Journal of Consulting and Clinical Psychology
2001, Vol. 69, No. 1, 135–141

0022-006X/01/$5.00 DOI: 10.1037//0022-006X.69.1.135

Cognitive–Behavioral Treatment of Anxiety Disorders in Children: Long-Term (6-Year) Follow-Up

Paula M. Barrett and Amanda L. Duffy
Griffith University, Gold Coast

Mark R. Dadds
Griffith University, Mt. Gravatt

Ronald M. Rapee
Macquarie University

Authors evaluated the long-term effectiveness of cognitive–behavioral therapy (CBT) for childhood anxiety disorders. Fifty-two clients (aged 14 to 21 years) who had completed treatment an average of 6.17 years earlier were reassessed using diagnostic interviews, clinician ratings, and self- and parent-report measures. Results indicated that 85.7% no longer fulfilled the diagnostic criteria for any anxiety disorder. On a majority of other measures, gains made at 12-month follow-up were maintained. Furthermore, CBT and CBT plus family management were equally effective at long-term follow-up. These findings support the long-term clinical utility of CBT in treating children and adolescents suffering from anxiety disorders.

A growing body of evidence indicates that anxiety disorders in childhood can be successfully treated with relatively brief psychosocial interventions. Kendall (1994) conducted the first published randomized clinical trial of a cognitive–behavioral treatment (CBT) with anxious children. This study involved 47 9- to 13-year-old children with overanxious disorder, separation anxiety, or avoidant disorder. Children who received the 16-session treatment displayed significant improvement from pre- to posttreatment on self-report, parent report, and behavioral observation measures. In addition, at posttreatment, 64% of children in the treatment group were diagnosis free. These gains were maintained at 1-year follow-up. A second clinical trial, utilizing a sample with similar characteristics, showed comparable results, with the CBT group again demonstrating significant improvements when compared with the wait-list group (Kendall et al., 1997).

These studies indicate that CBT treatment for children is effective in reducing anxiety, and attempts have increasingly focused on maximizing treatment gains. Specifically, recent years have seen increasing interest in the role the family plays in the development and treatment of childhood disorders. In particular, several characteristics appear to be more common in parents of anxious children. For example, in a review of the literature, Rapee (1997) reported that parental overcontrol has consistently been found to be associated with child anxiety problems. Findings from Siqueland, Kendall, and Steinberg's (1996) study supported this result, with independent observers rating parents of children with anxiety disorders as less granting of psychological autonomy than parents of the control children. In addition, Siqueland et al. found that anxious children rated both of their parents as less accepting than did control children. Further research by Barrett, Rapee, Dadds, and Ryan (1996) investigated the influence of family discussion on the interpretations that anxious children made when presented with ambiguous situations. They found that anxious children made a relatively high number of threat interpretations and predominantly chose avoidant solutions, with family discussion only provoking enhancement of these avoidant solutions. Furthermore, rates of child avoidance were positively correlated with the probability that parents reciprocated avoidance (Dadds, Barrett, Rapee, & Ryan, 1996).

On the basis of such findings, the inclusion of parents in therapy may be an important part of effectively treating child anxiety problems, and a number of recent studies have addressed this issue. Howard and Kendall (1996) used a multiple baseline across-cases design to evaluate a family-based CBT program with six children (aged 9 to 13 years) who met the criteria for an anxiety disorder. They reported gains at posttreatment on diagnostic and questionnaire measures for four of the children and, with the exception of one child, these gains were maintained at 4-month follow-up.

Barrett, Dadds, and Rapee (1996) compared child-only CBT, child CBT plus family anxiety management training (CBT + FAM), and a wait-list control group. Participants were 79 children, aged 7 to 14 years, with overanxious disorder, separation anxiety, or social phobia. The family component of the program consisted of training in three areas: (a) child management, (b) parental anxiety management, and (c) communication and problem-solving skills. Both CBT and CBT + FAM conditions showed greater improvement on a variety of measures at posttreatment and 12-month follow-up when compared with the wait-list. However, the

Paula M. Barrett and Amanda L. Duffy, School of Applied Psychology, Griffith University, Gold Coast, Southport, Queensland, Australia; Mark R. Dadds, School of Applied Psychology, Griffith University, Mt. Gravatt, Meadowbrook, Queensland, Australia; Ronald M. Rapee, Department of Psychology, Macquarie University, Sydney, New South Wales, Australia.

Correspondence concerning this article should be addressed to Paula M. Barrett, School of Applied Psychology, Griffith University, Queensland 4111, Australia. Electronic mail may be sent to p.barrett@mailbox.gu.edu.au.

clients that received family training also showed significantly greater improvement than the CBT-only group on a number of measures. In addition, at 12-month follow-up, 70% of those in the CBT group and 95% of those in the CBT + FAM group no longer met the diagnostic criteria for any anxiety disorder.

A further study by Cobham (1998) investigated the effectiveness of one component of the family management program: parental anxiety management (PAM). Sixty-seven children, aged between 7 and 14 years, who met diagnostic criteria for an anxiety disorder participated in this study. Of these, 32 had parents who were classified as nonanxious (child-anxiety-only group), whereas 35 had either one or both parents who reported high levels of anxiety (child + parental anxiety group). Children from both of these groups were then randomly assigned either to child-focused CBT or to the child-focused CBT and parental-anxiety management (CBT + PAM). Of those children who received only CBT, 82.4% of the child-anxiety-only group were diagnosis free at posttreatment, compared with 38.9% of the child + parental anxiety group. Of those in the CBT + PAM condition, 80% of the child-anxiety-only group and 76.5% of the child + parent anxiety group were diagnosis free. These results indicated that the children with two nonanxious parents responded more favorably to child-focused CBT than did the children who had one or more anxious parents. The inclusion of PAM increased the efficacy of child-focused CBT for children, but only for children who had at least one anxious parent. However, at 6- and 12-month follow-ups, these effects became less evident, although trends in the expected directions continued.

Although these results all point to the effectiveness of CBT in treating children with anxiety disorders, longer term follow-up of clients is a vital next step (Kendall, 1998; Weisz & Hawley, 1998). At present, only a small number of such studies exist in the area of childhood anxiety. One of the earliest was conducted in 1982 by Graziano and Mooney, who investigated the long-term effectiveness of a behavioral treatment of children's nighttime fears. They found strong maintenance effects at 2.5–3-year follow-up, but the study did not utilize standardized measures. More recently, Kendall and Southam-Gerow (1996) reassessed 36 of the 47 children treated in Kendall's (1994) original clinical trial. The length of time from completion of the treatment program to reassessment ranged from 2 to 5 years, with an average of 3.35 years. On both self-report and parent-report measures, the treatment gains seen at 1-year follow-up were maintained, with no detectable diminishment. In terms of diagnostic status, improvements at 1-year follow-up were also maintained.

The present study furthers research in this area by reassessing the clients involved in Barrett, Dadds, & Rapee's (1996) study an average of 6 years after treatment completion. It was hypothesized that treatment gains made by clients at 12-month follow-up (12-month FU) would be maintained at long-term follow-up (LT follow-up). This would be evidenced by no significant increase in anxiety as measured by diagnostic interview, self-report, and parent-report. It was also hypothesized that those in the CBT + FAM group would continue to evidence better outcomes than those in the CBT group. Furthermore, additional analyses were undertaken to explore the effects of diagnostic comorbidity on long-term treatment outcome.

Method

Participants

The participants in the present study had previously completed treatment as part of Barrett, Dadds, & Rapee's (1996) study. These children had been referred for treatment, and parent and child diagnostic interviews confirmed the presence of a *DSM–III* (*Diagnostic and Statistical Manual of Mental Disorders;* American Psychiatric Association, 1980) anxiety disorder. Full details of the study are available in Barrett, Dadds, & Rapee. Although we attempted to contact all 79 of the previous participants, 23 (32.9%) could not be located. Of the 56 participants that were located, 53 (94.6%; 67.1% of the original sample) agreed to be involved in the study. All participants who were followed up were also asked whether they had sought alternative treatment since the original study. Only 1 participant had received further psychological treatment for an anxiety-related problem, and we excluded this person from data analysis.

The remaining 52 participants ranged in age from 13 to 21 years (M = 16.08, SD = 2.26), with the average length of time since treatment completion being 6.17 years (range = 5.33–7.08). Twenty-three had originally been diagnosed with overanxious disorder (OAD), 18 with separation anxiety (SAD), and 11 with social phobia (SP). Further, 19.2% were originally diagnosed as comorbid with simple phobia, 3.8% with depression, and 3.8% with oppositional defiant disorder (ODD). Thirty-one participants (17 boys, 14 girls) originally belonged to the child-only CBT condition and 21 (11 boys, 10 girls) to the CBT + FAM condition.

Brief Description of Treatment Conditions

In the initial study, participants were randomly assigned to either the wait-list CBT or CBT + FAM condition, with those in the wait-list receiving treatment at a later date. Both treatments consisted of 12 sessions, with each session lasting 60–80 min. Treatment sessions were conducted by one of five registered clinical psychologists in the Behavior Research and Therapy Centre of the University of Queensland, Australia. Refer to Barrett et al. (1996) for full details.

Measures

Anxiety Interview Disorder Schedule for Children (ADIS–C; Silverman & Nelles, 1988). Children were administered the ADIS–C, a structured interview that is used to ascertain whether a child meets the *DSM–III* criteria for any anxiety disorder. This interview was administered over the phone, by a clinician who was unaware of the child's original treatment condition. To ensure reliable diagnoses, 18 children were reinterviewed, with the overall kappa agreement for the presence of an anxiety disorder being 0.85. In addition to making a diagnosis, the clinician rated improvement in the child and family on seven dimensions of adjustment: (a) clinical global impression, (b) overall functioning, (c) overall anxiety, (d) avoidant behaviors, (e) family disruption, (f) parental perceived ability to deal with child's behavior, and (g) child's perceived ability to deal with feared situations. These ratings were based on all ADIS-C anxiety items, as well as on direct questioning of both the child and parent about each dimension. Ratings were made on a 7-point scale, where 0 = *markedly worse,* 3 = *no change,* and 6 = *marked improvement.*

Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1985). The RCMAS provides a measure of a child's chronic anxiety. The questionnaire contains 37 items, 9 of which form a Lie scale. For each item, the child is asked to respond *yes* or *no.* This measure has been found to have high internal consistency and test–retest reliability, as well as to show convergent and divergent validity (Reynolds & Richmond, 1985).

Fear Survey Schedule for Children—Revised (FSSC–R; Ollendick, 1983). The FSSC–R assesses specific fears in children. It is 80 items in length, with each item rated on a 3-point scale. This questionnaire has also been shown to have good test–retest reliability and internal consistency.

Children's Depression Inventory (CDI; Kovacs, 1992). The CDI is 27 items in length and provides a measure of depressive symptomatology. Each item consists of three descriptive statements, of which the child must select the one that best characterizes him or her during the previous 2 weeks. This scale has been found to have high internal consistency and moderate test–retest reliability, as well as to exhibit discriminant and concurrent validity (Kovacs, 1992).

Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1991). In the present study, both the child's mother and father completed the CBCL. This measure is 118 items in length, with parents' rating each item on a 3-point scale. From these items, a total problem-behavior score can be derived, as well as several subscale scores, and scores on two dimensions of dysfunction: Internalizing and Externalizing. Only the Internalizing and Externalizing scale scores were used in this study. Research has shown these scales to be psychometrically sound, with high test–retest reliability and internal consistency reported. Support for the content, construct, and criterion-related validity of the CBCL has also been found (Achenbach & Edelbrock, 1991).

Results

To determine whether there were significant demographic differences between those children involved in the LT follow-up and those who were not, we conducted a number of t tests and chi-square analyses. Results showed that the two groups did not differ in terms of gender, $\chi^2(1, N = 79) = 0.60$, *ns*, or age, $t(77) = -0.50$, *ns*, at pretreatment. A significant difference was found in terms of severity of diagnosis at pretreatment, $t(77) = -2.18$, $p < .05$, but those children who were involved in the LT follow-up had the more severe anxiety disorders. Furthermore, no significant difference was found between participants who were involved in the follow-up and those who were not involved in terms of diagnostic status at 12-month FU, $\chi^2(1, N = 75) = 0.16$, *ns*.

Demographic variables were also examined to determine whether the CBT and CBT + FAM groups differed. No significant differences between the conditions were found for gender, $\chi^2(1, N = 52) = 0.03$, *ns*, age, $t(50) = -0.31$, *ns*, or severity of diagnosis, $t(49) = -1.58$, *ns*, at pretreatment.

Diagnostic Status

At LT follow-up, diagnostic status was determined on the basis of the child interview only, whereas diagnoses at earlier assessment points were based on combined parent and child reports. Consequently, as parents and children have been shown to disagree about diagnostic status (e.g., Rapee, Barrett, Dadds, & Evans, 1994), comparing previous combined diagnoses to child-only diagnoses at LT follow-up may be misleading. That is, some children may have reported no problems at previous assessments and therefore, although not meeting diagnostic criteria at LT follow-up, they do not qualify as having "recovered."

Because of this concern, only the participants who met diagnostic criteria at pretreatment on the basis of child report were included in the following diagnostic status analyses. This restriction led to 3 participants being excluded. Of the remaining 49 participants, 21 were diagnosed with OAD, 18 with SAD, and 10 with SP. The excluded cases all belonged to the CBT condition.

At LT follow-up, 42 of these 49 participants (85.7%) no longer met the diagnostic criteria for any anxiety disorder. In comparison, 39[1] of these participants were diagnosisfree at 12-month FU (79.6%). Five of these 39 participants relapsed and again qualified for a diagnosis at LT follow-up, while a further 6 who had received a diagnosis at 12-month FU were diagnosisfree at LT follow-up. A McNemar analysis indicated no significant difference in diagnostic status between the assessment phases.

Differences between the CBT and CBT + FAM groups in diagnostic status were also examined. Twenty-four of the 28 children (85.7%) in the CBT group and 18 of the 21 (85.7%) in the CBT + FAM group were diagnosis free at LT follow-up. Analysis revealed no significant difference between the groups, $\chi^2(1, N = 1) = 0.00$, *ns*.

In addition, an analysis was conducted to determine whether type of diagnosis at pretreatment (i.e. OAD, SAD, or SP) was associated with a differential treatment effect at LT follow-up. No significant difference was found between the groups, $\chi^2(2, N = 49) = 0.687$, *ns*, with 81% of the OAD group, 88.9% of the SAD group, and 90% of the SP group diagnosis-free at LT follow-up.

Clinical Evaluations

Table 1 shows the means for the seven clinical evaluation scales at 12-month FU and LT follow-up. As the clinical evaluations represent seven interrelated dimensions, we analyzed data using a 2 (condition: CBT, CBT + FAM) × 2 (phase: 12-month FU, LT follow-up) repeated-measures multivariate analysis of variance (MANOVA). Results of this analysis revealed no significant interaction, $F(7, 41) = 1.33$, *ns*, $\eta^2 = .18$[2], or condition effect, $F(7, 41) = 0.65$, *ns*, $\eta^2 = 0.10$. However, a significant effect for phase was found, $F(7, 41) = 4.26$, $p < .05$, $\eta^2 = 0.42$. Univariate analyses were consequently conducted, with a significance level of .007 applied, on the basis of Bonferroni corrections. No significant differences were found on the five scales that assessed child functioning: Clinical Global Impression, $F(1, 47) = 4.37$, *ns*, $\eta^2 = .09$; Overall Functioning, $F(1, 47) = 0.66$, *ns*, $\eta^2 = .01$; Overall Anxiety, $F(1, 47) = 3.63$, *ns*, $\eta^2 = 0.07$; Avoidant Behaviors, $F(1, 47) = 0.90$, *ns*, $\eta^2 = 0.02$; and Change of Child's Ability to Deal with Difficult Situations, $F(1, 47) = 0.72$, *ns*, $\eta^2 = 0.02$. There were, however, significant differences on the two scales related to familial and parental functioning. That is, we found a significant difference in relation to the level of family disruption caused by the child's behavior, $F(1, 47) = 18.79$, $p < .007$, $\eta^2 = 0.29$, with parents perceiving that the level of disruption had increased since 12-month FU. Similarly, parental perceptions of their ability to cope with their child's behavior had changed significantly, $F(1, 47) = 19.90$, $p < .007$, $\eta^2 = 0.30$, with parents viewing themselves as less able to cope at LT follow-up than at 12-month FU. It should be noted, however, that the mean clinical ratings at LT follow-up remained above 4 on both scales, suggesting that overall improvements were still in evidence.

Self-Report Measures

Table 2 shows the means and standard deviations for the self-report measures. Results for each self-report measure were analyzed using a 2 (condition: CBT, CBT + FAM) × 2 (phase: 12-month FU, LT follow-up) analysis of variance (ANOVA).

---

[1] Diagnoses at 12-month FU are missing for two of the participants.

[2] η^2 = effect size. Cohen (1988) suggests the following interpretive guidelines for η^2: small $\eta^2 = .01$, medium $\eta^2 = .06$, and large $\eta^2 = .16$.

Table 1
Mean Clinician Ratings of Improvement

Scale	12-month FU		LT follow-up	
	CBT	CBT + FAM	CBT	CBT + FAM
Clinical Global Impression				
M	5.38	5.55	5.10	5.00
SD	0.82	0.76	0.86	0.92
Overall Functioning				
M	5.21	5.45	5.24	5.10
SD	0.86	0.69	0.83	1.07
Overall Anxiety				
M	5.21	5.40	4.97	4.90
SD	0.82	0.88	0.87	0.97
Avoidant Behaviors				
M	5.28	5.25	5.14	5.00
SD	0.84	0.91	0.83	1.08
Family[a]				
M	4.86	5.25	4.41	4.15
SD	0.95	0.85	0.78	0.88
Family Skill[b]				
M	4.79	5.25	4.10	4.30
SD	1.05	0.91	0.90	0.86
Child Skill[c]				
M	5.21	5.60	5.38	5.10
SD	0.98	0.75	0.78	1.02

Note. FU = follow-up; LT follow-up = long-term follow-up; CBT = cognitive–behavioral treatment; FAM = family anxiety management training.
[a] Change of Family Disruption by the Child's Behavior. [b] Change of Parent's Perception of Own Ability to Deal with Child's Behavior. [c] Change of Child's Ability to Deal with Difficult Situations.

For the FSSC-R, the ANOVA revealed no significant interaction, $F(1, 40) = 0.05$, *ns*, $\eta^2 = 0.00$, or phase effect, $F(1, 40) = 3.83$, *ns*, $\eta^2 = 0.09$. However, a condition effect was found, $F(1, 40) = 7.85$, $p < .05$, $\eta^2 = 0.16$, with the CBT + FAM group reporting lower scores than the CBT group at both phases. On the RCMAS, no significant interaction, $F(1, 39) = 0.95$, *ns*, $\eta^2 = 0.02$, or condition effects, $F(1, 39) = 0.32$, *ns*, $\eta^2 = 0.01$, were found. The phase effect was significant, $F(1, 39) = 5.57$, $p < .05$, $\eta^2 = 0.13$, with higher scores found at LT follow-up than 12-month FU. Last, for the CDI, neither the interaction, $F(1, 40) = 1.36$, *ns*, $\eta^2 = 0.03$, or condition effects, $F(1, 40) = 0.06$, *ns*, $\eta^2 = 0.00$, were significant. However, scores at LT follow-up were significantly higher than those at 12-month FU, $F(1, 40) = 30.61$, $p < .05$, $\eta^2 = 0.43$.

To determine whether participants showed improvement from pretreatment (PRE) to LT follow-up, each self-report measure was also analyzed with a second 2 (condition: CBT, CBT + FAM) × 2 (phase: PRE, LT follow-up) ANOVA. For the FSSC-R, the interaction was not significant, $F(1, 40) = 0.02$, *ns*, $\eta^2 = 0.00$, but both the condition effect, $F(1, 40) = 7.62$, $p < .05$, $\eta^2 = 0.16$, and phase effect, $F(1, 40) = 44.89$, $p < .05$, $\eta^2 = 0.53$, were significant. Comparison of means showed scores for the CBT + FAM group to be lower than the scores for the CBT group and LT follow-up scores to be lower than PRE scores. On the RCMAS, neither the interaction, $F(1, 39) = 0.00$, *ns*, $\eta^2 = 0.00$, nor the condition effects, $F(1, 39) = 1.40$, *ns*, $\eta^2 = 0.04$, were significant. However, scores at LT follow-up were significantly lower than at PRE, $F(1, 39) = 21.02$, $p < .05$, $\eta^2 = .35$. No significant effects were found for the CDI: interaction, $F(1, 40) = 0.47$, *ns*, $\eta^2 = .01$; condition, $F(1, 40) = 2.37$, *ns*, $\eta^2 = .06$; phase, $F(1, 40) = 0.70$, *ns*, $\eta^2 = .02$.

We also analyzed the clinical significance of the CDI results using normative comparisons (Kendall, Marrs-Garcia, Nath, & Sheldrick, 1999). Kovacs (1992) suggested that scores of 20 or above indicate a high likelihood of depression, and only one participant, from the CBT + FAM condition, scored above this cutoff at LT follow-up. No significant difference was found between the two conditions, $\chi^2(1, N = 44) = 1.48$, *ns*.

Parent Report Measures

Means and standard deviations for mothers' and fathers' Internalizing and Externalizing scale scores are shown in Table 3. As these two scales are interrelated, we analyzed data using 2 × 2 MANOVAs. For mothers' responses, this analysis revealed no significant interaction, $F(2, 42) = 2.32$, *ns*, $\eta^2 = .10$, condition effect, $F(2, 42) = 0.60$, *ns*, $\eta^2 = .03$, or phase effect, $F(2, 42) = 2.05$, *ns*, $\eta^2 = .09$. Similarly, no significant effects were found for fathers' responses, interaction, $F(2, 31) = 2.05$, *ns*,

Table 2
Mean Scores on Child Self-Report Measures

Measure	PRE		12-month FU		LT follow-up	
	CBT	CBT + FAM	CBT	CBT + FAM	CBT	CBT + FAM
CDI						
M	9.92	6.94	2.35	3.06	8.00	6.75
SD	7.15	4.45	2.78	3.49	5.39	5.52
FSSC–R						
M	136.58	122.94	99.65	88.88	108.54	95.94
SD	22.96	23.82	23.28	16.03	17.90	10.21
RCMAS						
M	13.60	11.75	4.40	4.75	8.16	6.31
SD	5.74	6.10	4.06	4.58	6.66	5.86

Note. PRE = pretreatment; FU = follow-up; LT follow-up = long-term follow-up; CBT = cognitive–behavioral treatment; FAM = family anxiety management training; CDI = Children's Depression Inventory; FSSC–R = Fear Survey Schedule for Children—Revised; RCMAS = Revised Children's Manifest Anxiety Scale.

Table 3
Mean Scores on Parent-Report Measures

Parent and measure	PRE		12-month FU		LT follow-up	
	CBT	CBT + FAM	CBT	CBT + FAM	CBT	CBT + FAM
Mother						
CBCL–I						
M	70.22	66.00	50.19	50.11	50.44	55.56
SD	7.51	5.84	8.59	6.95	12.79	13.32
CBCL–E						
M	59.22	54.94	45.67	47.67	46.22	45.06
SD	8.93	9.64	7.67	10.06	9.12	10.29
Father						
CBCL–I						
M	68.20	64.79	51.30	47.00	49.75	53.43
SD	6.78	9.31	9.00	7.39	12.39	16.48
CBCL–E						
M	60.25	54.43	47.50	45.93	46.65	45.21
SD	8.30	7.64	8.04	9.89	11.43	13.22

Note. PRE = pretreatment; FU = follow-up; LT follow-up = long-term follow-up; CBT = cognitive–behavioral treatment; FAM = family anxiety management; CBCL–I = Child Behavior Checklist Internalizing; CBCL–E = Child Behavior Checklist Externalizing.

$\eta^2 = 0.12$, condition, $F(2, 31) = 0.16$, *ns*, $\eta^2 = .01$, and phase, $F(2, 31) = 1.18$, *ns*, $\eta^2 = .07$. These results indicate that improvements measured at 12-month FU were maintained at LT follow-up, with the CBT and CBT + FAM treatments showing equal effectiveness.

We also conducted 2 × 2 repeated measures MANOVAs to determine whether parent ratings of child behavior had improved from PRE to LT follow-up. For mothers, we found no significant interaction, $F(2, 42) = 3.11$, *ns*, $\eta^2 = 0.13$, or condition effects, $F(2, 42) = 1.16$, *ns*, $\eta^2 = 0.05$. However, a significant difference between the two phases was found, $F(2, 42) = 41.48$, $p < .05$, $\eta^2 = 0.66$. ANOVAs were consequently conducted, with a significance level of .025 applied on the basis of Bonferroni corrections. These analyses showed significant decreases on both Internalizing, $F(1, 43) = 66.41$, $p < .025$, $\eta^2 = 0.61$, and Externalizing scale scores, $F(1, 43) = 59.09$, $p < .025$, $\eta^2 = 0.58$. Similarly, no significant interaction, $F(2, 31) = 1.10$, *ns*, $\eta^2 = 0.07$, or condition effects, $F(2, 31) = 1.00$, *ns*, $\eta^2 = 0.06$, were found for fathers' ratings. A significant difference between PRE and LT follow-up scores was found, $F(2, 31) = 22.65$, $p < .05$, $\eta^2 = 0.59$, with both Internalizing, $F(1, 32) = 36.25$, $p < .025$, $\eta^2 = 0.53$, and Externalizing scale scores, $F(1, 32) = 32.84$, $p < .025$, $\eta^2 = 0.51$, decreasing over this period.

The clinical significance of these results was also analyzed using normative comparisons (Kendall et al., 1999) by determining the percentage of participants who scored below clinical levels ($T < 65$) on the CBCL Internalizing scale at LT follow-up. We found 83% and 85.4% of participants were in the nonclinical range on the basis of mothers' and fathers' reports respectively. Again, no significant difference between the CBT and CBT + FAM groups was found for either mothers' reports, $\chi^2(1, n = 47) = 0.10$, *ns*, or fathers' reports, $\chi^2(1, N = 41) = 0.21$, *ns*.

Comorbidity

As sample sizes for specific comorbid conditions were small, separate comparisons could not be made. Instead, global comparisons were made between the following children: (a) those with no comorbid diagnosis ($n = 15$), (b) those comorbid only with a targeted anxiety disorder (i.e., SAD, OAD, or SP; $n = 23$), or (c) those comorbid with any other disorder (i.e., simple phobia, depression, or ODD; $n = 14$). For the analyses comparing these three groups, no significant differential effects were found on diagnostic status, clinical evaluation scales, child self-report measures, or parent-report measures at LT follow-up.

Discussion

The main aim of the present study was to determine the long-term effectiveness of CBT for childhood anxiety disorders. Results indicated that treatment gains were largely maintained over a period of 5–7 years, as measured by clinician ratings, parental reports, and child self-reports. Furthermore, neither diagnosis at pretreatment (i.e., OAD, SAD or SP) nor comorbidity status differentially affected long-term treatment outcome. These findings are consistent with those from Kendall and Southam-Gerow's (1996) study and appear to support the long-term benefits of CBT for children and adolescents with anxiety problems.

However, contrary to predictions, the CBT + FAM condition did not appear to be more effective than CBT only. For only one measure, the FSSC-R, did those children in the CBT + FAM group evidence lower scores than those in the CBT group. Furthermore, this difference was already apparent at the PRE assessment and so does not actually reflect superiority of CBT + FAM. These findings suggest the treatments were equally effective 5 to 7 years after implementation.

Despite the finding that treatment gains were largely maintained, because of the lack of a control group, competing explanations for the results cannot be dismissed. In particular, the influence of maturation is unknown. In the past, explaining decreases in anxiety in terms of maturational effects has often been ruled out, as research has suggested that anxiety in childhood does not remit without treatment, but persists into adulthood (Mattison, 1992). However, a recent study by Last, Perrin, Hersen, and

Kazdin (1996) contradicted such findings. In that study, children with anxiety disorders were followed for a period of 3–4 years, with treated and untreated children exhibiting comparable recovery rates. That is, 82.6% of those children who went untreated had recovered from their primary anxiety disorder, compared with 80.3% of those who had received treatment.

Although these results suggest that maturation may in part explain the long-term treatment effects found in the present study, it should be noted that a majority of the untreated children who got better in Last et al.'s study (1996) did so within a few weeks of study entry. Therefore, such spontaneous remissions would most likely have occurred during Barrett et al.'s (1996) original study. Whereas both treated and untreated groups in Barrett et al.'s study did show improvement across time, the active treatment conditions were superior to the wait list. This outcome suggests that treatment had an additional benefit for anxious children, with the present study showing that this benefit has been maintained.

The results show a maintenance of treatment effects for anxiety measures, although depression scores were found to have returned to their PRE level. However, this result does not appear to be clinically significant, as normative comparisons (Kendall et al., 1999) placed only 1 participant in the clinical range at LT follow-up. Yet this finding does raise an important limitation of the study: Participants were assessed only for anxiety disorders, so statements regarding their overall adjustment cannot be made. Nevertheless, the treatments were specifically designed to target anxiety and have proven effective for these disorders.

Two other limitations of the study should be addressed. First, diagnostic interviews were conducted only with the child at LT follow-up, as compared to both child and parents interviews at previous assessments. Although it is typically recommended that multiple sources be used when making a diagnosis, this step had to be weighed against the importance of retaining participants. We felt that requesting both the child and the parents to complete a diagnostic interview, 5 to 7 years after the completion of treatment, would lead to families refusing to participate. Therefore, only one source was used. As almost 30% of the children were aged 18 years or over at the time of the LT follow-up, it was felt that parent reports may be inappropriate, and we subsequently decided that child interviews only would be conducted.

However, analyses comparing child-only reports across time do indicate that treatment effects were maintained. Further, normative comparisons on the CBCL also support the findings of the child interviews. On the basis of both mothers' and fathers' reports, approximately 85% of participants fell in the nonclinical range of the CBCL Internalizing scale. This finding is comparable to the 85.7% who were considered diagnosis free on the basis of child interviews.

Second, the appropriateness of administering the self- and parent-report measures to participants aged between 18 and 21 years could be queried, as the questionnaires have not been normed for these ages. However, to enable comparisons between 12-month and LT follow-up assessments, we found that it was necessary to use the original measures. Including additional questionnaires might have addressed this problem, but we decided against it because of the potential adverse effect on response rate.

Notwithstanding these limitations, our study suggests that the beneficial effects of CBT for childhood anxiety disorders are maintained, even 5 years to 7 years after treatment. Future research is needed to clarify the long-term effects of parental involvement in treatment. In addition, research attempting to determine which aspects of the treatment programs contribute to change would be beneficial. Several recent studies have begun to answer this question (Cobham, 1998; Kendall & Southam-Gerow, 1996), but further study is needed. Such research would aid delivery of the most efficacious treatment package to children with anxiety disorders.

References

Achenbach, T. M., & Edelbrock, C. (1991). *Manual for the Child Behavior Checklist and Revised Child Behavior Profile.* Burlington: University of Vermont.

American Psychiatric Association. (1980). *Diagnostic and statistical manual of mental disorders* (3rd ed.). Washington, DC: Author.

Barrett, P. M., Dadds, M. R., & Rapee, R. M. (1996). Family treatment of childhood anxiety: A controlled trial. *Journal of Consulting and Clinical Psychology, 64,* 333–342.

Barrett, P. M., Rapee, R. M., Dadds, M. R., & Ryan, S. M. (1996). Family enhancement of cognitive style in anxious and aggressive children. *Journal of Abnormal Child Psychology, 24,* 187–203.

Cobham, V. E. (1998). The role of parental anxiety in the treatment of childhood anxiety. *Journal of Consulting and Clinical Psychology, 66,* 893–905.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.

Dadds, M. R., Barrett, P. M., Rapee, R. M., & Ryan, S. (1996). Family process and child anxiety and aggression: An observational analysis. *Journal of Abnormal Child Psychology, 24,* 715–734.

Graziano, A. M., & Mooney, K. C. (1982). Behavioral treatment of "nightfears" in children: Maintenance of improvement at 2½- to 3-year follow-up. *Journal of Consulting and Clinical Psychology, 50,* 598–599.

Howard, B. L., & Kendall, P. C. (1996). Cognitive–behavioral family therapy for anxiety-disordered children: A multiple-baseline evaluation. *Cognitive Therapy and Research, 20*(5), 423–443.

Kendall, P. C. (1994). Treating anxiety disorders in children: Results of a randomized clinical trial. *Journal of Consulting and Clinical Psychology, 62,* 100–110.

Kendall, P. C. (1998). Empirically supported psychological therapies. *Journal of Consulting and Clinical Psychology, 66,* 3–6.

Kendall, P. C., Flannery-Schroeder, E., Panichilli-Mindel, S. M., Southam-Gerow, M., Henin, A., & Warman, M. (1997). Therapy for youths with anxiety disorders: A second randomized clinical trial. *Journal of Consulting and Clinical Psychology, 65,* 366–380.

Kendall, P. C., Marrs-Garcia, A., Nath, S., & Sheldrick, R. C. (1999). Normative comparisons for the evaluation of clinical significance. *Journal of Consulting and Clinical Psychology, 67,* 285–299.

Kendall, P. C., & Southam-Gerow, M. A. (1996). Long-term follow-up of a cognitive–behavioral therapy for anxiety-disordered youth. *Journal of Consulting and Clinical Psychology, 64,* 724–730.

Kovacs, M. (1992). *Children's Depression Inventory Manual.* Toronto, Ontario, Canada: Multi-Health Systems.

Last, C. G., Perrin, S., Hersen, M., & Kazdin, A. E. (1996). A prospective study of childhood anxiety disorders. *Journal of the American Academy of Child and Adolescent Psychiatry, 35,* 1502–1510.

Mattison, R. E. (1992). Anxiety disorders. In S. R. Hooper, G. W. Hynd, & R. E. Mattison (Eds.), *Child psychopathology: Diagnostic criteria and clinical assessment* (pp. 179–202). Hillsdale, NJ: Erlbaum.

Ollendick, T. H. (1983). Reliability and validity of the Revised Fear Survey Schedule for Children (FSSC-R). *Behavior Research and Therapy, 21,* 685–692.

Rapee, R. M. (1997). Potential role of childrearing practices in the development of anxiety and depression. *Clinical Psychology Review, 17,* 47–67.

Rapee, R. M., Barrett, P. M., Dadds, M. R., & Evans, L. (1994). Reliability of the *DSM–III–R* childhood anxiety disorders using structured interview: Interrater and parent–child agreement. *Journal of the American Academy of Child and Adolescent Psychiatry, 33,* 984–992.

Reynolds, C. R., & Richmond, B. O. (1985). *Revised Children's Manifest Anxiety Scale (RCMAS): Manual.* Los Angeles: Western Psychological Services.

Silverman, W. K., & Nelles, W. B. (1988). The Anxiety Disorders Interview Schedule for Children. *Journal of the American Academy of Child and Adolescent Psychiatry, 27,* 772–778.

Siqueland, L., Kendall, P. C., & Steinberg, L. (1996). Anxiety in children: Perceived family environments and observed family interaction. *Journal of Clinical Child Psychology, 25,* 225–237.

Weisz, J. R., & Hawley, K. M. (1998). Finding, evaluating, refining, and applying empirically supported treatments for children and adolescents. *Journal of Clinical Child Psychology, 27,* 206–216.

Received August 26, 1999
Revision received June 1, 2000
Accepted June 7, 2000 ■