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School-Based Interventions for Anxious Children

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Abstract

Objective—To compare the effectiveness of three school-based interventions for anxious children: group cognitive-behavioral therapy (CBT) for children, group CBT for children plus parent training group, and no-treatment control.

Method—Students (7–11 years old) in three elementary schools ($N = 453$) were screened using the Multidimensional Anxiety Scale for Children and teacher nomination. Subsequently, 101 identified children and their parents completed the Anxiety Disorders Interview Schedule for *DSM-IV*, Child Version. Children with features or *DSM-IV* diagnoses of separation anxiety disorder, generalized anxiety disorder, and/or social phobia ($n = 61$) were randomized by school to one of three conditions. Active treatments were nine weekly sessions of either group CBT or group CBT plus concurrent parent training.

Results—Clinician-report, child-report, and parent-report measures of child anxiety demonstrated significant benefits of CBT treatments over the no-treatment control group. Effect size was 0.58 for change in composite clinician severity rating, the primary outcome measure, favoring collapsed CBT conditions compared with control. In addition, several instruments showed significantly greater improvement in child anxiety for group CBT plus parent training over group CBT alone.

Conclusions—Both active CBT treatments were more effective than the no-treatment control condition in decreasing child anxiety symptoms and associated impairment. When parent training was combined with child group CBT, there were some additional benefits for the children.

Keywords

anxiety; cognitive-behavioral therapy; school-based interventions

It has been more than 10 years since the publication of the first clinical trial demonstrating the efficacy of cognitive-behavioral therapy (CBT) over waitlist control for children with anxiety disorders (Kendall, 1994). Since then, additional randomized clinical trials have shown the superiority of individual CBT over waitlist for children with anxiety disorders (e.g., Barrett et al. 1996; Kendall et al. 1997). Long-term maintenance of anxiety reduction has also been demonstrated (e.g., Barrett et al., 2001; Kendall et al., 2004). As a result, CBT is consistently recommended as a first-line treatment for anxious children (Compton et al., 2004).

CBT research has expanded these findings in a number of key areas: group interventions (Flannery-Schroeder and Kendall, 2000; Manassis et al., 2002; Silverman et al., 1999), the role of parental involvement (Barrett, 1998; Cobham et al., 1998; Mendlowitz et al., 1999; Nauta et al., 2003), and early intervention for children with mild to moderate symptoms (Dadds et al., 1997). In the majority of studies cited above, participants included children with separation anxiety disorder (SAD), generalized anxiety disorder (GAD), and/or social phobia (SP).

Silverman and colleagues (1999) demonstrated the efficacy of group CBT over waitlist control for children with anxiety disorders. Treatment gains were maintained at 3, 6, and 12 months posttreatment. The research that followed demonstrated that group CBT was as effective as individual CBT (Flannery-Schroeder and Kendall, 2000; Manassis et al., 2002).

The role of parental involvement when combined with individual CBT was examined by Barrett and colleagues (1996). Both individual CBT and individual CBT plus family anxiety management training (FAM) were superior to waitlist. In addition, individual CBT plus FAM was superior to individual CBT alone; however, at 6-year follow-up, both active treatments were equally efficacious (Barrett et al., 2001). Subsequent research comparing group CBT with group CBT plus a family component indicated marginal but not statistically significant improvement associated with the combined CBT over child-only CBT. Overall, the findings regarding parental involvement have not clearly established the superiority of CBT plus parent training over CBT alone. When the child has an anxious parent, however, the efficacy of CBT appears to be significantly augmented by adding a parent training component that addresses parental anxiety management (Cobham et al. 1998).

Dadds and colleagues (1997, 1999) further expanded the field by examining the benefits of early identification and intervention for anxious children in Australia. Participants with mild to moderate anxiety ($N = 128$) were randomly assigned to either 10 weeks of school-based group CBT or a monitoring condition (i.e., no intervention). Posttreatment, both groups showed improvement, but there was no significant difference between the two outcomes. At 6-month and 2-year follow-ups, benefit was maintained in the treatment group only, with a significantly higher remission rate of baseline primary anxiety diagnoses and significantly lower incidence of new anxiety disorders compared with the control group (Dadds et al., 1999).

The goal of the present study was to expand and build on the early intervention research of Dadds and colleagues (1997, 1999) using the FRIENDS program (Barrett et al., 2000), a manual-based CBT program developed in Australia. Our study was designed to test group CBT in a school setting in the United States and to evaluate the potential benefit of adding a parent training component to the child CBT intervention.

The primary aim was to compare three school-based interventions for anxious children: (1) group CBT for children, (2) group CBT for children plus parent training group, and (3) no-treatment control. The primary hypothesis was that active interventions would be more effective than no-treatment control, as measured by decrease in the severity of anxiety symptoms and remission of current anxiety diagnoses. The secondary aim was to investigate the potential benefits of adding a parent training component to group CBT for anxious children. The present study adapted the FRIENDS manual to include a broader, more intensive parental training component. The secondary hypothesis was that group CBT for children plus parent training group, would be more effective than group CBT for children alone.

METHOD

Participants

Participants included 61 children (40 females and 21 males) 7 to 11 years old ($X = 9.0 \pm 1.0$). Ethnicity was 59 white, one Hispanic/white, and one Asian. Sixty-two percent ($n = 38$) of participants lived with both parents, 33% ($n = 20$) had parents who were divorced, and 5% ($n = 3$) lived with mothers who had never married. Socioeconomic status using the Hollingshead Four Factor Index (Hollingshead, 1975) ranged from 22 to 58, with an average of 40.5 ± 8.4 , corresponding to middle-class social strata. Participants were drawn from three elementary schools.

Procedure

The University Institutional Review Board approved this study. Consent forms were sent home with 1,037 second- through fifth-grade students. Seventy-eight percent ($n = 809$) of the consent forms were returned. Among consent forms returned, positive consent was obtained for 61% ($n = 497$) of students and parental consent was declined for 39% ($n = 312$) of students. This relatively low rate of positive consent was largely the result of a paragraph that was required by our Institutional Review Board to be in the consent form. It stated, "In the event that this research activity results in an injury, treatment will be available, including first aid, emergency treatment, and follow-up care as needed. Care for such injuries will be billed in the ordinary manner, to you or your insurance company." We received more than 50 phone calls from parents regarding this statement. After communicating this situation to the Institutional Review Board, the verbiage is no longer required for inclusion in consent forms for studies with minimal potential for injury.

After obtaining written parental consent and written child assent, students participated in a screening for anxiety symptoms. Screening consisted of completion of the Multidimensional Anxiety Scale for Children (MASC; March et al., 1997) and teacher nomination. The MASC was completed at school in small groups with assistance from research staff. Teachers provided written consent for their participation in the study. Teachers nominated the three most anxious children in their classrooms from among those with parental consent.

If MASC Total Anxiety T score was ≥ 58 and/or the child was nominated by his/her teacher, families were offered the Anxiety Disorders Interview Schedule (ADIS) for *DSM-IV*, Child Version (Silverman and Albano, 1996) interview with a parent about his/her child and ADIS interview with the child. Interviews were administered separately to the parent and to the child by the same independent evaluator. The order of interviews within a family was random (i.e., whether the parent or child was interviewed first). All of the interviews were audiotaped and staffed by the project coordinator and/or principal investigator. Staffing consisted of reviewing interviews and diagnostic formulations in detail with the independent evaluator. It was necessary for the independent evaluator to provide examples from the parent and/or child ADIS interviews to substantiate clinician severity rating (CSR) scores and *DSM-IV* diagnoses. When necessary, portions of the audiotaped interviews were reviewed to inform final diagnoses.

Inclusion criteria required *DSM-IV* diagnoses of SAD, GAD, and/or SP or "features" (one or more, but not all criteria) of one of these anxiety disorders and associated composite CSR of 2 to 6 on the ADIS. Range of CSR is 0 to 8. Because this investigation was an intervention study for anxious children with mild to moderate symptomatology, the most symptomatic children (CSR of 7–8) were excluded. Only one potential participant was excluded for CSR >6 and was referred for treatment elsewhere. Dadds and colleagues (1997) included participants with CSRs of 1–5. In this study, 13 children with CSR <2 were excluded. It would have been extremely difficult to measure improvement over time in these children. To keep an

inclusionary range on the CSR of 5 points as in the study of Dadds and colleagues, we expanded the upper limit for CSR to 6. Five participants had CSR = 6; therefore, 8% of the participants had greater symptom severity than those in the Dadds et al. study. Overall, this sample is comparable to the sample in the Dadds et al. (1997) study.

Primary anxiety diagnosis was established by severity (i.e., highest composite CSR) and diagnostic status (i.e., meets *DSM-IV* criteria versus subthreshold). For example, if a child had a composite CSR of 4 for both GAD and SAD, but GAD met *DSM-IV* criteria and SAD was subthreshold, the primary diagnosis would be GAD. In cases of a tie, two or three primary diagnoses were coded.

Diagnostic inclusion and exclusion criteria were modeled after a previous early intervention study (i.e., Dadds et al., 1997). Exclusion criteria were current diagnoses of obsessive-compulsive disorder, posttraumatic stress disorder, attention-deficit/hyperactivity disorder, conduct disorder, schizophrenia, pervasive developmental disorder, major depression, or alcohol or drug abuse on the ADIS; current suicidal or homicidal intent or plan; current psychotropic medication; parent and/or child do not speak English; recent or current trial of CBT; and composite CSR >6 on any anxiety diagnosis. ADIS interviews were given to 101 children and their parents (Fig. 1). Twenty-free of these children were ineligible for the following reasons: 13 had anxiety symptoms that were too mild (CSR <2), 1 had anxiety symptoms that were too severe (CSR >6), 6 were excluded for a diagnosis of attention-deficit/hyperactivity disorder, 2 were excluded for conduct disorder, and 1 was eliminated for a diagnosis of obsessive-compulsive disorder. Seventeen children met inclusion criteria, but they decided not to participate.

Sixty-one children from three schools entered the treatment phase. Schools were matched on size of student body, percentage of minority students, and percentage of students who receive free or reduced-rate lunches (a measure of lower socioeconomic status). Children were allocated to condition by school. Schools were randomly assigned to one of three conditions. This methodology was chosen to avoid cross-contamination that may occur when more than one intervention is given in the same school and because the schools were too small to identify enough children to fill three conditions in each school. The number of participants in each condition was as follows: group CBT for children ($n = 17$), group CBT for children plus parent training group ($n = 20$), and no-treatment control ($n = 24$).

Families in the control condition were free to access whatever services the school would normally recommend for a child who is identified as anxious (e.g., meeting with the school counselor, psychologist, or social worker; friendship group; referral to outside agency; no intervention). Parents of children in the control condition received letters that provided the results of the ADIS interviews and the contact information for the school social worker so that they could request services for their children. Control families were informed that they would be offered group treatment as part of the research study after the 6-month follow-up. Thus, the control condition was designed as a treatment as usual condition or credible comparison group, allowing families to seek treatment for their children while awaiting the opportunity to receive group intervention. Per the Services Questionnaire, however, no children in the control group received treatment for anxiety from baseline to posttreatment. It is unclear whether this was because most participants had only mild to moderate symptoms or the lack of available resources or because families knew that eventually their children would be offered treatment. Whatever the case, the control group ended up being a no-treatment control group.

Before treatment, participants completed baseline measures. Parents received packets containing rating scales that were completed at home and returned via mail. Children completed the MASC at the first treatment session. Children in the control condition completed this

instrument in small groups at school with assistance from research staff the same week treatment groups began.

Instruments

ADIS, Child and Parent Interview Schedules—The ADIS is a semistructured interview for the evaluation of anxiety and other disorders. The child and parent are interviewed separately to determine composite diagnoses (Silverman and Albano, 1996). Test-retest reliability of the *DSM-IV* version is good to excellent (Silverman et al., 2001). Interrater reliability for all anxiety categories on the *DSM-III-R* version of the ADIS is moderate to strong (Rapee et al., 1994). CSR, based on interference caused by symptoms, is rated by children and parents with the ADIS Feelings Thermometer using the following anchors: 0 = not at all, 2 = a little bit, 4 = some, 6 = a lot, and 8 = very, very much. For each diagnosis for which symptoms were endorsed, parent-interview, child-interview, and composite CSRs were generated. Composite CSR is based on clinician's overall impression of impairment based on parent and child interviews and is the primary outcome measure.

MASC—MASC is a 39-item self-report instrument for youths 8 to 18 years old. It has been used in 6- to 8-year-olds by reading the questions with the children (John March, personal communication, 1998). The MASC has reasonable test-retest reliability and high convergent and divergent validities (March et al., 1997). The parent version of the MASC, a parent rating of children's anxiety symptoms, was also used in this study. Its psychometric properties are under evaluation.

Screen for Child Anxiety Related Emotional Disorders (SCARED)—The SCARED (Birmaher et al., 1999) is a 41-item self-report or parent rating of a child's anxiety symptoms designed for use in children ages 8 and older. The SCARED demonstrates good internal consistency, test-retest reliability, discriminative validity, and moderate parent-child agreement (Birmaher et al., 1999). Parent SCARED was used in this study.

Clinical Global Impressions (CGI)—The Global Improvement scale of the CGI (Guy, 1976) was used. CGI Improvement was rated by parents on a 7-point Likert scale from 1 (very much improved) to 7 (very much worse). This instrument has been sensitive to change with treatment in medication trials with youths (e.g., Research Unit on Pediatric Psychopharmacology Anxiety Study Group, 2001).

Services Questionnaire—This questionnaire was developed for use in the present study. It tracks medication trials, psychotherapy trials, school interventions, and other interventions (e.g., day treatment, hospitalization). Interventions received by children in all conditions were tracked via this form, which was completed by parents posttreatment.

Training of Independent Evaluators

Credentials of independent evaluators included a bachelor's degree with graduate coursework in psychology, master's degree in psychology, or current enrollment in a doctoral program in psychology. Four to 8 weeks of training was provided to evaluators, depending on their experience. Training was given by the second author, who was trained by Anne Marie Albano, Ph.D., one of the authors of the ADIS. All ADIS interviews were audiotaped, and reliability checks were completed on 20% of tapes. The procedure consisted of another independent evaluator listening to the tape and formulating a diagnostic summary. Interrater reliability for each inclusionary diagnostic category was then calculated using κ coefficients. Agreement was determined by the presence or absence of diagnosis and composite CSR within 1 point. κ values were 0.80 to 1.00, showing excellent agreement.

Several procedures helped to maintain the blind for the independent evaluators. Because of anticipated research staff turnover, participants were randomly assigned to independent evaluators at baseline and again posttreatment. All independent evaluators conducted interviews with children from each of the three schools. Families were instructed not to mention their condition assignment to the independent evaluators.

CBT Groups and Therapists

The study included two active treatment conditions: child group CBT and child group CBT plus concurrent parent training group. Groups met in classrooms at the children's schools after school hours. Participants at each school were divided into two groups to keep the number of children per group manageable with 8 to 10 children per group. Child and parent groups were conducted separately but simultaneously. At least one parent for each child was required to attend the parent training group. All groups met for 9 weekly, 60-minute sessions. Booster sessions were conducted at 1 and 3 months posttreatment.

There were three therapists in the child groups and one to two therapists in the parent training groups. Each group had a primary therapist experienced in CBT. Cotherapists were graduate students and interns, both from doctoral-level psychology programs. Therapists participated in training with the second author who is experienced in CBT for child anxiety. Once treatment commenced, therapist supervision was weekly for 1.5 hours by the second author. Participants could miss up to two sessions if sessions were made up; whenever possible, sessions were made up before the next session.

Treatment Materials

The FRIENDS program is a manual-based group CBT program for anxious children (Barrett et al., 2000). The program was developed from the Coping Koala Group Program (Barrett, 1995), which was the Australian version of the Coping Cat Program (Kendall, 1990). The FRIENDS program has demonstrated efficacy in a randomized clinical trial (Shortt et al., 2001). The program consists of 10 weekly sessions and 2 booster sessions. The present study combined sessions 9 and 10 because of time constraints. Because a large portion of session 10 includes a party, no session content was lost.

The current study expanded the existing parenting component of the FRIENDS program (four 80-minute sessions) in several ways. First, session content was increased to allow for full-length weekly parent sessions (nine 60-minute sessions). Second, additional in-session activities and handouts were developed. Third, session content and activities were developed to address parental anxiety and stress management. Fourth, new content was devoted to understanding of the child's anxiety within the context of his/her familial relationships. In addition, exercises were designed to help parents identify ways that the family system has been affected by their child's anxiety. Fifth, between-session activities and handouts were developed. Finally, additional instructional materials were developed to teach parents how to use behavioral contracting.

Statistical Analyses

Because condition was assigned by school, analyses were conducted to ensure that groups were equivalent. One-way analysis of variance (ANOVA), Kruskal-Wallis, and χ^2 tests were conducted to ensure equivalency among groups at baseline on demographic characteristics and all dependent measures. To test the primary hypothesis that participants receiving CBT would be significantly improved at posttreatment compared with participants in the control group, participants in the two treatment groups were collapsed into one group and compared with the control. When results indicated that outcome for CBT participants was superior to outcome

for control participants, treatment outcomes for the separate CBT groups were compared with the control group.

Primary outcome analyses included χ^2 , repeated-measures ANOVA, repeated-measures multivariate analysis of variance (MANOVA), and Mann-Whitney U test. Chi-square analyses were used to test for differences in diagnostic status between groups at posttreatment. The nonparametric statistic, Mann-Whitney U , was selected to test for differences between groups on the CSR and CGI posttreatment because the CSR and CGI are ordinal in nature and have a limited range. Repeated-measures ANOVA and MANOVA were used to test for differences between groups on continuous measures of outcome (e.g., MASC). Omnibus tests emerging as significant were followed by univariate analyses and simple effects contrasts, when indicated. Bonferroni corrections were applied to simple effects contrasts to control for type I error. Effect sizes were calculated for composite CSR, CGI, parent MASC, and parent SCARED.

RESULTS

Participants

Of the 61 participants at baseline, 46 met *DSM-IV* criteria for a primary anxiety diagnosis of SAD, GAD, and/or SP; 15 had features of SAD, GAD, and/or SP but did not meet *DSM-IV* criteria for one of these three anxiety disorders. In terms of primary diagnosis, 20 had GAD, 12 had SP, 9 had SAD, 12 had GAD and SP, 3 had SP and SAD, 3 had GAD and SAD, and 2 had GAD, SP, and SAD. If two or three diagnoses are listed as primary, there was a tie in composite CSR score. The average composite CSR for the primary anxiety diagnosis was 4.6 ± 1.0 . The average number of threshold plus subthreshold diagnoses was 3.3 ± 1.2 . The mean number of *DSM-IV* diagnoses was 1.9 ± 1.2 . The most common comorbidities were additional anxiety disorders; two participants had comorbid oppositional defiant disorder and two had comorbid dysthymia.

Treatment outcome results are based on 56 participants. Three children from group CBT and two participants from group CBT plus parent training were noncompleters because they missed more than two CBT sessions. At baseline, three of the noncompleters met *DSM-IV* criteria for SP with a CSR of 5 (one of these noncompleters had a coprimary diagnosis of GAD). One noncompleter met *DSM-IV* criteria for GAD with a CSR of 4. One noncompleter had subthreshold symptoms of SP and GAD with CSRs of 2. Data for these five participants were not included in outcome analyses. There were no dropouts from the control condition. Thus, the overall completion rate was 92%.

Equivalency of Groups

A series of χ^2 (sex, baseline diagnostic status), oneway ANOVA (age, continuous measures of anxiety), and Kruskal-Wallis (ordinal measures of anxiety) tests was conducted to ensure equivalency across groups on baseline measures. Analyses indicated that groups were balanced on demographic variables: sex, $\chi^2 = 0.58, p = .75$; age, $F_{2,55} = 0.33, p = .72$; and socioeconomic status, $F_{2,54} = 0.07, p = .94$. Groups were also equivalent at baseline on diagnostic status, $\chi^2 = 1.58, p = .45$; and composite CSR, Kruskal-Wallis = 3.1, $p = .31$. Analyses further indicated that groups were comparable at baseline on MASC, $F_{2,55} = 0.35, p = .71$; parent MASC, $F_{2,55} = 0.14, p = .87$; and parent SCARED, $F_{2,54} = 1.02, p = .37$.

Diagnostic Status

At baseline, 75% ($n = 42$) of completers met *DSM-IV* criteria for their primary anxiety disorder (s); 25% ($n = 14$) of completers had subthreshold primary anxiety disorder (s). The percentage of participants meeting diagnostic criteria in the child CBT plus parent training group decreased

from 80% at baseline to 33% posttreatment, child-only CBT group decreased from 82% at baseline to 29% posttreatment, and no-treatment control decreased from 67% at baseline to 46% posttreatment.

Of the participants meeting *DSM-IV* criteria at baseline ($n = 42$), 67% (8 of 12) of participants in the CBT plus parent training group, 79% (11 of 14) of participants in the child-only CBT group, and 38% (6 of 16) of participants in the no-treatment control group moved to subthreshold status by posttreatment. Chi-square analyses were conducted to determine whether these percentages represented significant differences among groups. The initial χ^2 compared the collapsed CBT groups with the control group. At posttreatment, significantly more children with *DSM-IV* anxiety diagnoses in the collapsed CBT groups moved to subthreshold diagnostic status than did in the control group ($\chi^2 = 5.2, p = .02$). Follow-up χ^2 analyses showed significantly more children in the child-only CBT group moved to subthreshold status than in the control group ($\chi^2 = 5.1, p = .02$). There was no significant difference between diagnostic status posttreatment for the child CBT plus parent training group and control group ($\chi^2 = 2.3, p = .13$).

Of the 14 completers with subthreshold primary anxiety disorders at baseline, one child in each of the three conditions progressed to full criteria posttreatment. Because these 14 participants were equally distributed across the three conditions, these results indicate that posttreatment, the groups were comparable with regard to status of participants who were subthreshold at baseline. Because of low cell counts, χ^2 analysis for group differences was not possible.

Clinician Severity Rating From ADIS

Gain score analyses using Mann-Whitney U were conducted to compare change in CSR from baseline to posttreatment among groups.

Composite CSR—The initial Mann-Whitney U compared composite CSR gain scores (change in CSR from baseline to posttreatment) for the collapsed CBT groups and the control group and showed significantly greater improvement in participants receiving CBT ($U = 258.00, p = .03$). When each treatment group was compared with control in separate analyses, improvement approached significance in the child CBT plus parent training group only ($U = 115.00, p = .06$).

Parent-Interview CSR—The initial Mann-Whitney U compared parent CSR gain scores for the collapsed CBT groups and the control condition and showed change in CSR based on parent report was not significantly different between groups.

Child-Interview CSR—The initial Mann-Whitney U compared child CSR gain scores for the collapsed CBT groups and control; results indicated that significantly greater improvement occurred in participants receiving CBT ($U = 265.00, p = .045$). When the gain scores for the separate CBT treatment groups were compared with control, there were no significant differences between groups.

CGI

The CGI Improvement scale was filled out by parents posttreatment with the following response options: 1 = very much improved, 2 = much improved, 3 = minimally improved, 4 = no change, 5 = minimally worse, 6 = much worse, 7 = very much worse. The average CGI Improvement scores for the three groups were child CBT plus parent training, 2.6 ± 5 ; child-only CBT, 3.0 ± 9 ; and control group, 3.2 ± 8 .

Mann-Whitney U analyses were conducted to compare CGI ratings between groups. The initial Mann-Whitney U compared the CGI ratings for the collapsed CBT groups and control and indicated a strong trend for greater improvement in participants receiving CBT ($U = 268, p = .06$). When the treatment groups were compared with the control group in separate analyses, participants in the child CBT plus parent training group were rated as significantly more improved ($U = 95, p = .02$). There was no significant difference between improvement in the child-only group and the comparison group.

Parent MASC and SCARED

A 2 (group: CBT versus control) \times 2 (time) repeated measures MANOVA was conducted with the parent MASC Total Anxiety score and parent SCARED Total Anxiety score as the dependent variables comparing collapsed CBT groups to control condition. Means are presented in Table 1. The MANOVA and follow-up univariate analyses revealed significant group \times time interactions for both parent MASC Total, $F_{1,52} = 8.1, p = .006$, and parent SCARED Total, $F_{1,52} = 12.9, p = .001$, with significantly greater improvement for collapsed CBT group than the control group.

A 3 (group: CBT, CBT plus parent training, control) \times 2 (time) repeated-measures MANOVA was conducted with parent MASC Total Anxiety score and parent SCARED Total Anxiety score as the dependent variables. The MANOVA and follow-up univariate analyses identified significant group \times time interactions for both the parent MASC Total, $F_{2,51} = 4.2, p = .02$, and parent SCARED Total $F_{2,51} = 6.3, p = .003$. Follow-up pairwise comparisons were conducted to determine simple effects; Bonferroni corrections were applied to control for experimenter error rates. The results indicated that there was significant improvement on the parent MASC Total from baseline to posttreatment in the child CBT plus parent training group, $p = .02$. Parent ratings on the SCARED indicated significant improvement from baseline to posttreatment for both CBT groups (both $p = .000$). Thus, per parent report, significant improvement occurred for only those participants in the two CBT conditions.

Child MASC

A 2 (group: CBT versus control) \times 2 (time) repeated measures ANOVA was conducted with the childMASC Total Anxiety as the dependent variable comparing collapsed CBT groups with control. No main effect of time, $F_{1,54} = 1.03, p = .31$, or significant group by time interaction emerged $F_{1,54} = 0.39, p = .54$. Table 2 provides a summary of between-group comparison findings.

Effect Sizes

Effect sizes were calculated for each measure that indicated CBT had superior treatment outcomes compared with control condition (based on analyses above) (Table 3).

Sex and Age Differences

Sex and age differences in the dependent measures were examined both pre- and posttreatment. There were no significant differences by age or sex in self-ratings of anxiety, parent ratings of anxiety, diagnostic status, or diagnostic severity at baseline or posttreatment.

DISCUSSION

The findings demonstrate that group CBT for children and group CBT for children plus parent training are significantly more effective than no-treatment control in decreasing children's anxiety symptomatology and in facilitating remission of baseline anxiety diagnoses (primary hypothesis). This conclusion is supported by clinician perspective (i.e., diagnostic status,

composite CSR), child-report (i.e., child-interview CSR), and parent-report (i.e., CGI, parent MASC, parent SCARED). For example, effect size for change in composite CSR, the primary outcome measure, from pre- to posttreatment for the collapsed CBT conditions versus the control condition was 0.58. This is a medium-effect size, suggesting clear benefit for group CBT. The congruence in results across informants and across measures lends strength to the findings.

The present study extended the earlier work of Dadds et al. (1997) by comparing two active treatment conditions and no-treatment control; Dadds and colleagues compared only one active treatment (i.e., group CBT for children) and monitoring. The Dadds et al. study found that children in both conditions improved after 10 weeks with no significant differences between CBT treatment and control condition in symptom reduction or diagnostic status; significant benefit of group CBT over control condition did not emerge until 6-month follow-up (Dadds et al., 1997).

Our identification of significant benefits posttreatment for the active intervention groups compared with no-treatment control may be caused by the use of newer, sensitive outcome measures. The Dadds et al. (1997) study used the Revised Children's Manifest Anxiety Scale (RCMAS), whereas this study employed the MASC and SCARED. In a large study by Dierker et al. (2001), the RCMAS and MASC were used to screen for anxiety in ninth-grade students. The MASC was found to be more sensitive than the RCMAS in identifying teenagers, especially females, with anxiety disorders. In addition, whereas the Dadds et al. study administered the ADIS to parents only, we administered the ADIS to parents and children. Thus, parent-interview, child-interview, and composite CSR ratings were obtained. Interestingly, in the present study, child-interview CSR and composite CSR differentiated the collapsed CBT conditions from no-treatment control, whereas parent-interview CSR did not.

Our secondary hypothesis predicted group CBT for children plus parent training would be more effective than group CBT for children alone. Supporting the secondary hypothesis, on two measures, CGI and parent MASC, there were significant benefits for the child CBT plus parent training compared with no-treatment control, but not for child CBT alone over no-treatment control. On the primary outcome measure, composite CSR, there was a strong trend ($p = .06$) for the superiority of child CBT plus parent training over control, but no such trend for child CBT alone over control. Furthermore, analysis revealed a notably higher effect size for child CBT plus parent training over child CBT on the CGI, 0.88 and 0.20, respectively. Although the above findings indicate greater benefit when a parent training component is added, there was one measure on which the two active treatments were comparable (i.e., parent SCARED) and one measure that indicated greater benefit for child-only CBT (i.e., diagnostic status).

In addition to being community based, the intervention was designed as both a secondary and tertiary prevention program, secondary because interventions were provided for participants with subclinical anxiety symptoms and tertiary because a goal was to reduce the severity and duration of symptoms for children with established anxiety disorders (Durlak and Wells, 1998). The interventions were successful as a tertiary prevention program because symptoms significantly diminished in anxious children who received treatment compared with those receiving no treatment. Longitudinal follow-up will determine whether the active interventions prevent onset of new anxiety disorders in subthreshold participants. If this proves to be the case, then the role of the interventions as a secondary prevention program will also be established.

Limitations

This study was conducted with a rural, suburban sample that was largely white. Thus, it is not known whether findings are generalizable to urban and nonwhite samples. Schools were

randomly assigned to treatment, with each intervention being offered in only one school. Although schools were matched on size, the percentage of minority students, and socioeconomic status of students, this methodology makes it difficult to determine whether differences between groups were influenced by factors specific to the school. In addition, although the present study was community based, the individuals providing the interventions were trained research staff from the university and not community members. Studies in Australia have demonstrated the feasibility of using classroom teachers to administer universal CBT interventions to children (Barrett and Turner, 2001; Lowry-Webster et al., 2001).

Clinical Implications

Because there were multiple measures on which both active treatment groups were superior to no treatment, the results indicate that school-based child CBT plus parent training and child-only CBT are both effective interventions for anxious children. Some of the findings (e.g., CGI, parent MASC) also suggest that group CBT plus parent training for anxious children is associated with greater benefit than child group CBT alone in decreasing child anxiety.

The treatment gains from the interventions in this study were not the result of traditional, clinic-based interventions because all aspects of the study were conducted in community settings. Schoolwide screening and treatment sessions occurred in the school buildings. Baseline and posttreatment interviews took place at schools, local public libraries, or participants' homes. The interventions were designed to be feasible and acceptable to participating families. The timing of therapy sessions (i.e., after school or early evening) and duration of treatment delivery (i.e., 9 weekly 60-minute sessions during the school year) were arranged to accommodate school and family schedules. Dinner for family members and child care for siblings were provided for families in the combined treatment condition. These factors helped to ensure regular attendance at treatment sessions and contributed to the high completion rate (92%). Thus, group CBT for anxious children can be both feasible and effective in a school setting if the participants' needs are considered when planning intervention delivery.

Future Directions

Children and their families in all conditions will be studied longitudinally. Therefore, it will be possible to determine whether adding the parent training group to child group CBT continues to offer some significant benefits over child group CBT alone. The role of maternal anxiety in influencing the treatment outcome for anxious children deserves further investigation. Cobham and colleagues (1998) demonstrated that children's progress in individual CBT is inhibited if there is an anxious parent who is not receiving group anxiety treatment. Future studies with sufficient power to examine mediators and moderators of treatment response should attempt to replicate this finding. Future studies should examine the feasibility of teaching community members, such as school counselors, to provide group CBT for anxious children in the school setting. Additional research is also needed that compares group CBT with other therapeutic interventions such as meeting with the school counselor or family therapy.

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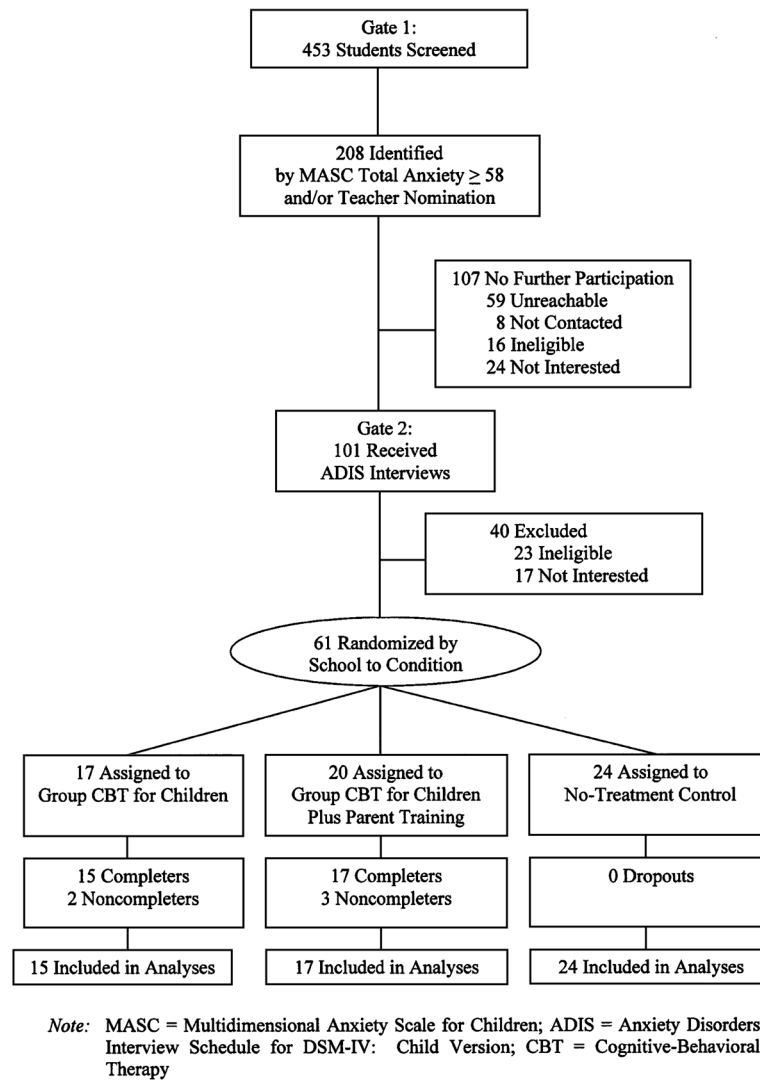


Fig. 1.
Flow diagram of school-based interventions for children with anxiety.

TABLE 1
Mean Total Anxiety Scores at Baseline and Posttreatment

Measure	Condition					
	Child CBT + Parent Training		Child CBT		No-Treatment Control	
	Baseline	Post	Baseline	Post	Baseline	Post
Parent MASC	53.7	46.2 [*]	52.4	47.5	50.5	53.0
Parent SCARED	28.0	19.7 ^{**}	23.5	15.8 ^{**}	21.3	21.1
Child MASC	51.5	48.7	53.6	55.1	51.3	49.1

Note: Post = posttreatment.

^{*} $p < .05$;

^{**} $p < .001$.

TABLE 2

Findings Indicating Superiority of CBT Over Control Condition Posttreatment

Measure	Group		
	Collapsed CBT Group	Child CBT + Parent Training	Child CBT
Diagnostic status	X	NS	X
Composite CSR ^a	X	~	NS
Parent-interview CSR ^a	NS		
Child-interview CSR ^a	X	NS	NS
CGI	~	X	NS
Parent MASC	X	X	NS
Child MASC	NS		
Parent SCARED	X	X	X

Note: X = Significantly more effective than control; NS = no significant difference compared with control; ~ = approaching significance over control.

^a Change in CSR from baseline to posttreatment.

TABLE 3

Effect Sizes Posttreatment

Measure	Group		
	Collapsed CBT Group	Child CBT + Parent Training	Child CBT
Composite CSR ^a	0.58	0.60	0.58
CGI	0.51	0.88	0.20
Parent MASC	0.41	0.48	0.38
Parent SCARED	0.30	0.14	0.42

^aChange in CSR from baseline to posttreatment.