* 1997; 65:627–635. [PubMed: 9256564]
9. Bernstein GA, Layne AE, Egan EA, Tennison DM. School-based interventions for anxious children. *J Am Acad Child Adolesc Psychiatry.* 2005; 44:1118–1127. [PubMed: 16239860]
10. March JS, Parker JD, Sullivan K, Stallings P, Conners CK. The Multidimensional Anxiety Scale for Children (MASC): factor structure, reliability, and validity. *J Am Acad Child Adolesc Psychiatry.* 1997; 36:554–565. [PubMed: 9100431]
11. Silverman, WK.; Albano, AM. Anxiety Disorders Interview Schedule for DSM-IV: Child Version, Child and Parent Interview Schedules. Psychological Corporation; San Antonio, TX: 1996.
12. Hollingshead, AB. Four Factor Index of Social Status. Yale University, Department of Sociology; New Haven, CT: 1975.
13. Barrett, P.; Webster, H.; Turner, C. FRIENDS Prevention of Anxiety and Depression for Children Group Leader's Manual. Australian Academic Press; Bowen Hills, Australia: 2000.
14. Velting ON, Setzer NJ, Albano AM. Update on and advances in assessment and cognitive-behavioral treatment of anxiety disorders in children and adolescents. *Prof Psychol Res Pract.* 2004; 35:42–54.
15. Shortt AL, Barrett PM, Fox TL. Evaluating the FRIENDS program: a cognitive-behavioral group treatment for anxious children and their parents. *J Clin Child Psychol.* 2001; 30:525–535. [PubMed: 11708240]
16. Birmaher B, Brent DA, Chiappetta L, Bridge J, Monga S, Baugher M. Psychometric properties of the Screen for Child Anxiety Related Emotional Disorders (SCARED): a replication study. *J Am Acad Child Adolesc Psychiatry.* 1999; 38:1230–1236. [PubMed: 10517055]
17. Guy, W. CGI Clinical Global Impressions ECDEU Assessment Manual for Psychopharmacology: DHEW Pub ADM. National Institute of Mental Health, Psychopharmacology Research Branch; Rockville, MD: 1976. p. 76-338.
18. Baldwin JS, Dadds MR. Reliability and validity of parent and child versions of the Multidimensional Anxiety Scale for Children in community samples. *J Am Acad Child Adolesc Psychiatry.* 2007; 46:252–260. [PubMed: 17242629]
19. Cohen P, Cohen J, Brook J. An epidemiological study of disorders in late childhood and adolescence: II. Persistence of disorders. *J Child Psychol Psychiatry.* 1993; 34:869–877. [PubMed: 8408372]

20. Dadds MR, Holland DE, Laurens KR, Mullins M, Barrett PM, Spence SH. Early intervention and prevention of anxiety disorders in children: results at 2-year follow-up. *J Consult Clin Psychol*. 1999; 67:145–150. [PubMed: 10028219]
21. Nauta MH, Scholing A, Emmelkamp PM, Minderaa RB. Cognitive-behavioral therapy for children with anxiety disorders in a clinical setting: no additional effect of a cognitive parent training. *J Am Acad Child Adolesc Psychiatry*. 2003; 42:1270–1278. [PubMed: 14566163]
22. Spence SH, Donovan C, Brechman-Toussaint M. The treatment of childhood social phobia: the effectiveness of a social skills training-based, cognitive-behavioural intervention, with and without parental involvement. *J Child Psychol Psychiatry*. 2000; 41:713–726. [PubMed: 11039684]
23. Wood JJ, Piacentini JC, Gerow M, Chu BC, Sigman M. Family cognitive behavioral therapy for child anxiety disorders. *J Am Acad Child Adolesc Psychiatry*. 2006; 45:314–321. [PubMed: 16540816]
24. Whaley SE, Pinto A, Sigman M. Characterizing interactions between anxious mothers and their children. *J Consult Clin Psychol*. 1999; 67:826–836. [PubMed: 10596505]
25. Barrett P, Turner C. Prevention of anxiety symptoms in primary school children: preliminary results from a universal school-based trial. *Br J Clin Psychol*. 2001; 40:399–410. [PubMed: 11760616]
26. Child and Adolescent Anxiety Disorders (CAMS). [Accessed April 2, 2008] NIMH Web site. <http://clinicaltrials.gov/ct/show/NCT00052078>

TABLE 1
 Comparison of Collapsed Treatment and Control Groups at Baseline, Posttreatment and 3-, 6-, and 12-Month Follow-ups

Group	Parent SCARED ^e	Parent MASC ^b	Child MASC ^b	CGI ^c	Composite CSR ^d	Child CSR ^d	Parent CSR ^d
Baseline							
Treatment	24.97 (13.25)	51.92 (16.56)	51.14 (13.97)	NA	4.59 (0.83)	3.65 (1.92)	3.22 (1.69)
Control	21.21 (9.59)	50.46 (12.62)	48.58 (17.55)	NA	4.21 (1.06)	2.96 (2.18)	3.25 (1.67)
Posttreatment							
Treatment	17.14 (9.82)	45.78 (16.21)	49.47 (19.36)	2.83 (0.85)	2.78 (1.58)	1.54 (1.73)	2.03 (1.79)
Control	21.08 (10.89)	53.00 (12.70)	45.04 (17.42)	3.21 (0.83)	3.38 (1.86)	2.13 (1.92)	2.58 (2.08)
3 mo							
Treatment	14.60 (11.68)	40.72 (18.53)	40.65 (18.79)	2.57 (0.79)	NA	NA	NA
Control	19.04 (12.13)	47.42 (13.82)	44.87 (18.59)	3.33 (1.05)	NA	NA	NA
6 mo							
Treatment	14.23 (10.04)	40.73 (15.99)	41.27 (16.89)	2.38 (1.05)	1.74 (1.90)	0.81 (1.40)	1.29 (1.75)
Control	18.86 (12.81)	49.82 (15.24)	42.55 (19.34)	3.29 (1.27)	2.30 (2.03)	0.77 (1.41)	2.43 (2.11)
12 mo							
Treatment	14.21 (9.41)	41.89 (15.81)	39.39 (15.21)	2.37 (1.24)	0.83 (1.31)	0.24 (0.83)	0.79 (1.24)
Control	20.90 (13.11)	52.33 (18.10)	37.22 (19.10)	2.40 (1.07)	1.70 (1.77)	0.56 (1.33)	1.70 (1.77)

Note: *N* = 61. SCARED = Screen for Child Anxiety-Related Emotional Disorders; MASC = Multidimensional Anxiety Scale for Children; CGI = Clinical Global Impressions; CSR = clinician severity rating. NA = not administered.

^aRaw scores.

^b*T* scores.

^cRanges from 1 (very much improved) to 7 (very much worse).

^dFor primary anxiety diagnosis, measure of severity/impairment, ranges from 0 (not at all) to 8 (very, very much).

TABLE 2

Findings Indicating Superiority of CBT Compared to Control Condition at Posttreatment and 3-, 6-, and 12-Month Follow-ups and Effect Sizes^a for Significant Findings

Group	Parent SCARED			Parent MASC			Child MASC			CGI			Composite CSR ^b			Child CSR ^b			Parent CSR ^b			
	df	F	ES	df	F	ES	df	F	ES	df	F	ES	df	F	ES	df	F	ES	df	F	ES	
Posttreatment																						
Collapsed	1,57	15.44	0.38	1,58	8.61	0.50	1,58	0.22	—	1,58	2.83	—	1,59	4.64	0.35	1,59	4.55	0.32	1,59	1.05	—	—
Child+ parent	1,38	11.63	0.30	1,38	8.35	0.62							1,39	2.27	0.28	1,39	3.50	0.34				
Child	1,41	11.48	0.44	1,42	4.87	0.39							1,42	4.91	0.39	1,42	3.53	0.31				
3 mo																						
Collapsed	1,46	9.30	0.37	1,47	4.49	0.41	1,47	1.22	—	1,45	8.00	0.82	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Child+ parent	1,35	6.82	0.27	1,35	2.76	0.51				1,35	8.20	1.03										
Child	1,33	5.63	0.47	1,34	3.05	0.30				1,32	2.08	0.57										
6 mo																						
Collapsed	1,49	7.35	0.40	1,50	7.71	0.58	1,50	0.20	—	1,48	7.61	0.78	1,52	3.32	—	1,51	1.41	—	1,52	4.99	0.59	—
Child+ parent	1,35	6.92	0.36	1,35	5.43	0.66				1,33	10.06	1.18							1,36	4.15	0.78	—
Child	1,34	3.52	0.44	1,35	5.97	0.44				1,34	2.42	0.53							1,37	2.49	0.43	—
12 mo																						
Collapsed	1,35	14.27	0.59	1,34	7.52	0.61	1,35	0.14	—	1,35	0.00	—	1,37	5.89	0.56	1,36	4.22	0.29	1,37	1.17	—	—
Child+ parent	1,23	14.55	0.65	1,21	4.18	0.66							1,23	3.61	0.56	1,22	3.77	0.24				
Child	1,20	10.07	0.51	1,20	10.97	0.56							1,22	4.25	0.55	1,21	3.09	0.34				

Note: $N = 61$, except for 12-month analyses ($n = 49$) that do not include 12 children who received treatment after 6 months; Bold type indicates results are significant at $p < .05$. SCARED = Screen for Child Anxiety-Related Emotional Disorders; MASC = Multidimensional Anxiety Scale for Children; CGI = Clinical Global Impressions; CSR = clinician severity rating; ES = effect size; NA = not administered.

^aCohen d .

^bFor primary anxiety diagnosis.