Family Treatment of Childhood Anxiety: A Controlled Trial

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A family-based treatment for childhood anxiety was evaluated. Children ($n = 79$) aged 7 to 14 who fulfilled diagnostic criteria for separation anxiety, overanxious disorder, or social phobia were randomly allocated to 3 treatment conditions: cognitive-behavioral therapy (CBT), CBT plus family management (CBT + FAM), and waiting list. The effectiveness of the interventions was evaluated at posttreatment and at 6 and 12 months follow-up. The results indicated that across treatment conditions, 69.8% of the children no longer fulfilled diagnostic criteria for an anxiety disorder, compared with 26% of the waiting-list children. At the 12-month follow-up, 70.3% of the children in the CBT group and 95.6% of the children in the CBT + FAM group did not meet criteria. Comparisons of children receiving CBT with those receiving CBT + FAM on self-report measures and clinician ratings indicated added benefits from CBT + FAM treatment. Age and gender interacted with treatment condition, with younger children and female participants responding better to the CBT + FAM condition.

Anxiety difficulties are among the common psychological problem reported by children (Mattison, 1992), and there is growing evidence that many anxious adults report their problems to have originated in childhood (Rapee & Barlow, 1993). For most children, various fears occur as part of normal childhood development. However, for some, these fears intensify and persist over time, preventing the child from enjoying age-related activities and, thereby, warranting clinical attention. For example, Klein and Last (1989) reported that anxiety has a negative effect on children's general social adjustment. Anxiety problems occur in 10% to 20% of school-age children; the more general anxiety disorders that have a major impact on children's functioning, such as overanxious disorder, separation anxiety, and social phobias, are found in approximately in 5% to 10% of children (Werry, 1986).

Research is scarce with respect to the treatment of childhood anxiety disorders and the majority of published treatment studies have focused on single-case designs used in the treatment of simple phobias and specific fears in children (Dadds, Heard, & Rapee, 1991; King, Hamilton, & Ollendick, 1988). Studies of cognitive-behavioral treatment (CBT) of childhood anxiety, successfully using a combination of behavioral techniques (e.g., in vivo exposure, relaxation and contingency management) and cognitive coping skills (e.g., self-instructional training), have mainly concentrated on school fears, nighttime fears, and fears of medical procedures (Dadds, et al., 1991; Kendall et al., 1992).

The only randomized treatment study of the general anxiety disorders in children (Kendall, 1994) has shown a CBT intervention to be superior to a waiting-list condition, with improvement across measures being maintained at the 12-month follow-up. In that study, 27 children (the waiting-list control group consisted of 20 children) with a diagnosis of overanxiety, separation anxiety, or avoidant disorder were taught over 16 sessions to develop realistic expectations, to develop coping self-talk, and to self-evaluate performance as well as modeling, exposure, and relaxation training. A multimethod assessment strategy was used, including a variety of child, parent, and teacher self-report measures, as well as behavioral observations.

A point raised by Kendall (1994) concerned parental involvement and the treatment of anxious children. Research has not directly addressed this issue, and research is needed to evaluate the incorporation of structured family intervention in the treatment of anxious children. Indirect evidence points to the potential importance of the family. A recent review by Rutter et al. (1990) of genetic transmission studies indicated that a familial loading is evident for adult anxiety disorders. However, it is difficult to discern the weight of genetic versus environmental factors. Anxious children are more likely to have parents with a variety of disturbance and anxiety problems (Rutter et al., 1990). There is growing evidence that anxiety in children is significantly related to frequent negative feedback and parental restriction (Krohne & Hock, 1991). Moreover, recent experimental studies have provided evidence for the support of a

childhood anxiety model based on the development of an anxious cognitive style in the context of anxiety supporting family processes; more specifically, family processes have been shown to provoke an enhancement of avoidant responses in anxious children (Barrett, Rapee, Dadds, & Ryan, in press; Dadds, Barrett, Rapee, & Ryan, in press).

Some studies have shown parenting training programs together with cognitive procedures to be beneficial in the treatment of simple phobias in children (Dadds et al., 1991) but no study has yet evaluated the value of incorporating parent training in treatment outcome studies in childhood anxiety. For a number of other childhood disorders, family interaction has been identified as playing a major role in the development and treatment of such disorders (Dadds, 1995) and several suggestions have been made to improve the treatment outcome of childhood disorders by expanding the focus of treatment. Training parents in specific skills to manage the child's problems, improvements in marital and family problem solving and communication, and parent's own psychosocial adjustment, are some of the skills that appear to be associated with improved outcomes in childhood clinical interventions (Miller & Prinz, 1990). Thus, for families of anxious children, a comprehensive intervention might include training the parents in skills for managing the child's anxiety and avoidance, helping parents deal with any anxiety problems they themselves experience, and improving family problem solving, as well as working with the child using Kendall's CBT program (1994).

The present study reports on a randomized clinical trial investigating the effectiveness of cognitive–behavioral and family management training procedures with childhood anxiety disorders. The two treatment conditions were CBT and CBT plus family anxiety management training (CBT + FAM). It was hypothesized that both active treatment conditions would produce significant change in the dependent variables in contrast to the waiting-list control condition. Improvement was expected to be across measures and maintained at 6- and 12-month follow-ups. It was further hypothesized that the group with the added family training component would produce greater improvement in the dependent measures in comparison with the cognitive–behavioral intervention.

Method

Participants

Seventy-nine children aged 7 to 14 years (45 boys, 34 girls) participated in the treatment study. Children with one or more anxiety disorders were recruited from referrals from community centers, schools, mental health professionals, and medical practitioners, or parents referred them after media releases. The children were randomly allocated to CBT ($n = 28$), a CBT + FAM condition ($n = 25$), and a waiting-list (WL) condition ($n = 26$; treated after the waitlist period). We interviewed children and their parents separately using a structured interview schedule and only children with a principal diagnosis of overanxiety disorder ($n = 30$), separation anxiety disorder ($n = 30$), or social phobia ($n = 19$) were included. Six percent of the children were comorbid with depression, 22% with simple phobias, and 2% with oppositional disorder. Children with a principal diagnosis of simple phobia or other diagnoses were referred to the university clinic for separate intervention. Children with a secondary diagnosis of simple phobia or any other of the aforementioned anxiety disorders were included.

Therapy was provided by five registered clinical psychologists (three women, two men) in the Behavior Research and Therapy Centre of the University of Queensland, Australia. One female therapist treated 38 participants (1 dropout), and each of the other male and female therapists treated 4 participants each (4 dropouts among the remaining therapists). Each therapist treated equal numbers of children in each active treatment condition; that is, for each child treated in the CBT group, the same therapist would treat a child in the CBT + FAM group. Participants were randomly assigned to the therapists so that the first treatment participant received CBT, the second received CBT + FAM, the third received CBT, and so on, following alternate assignments both to treatment conditions and therapists.

Children who had intellectual or physical disabilities, who were currently taking antianxiety or depression medication, or whose parents were involved in acute marital breakdown ($n = 2$), were referred elsewhere and not included in the study.

Measures

A double reliability diagnosis procedure was used where two clinicians, interviewing parents and child separately, had to reach a final consensus diagnosis. The overall kappa agreement for the presence of any anxiety disorder was .70, and kappas for specific anxiety disorder diagnoses were .63 for overanxiety disorder, .82 for social phobia, and .69 for separation anxiety disorder. More details of the diagnostic reliability procedures and results can be found in Rapee, Barrett, Dadds, and Evans (1994). The Anxiety Disorder Interview Schedule for Children (ADIS-C) and a parallel version for the parents (ADIS-P) were used (Silverman & Nelles, 1988). These schedules are in accordance with the *Diagnostic and Statistical Manual of Mental Disorders* (3rd ed., revised; *DSM-III-R*; American Psychiatric Association, 1987) and contains criteria for the screening of other childhood disorders.

At posttreatment and follow-up, clinicians who were unaware of the child's treatment condition conducted diagnostic interviews and rated improvement in the child and family, on the basis of all anxiety disorder items of the ADIS (an exact copy of all the ADIS questions for each single anxiety diagnosis), and direct questions about 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, and (g) child's perceived ability to deal with feared situations. The clinicians made ratings of improvement using 0- to 6-point Likert-type scales, where $0 = markedly$ $worse$, $3 = no$ $improvement$, and $6 = marked$ $improvement$.

Self-Report Measures

The Revised Children's Manifest Anxiety Scales (RCMASs) contain 37 items, 28 forming an anxiety subscale and 9 forming a lie scale. This measure has sound validity and reliability (Reynolds & Richmond, 1978). The global manifest anxiety score has a mean of 13.8 for school-age nonclinic children in Grades 1 through 12.

The Fear Survey Schedule for Children—Revised (FSSC-R) contains 80 items (rated on a 3-point scale) assessing specific fears in children, and it has Australian norms. This scale can be divided into five subscales, and it has good test–retest reliability and internal consistency. The total fear score mean for girls was 145, and for boys it was 126 (nonclinic school samples). Matched school-age phobic children obtained the means of 175 for girls and 151 for boys (Ollendick, Matson, & Helsel, 1985).

The Children's Depression Inventory (CDI) has 27 items related to different depressive symptomatology. Each item has three descriptive sentences, and children are instructed to select the one that best characterizes them during the previous 2 weeks. This scale has good internal consistency and moderate test–retest reliability (Kovacs, 1981). The clinical cutoff is approximately 13.

The Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1991) is a well-known and researched, psychometrically sound, 118-item scale that assesses specific child behaviors from the parent's perspective. In the present study, it was used with both mothers and fathers. The CBCL provides a total behavior problem score, several subscale scores, and scores on two dimensions of dysfunction: Internalizing (e.g., anxiety, depression, and withdrawal) and Externalizing (e.g., aggression and impulsivity). Only the Internalizing and Externalizing scores were used in this study. For every scale, scores obtained above the 98th percentile are considered within the clinical range.

The Depression Anxiety Stress Scales (DASS; Lovibond & Lovibond, 1994) comprise 3 seven-item scales assessing depression, anxiety, and tension-stress. The scales have been extensively developed and have excellent psychometric properties. The Depression and Anxiety subscales have been found to correlate strongly with more widely used measures of depression and anxiety, respectively, and the Stress scale has been found to discriminate myocardialinfarct patients from nonpatients. In the present study, both mothers and fathers were asked to complete the DASS, and the scores were used only to assess treatment failure predictors.

Experimental Measures

Threat interpretation and response plans to ambiguity (Barrett et al., in press) were measured. Threat and avoidance scores came from the child's interpretation and plans of responses and solutions to 12 ambiguous situations respectively. Mean threat scores and avoidant solutions were obtained pretreatment and posttreatment for children.

The Family Enhancement of Avoidant Responses (FEAR) effects (Barrett et al., in press; Dadds et al., in press) were measured as follows: Two of the ambiguous threat situations were selected to be discussed by the family as a whole. The child was instructed to propose a final solution (what he or she would do in response to the situation) at the end of the family discussion. The two ambiguous situations used for the family discussions were as follows.

> *Physical situation:* On the way to school you (your child) feels funny in the tummy. What do you think is happening? What would you (your child) do?

> *Social situation:* You see a group of students from another class playing a great game. As you (your child) walk over and want to join in, you notice that they are laughing. What do you think is happening? What would you (your child) do?

The child and her or his parents were asked to interpret and respond to these situations, first alone, and then they were brought together to discuss the two ambiguous situations for 5 min each. The family was told that, although the parents could help the child, the final solution was to be the child's decision. The child's solutions were recorded for comparison with those previously suggested by the child in response to the initial, individual protocol of the same ambiguous situations and questions.

The type of solutions suggested were scored as proactive, aggressive, or avoidant; in the present study, just avoidant solutions were taken into account. *Avoidant solutions* were defined as those in which the child removes himself or herself from the situation. Raters were two psychologists naive to the diagnostic status of the children, and 100% agreement occurred on the assignment of child responses to avoidant, aggressive, and prosocial categories. Previous research has shown that this measure of avoidance discriminates between anxious, nonclinic, and aggressive children and that anxious children's tendency to report avoidant solutions increases following family discussions (FEAR effect; Barrett, Rapee, Dadds, & Ryan, in press).

Procedure

After referral, clinic staff contacted parents and made an intake appointment interview during which consent forms were completed and reliability diagnostic interviews were conducted. Parents and children were given a packet of self-report measures and asked to return them at the second intake (experimental) interview, which occurred within a week. During the second interview, parents and children completed the experimental procedure of interpreting and providing solutions to hypothetical ambiguous situations and the two family discussion tasks.

After the intake interviews and establishment of a consensus diagnosis, participants were randomly assigned to the 12-week CBT, the 12-week CBT + FAM, or the 12-week WL condition. Participants in the treatment conditions were randomly assigned to therapists and seen on a weekly basis for 60 to 80 min. Participants assigned to the WL condition were given the same measures as those in the treatment conditions at the beginning and end of the 12-week waiting period. Families who sought alternative treatment during the waiting period ($n = 2$) were excluded from the analysis. All the WL control participants who continued to meet diagnostic criteria after the 12-week waiting period were offered the family intervention treatment, as well as failures at 12 months follow-up in the CBT-only group.

We measured treatment integrity by randomly selecting and audiotaping 60% of the therapy sessions across treatment conditions. A clinician who had not been informed of each family's treatment condition listened to all the audiotapes and followed a treatment integrity checklist to assure treatment adherence to each condition.

Treatment Materials

FAM (Barrett, Dadds, & Rapee, 1991) was designed to run in parallel with an Australian adaptation of Kendall's CBT program (Coping Cat Workbook; Kendall, 1990), which specifically targets the child's anxiety using exposure and cognitive restructuring strategies. Thus, two treatment manuals were used in the FAM condition, and the Coping Koala Workbook (Barrett, Dadds, & Rapee, 1991) was used on its own for the 12-session CBT child treatment condition.

All children in the active treatment conditions (i.e., CBT delivered in the form of individual therapy) received the Coping Koala Workbook, which included recognizing anxious feelings and somatic reactions to anxiety, cognitive restructuring in anxiety-provoking situations, coping self-talk, exposure to feared stimuli, evaluating performance, and administering self-reinforcement as appropriate. The first four sessions were training sessions in which anxiety management procedures were introduced, role-played by the therapist and practiced by each child (identification of positive–negative thoughts that one forms in a variety of situations and the feelings that one experiences, relaxation training, coping self-talk in anxiety-provoking situations, realistic self-evaluation, development of self-reward strategies). Throughout the remaining eight sessions, each child practiced the previously mentioned anxiety coping skills by using in vivo exposure to feared situations, starting with the low-stress situations and gradually increasing to high-stress situations (for more detail on specific treatment procedures, see Kendall, 1994).

Family Anxiety Management (FAM) was used in parallel with the Coping Koala Workbook in the CBT + FAM condition; that is, after the child completed each of the Coping Koala sessions, the child and parents would have a Family Anxiety Management therapy session.

FAM emphasizes process methods for empowering parents and children by forming an "expert team" with them, including the open sharing of information, joint determination of the content and processes of therapy, and the identification and reinforcement of family members for any existing areas of expertise they have (Sanders & Dadds, 1993).

The three specific content aims of the FAM anxiety intervention are as follows: First, we provided training to parents in how to reward cou-

rageous behavior and extinguish excessive anxiety in the child; thus, parents were trained in reinforcement strategies including verbal praise, privileges, and tangible rewards made contingent on facing up to feared situations. Planned ignoring was used as a method for dealing with excessive complaining and anxious behavior; that is, the parent was trained to listen and respond empathically to the child's complaints the first time they occur. However, repetitions were followed by the parent's prompting the child to engage in a coping strategy (that was learned in the parallel CBT intervention) and then the parent's withdrawing attention until the anxious or complaining behavior ceases. Thus, parents were taught how to use simple contingency management strategies such as descriptive praise, natural consequences, and planned ignoring to reduce conflict and increase cooperation in the family. During the sessions, parents role-played the contingency management strategies with examples of their child's fearful behaviors.

Second, we taught parents how to deal with their own emotional upsets, gain awareness of their own anxiety responses in stressful situations, and model problem-solving and proactive responses to feared situations. Third, we provided brief training in communication and problem-solving skills to parents so that they would become better able to work as a team in solving future problems and maintaining therapeutic gains once therapy has terminated. This training involves the following: (a) responding to conflict—parents are trained in skills for reducing the escalation of interparental conflict over child-rearing issues and in being consistent with each other in terms of appropriate handling of their child's fearful behaviors; (b) daily discussions—parents are encouraged to set aside time for regular, casual discussions about each other's day, and brief training in listening skills is provided to increase the effectiveness of these discussions; and (c) problem solving—parents are encouraged to schedule weekly problem-solving discussions to aid in the effective management of child and family problems. Brief training in problem-solving skills is provided (Dadds, 1989). The family intervention is designed to be completed in 12 sessions; 4 sessions are devoted to each of the discipline, anxiety management, and parental communication sections.

Therapist contact time was matched for both treatment conditions. In the CBT condition, sessions were 60–80 min. In the CBT + FAM condition, approximately 30 min was spent on CBT and 40 min on the family intervention. Treatment manuals were implemented with flexibility to allow for the individuality of each family and child.

Results

To assure there were no significant demographic differences across treatment conditions at pretreatment, we performed one-way analyses of variance (ANOVAs) or chi-square tests comparing both treatments and WL conditions. There were no significant differences across conditions for child's sex, mother's age and father's age, number of siblings, socioeconomic status, or marital status. There was a significant difference across treatment conditions for child's age (CBT, $M = 9.7$, $SD = 2.5$; CBT + FAM, $M = 10.1$, $SD = 1.9$; WL, $M = 8.2$, $SD = 1.9$), $F(2, 76) = 5.43$, $p < .01$. A follow-up Tukey honestly significant difference (HSD) test showed the difference to be between the CBT + FAM and WL conditions. To determine whether posttreatment diagnosis results were different for child's age, we created a dummy independent variable by rating each child as either diagnosis free or having an anxiety diagnosis at posttreatment and then comparing these two conditions on child's age. The difference across conditions was not significant, $F(1, 51) = 0.40$, ns. All dependent measures (self-report measures for both children and parents) were compared across both treatment conditions and the WL condition. None of the ANOVAs indi-

cated significant differences between the conditions on these self-report measures at pretreatment.

During treatment, there were 3 dropouts in the CBT condition (completers = 28), 4 in the WL condition (completers = 23), and 2 in the CBT + FAM condition (completers = 25). During follow-up, one family in the CBT group and two families in the CBT + FAM group moved out of state. For all measures, we found no significant differences between completers and dropouts using ANOVA comparisons on all dependent measures.

Procedures to maximize and measure protocol adherence were taken to ensure that therapists followed each item of the FAM protocol during each of the sessions. We also wanted to rule out the possibility that, if parents in the CBT-only condition asked questions about how to manage their child, therapists would respond the same way and not provide child management suggestions characteristic of the FAM condition. If such questions occurred, therapists followed the standard procedure of only empathizing with the parent and redirecting him or her to the content of the child's ongoing CBT sessions. Protocol adherence was confirmed for both treatment conditions for the 60% of sessions checked by a clinician who had not been informed of each participant's treatment allocation. The clinician was given a checklist of each session's contents in both the CBT and FAM conditions, which she had to tick, item per item, as she listened to the audiotapes. Hence, within each treatment condition, session-by-session contents were checked and adherence to protocol was confirmed for all sessions with each therapist—parents in the CBT did not receive any of the components of the FAM program.

To assess therapist comparability in terms of effectiveness, we conducted ANOVA comparisons on all dependent measures at posttreatment and at 6- and 12-month follow-ups using therapists as the independent variable. No significant differences were found.

Diagnostic Status

At posttreatment, the percentage of children who no longer met DSM–III–R criteria for a current anxiety disorder was significantly less for the treatments (37 of 53 children, or 69.8%) than for the WL (6 of 23 children, or 26.0%), $\chi^2(1, N = 76) = 10.16$, $p < .05$. There was also a significant difference between the two treatments (CBT: 16 of 28 children, or 57.1%; CBT + FAM: 21 of 25 children, or 84.0%), $\chi^2(1, N = 53) = 4.43$, $p < .05$.

At the 6-month follow-up, the difference between the two treatment conditions in the proportion of participants who no longer met diagnostic status was not significant (CBT: 20 of 28 children, or 71.4%; CBT + FAM: 21 of 25, or 84.0%), $\chi^2(1, N = 53) = 1.1$, ns. At the 12-month follow-up, the difference between the two treatment conditions on diagnostic status was again significant (CBT: 19 of 27 children, or 70.3%; CBT + FAM: 22 of 23, or 95.6%), $\chi^2(1, N = 50) = 5.27$, $p < .05$.

Clinical Evaluations

Table 1 presents means for the seven clinical evaluation scales, each on a scale ranging from 0 to 6 (0 = markedly worse, 3 = no improvement, 6 = marked improvement). Means center

Table 1
Mean Independent Clinician Ratings and Standard Deviations of Improvement

	Posttreatment		6-month follow-up		12-month follow-up	
Scale	CBT	CBT + FAM	CBT	CBT + FAM	CBT	CBT + FAM
Clinical Global Impression						
M	4.67[a]	5.20	4.82[a]	5.28	4.96[a]	5.52
SD	0.77	0.86	0.72	0.73	0.89	0.73
Overall Functioning						
M	4.71	4.96	4.71[a]	5.24	4.85[a]	5.65
SD	0.85	0.93	0.71	0.78	0.86	0.65
Overall anxiety						
M	4.50[a]	5.24	4.57[a]	5.32	4.77[a]	5.52
SD	0.79	0.88	0.79	0.69	0.97	0.79
Avoidant Behaviors						
M	4.89	5.20	4.67[a]	5.28	4.74[a]	5.47
SD	0.78	0.86	0.86	0.89	1.02	0.84
Family[b]						
M	3.96[a]	5.00	4.00[a]	5.16	4.48[a]	5.65
SD	1.07	1.10	0.86	0.94	1.01	0.57
Family Skill[c]						
M	4.14[a]	5.44	4.03[a]	5.28	4.37[a]	5.65
SD	0.97	1.00	0.84	0.84	1.11	0.57
Child Skill[d]						
M	4.78[a]	5.28	4.53[a]	5.36	4.67[a]	5.65
SD	0.87	0.93	0.88	0.57	1.14	0.49

Note. Univariate comparisons were made between the two conditions using ANOVAs, $p < .05$. A rating of 0 indicates markedly worse, 3 indicates no improvement, and 6 indicates marked improvement. CBT = cognitive–behavioral treatment; CBT + FAM = cognitive behavioral treatment plus family anxiety management intervention.
[a] The mean is different from the corresponding mean. [b] Change of Family Disruption by the Child's Behavior. [c] Change of Parent's Perception of Own Ability to Deal With Child's Behaviors. [d] Change of Child's Ability to Deal With Difficult Situations.

around 5.0 for CBT and around 5.4 for CBT + FAM, and they generally increase from posttreatment to the 6-month follow-up and to the 12-month follow-up, indicating an overall improvement with time. As the clinical evaluations represent seven interrelated dimensions, we first tested for treatment group differences at posttreatment and at 6- and 12-month follow-ups, using a series of multivariate analyses of variance (MANOVAs [repeated measures]). Where significant differences were found, follow-up univariate ANOVAs were conducted.

At posttreatment, an overall MANOVA indicated a significant difference between treatments, $F(7, 44) = 5.28, p < .01$. All means were higher in the CBT + FAM condition, and follow-up ANOVAs showed that the CBT + FAM treatment group was significantly superior to the CBT group on three of seven of the clinical evaluation scales: Clinical Global Impression, $F(1, 51) = 5.37, p < .05$; Change of Family Disruption by the Child's Behavior, $F(1, 51) = 22.8, p < .01$; and Change in Parent's Perception of Own Ability to Deal With Child's Behaviors, $F(1, 51) = 22.8, p < .01$.

At the 6-month follow-up, the MANOVA indicated a significant difference between treatments, $F(7, 45) = 5.79, p < .01$. Follow-up ANOVAs showed that the CBT + FAM treatment group was significantly superior to the CBT group on all seven clinical evaluation scales: Clinical Global Impression, $F(1, 51) = 5.37, p < .05$; Overall Functioning, $F(1, 51) = 6.5, p < .05$; Overall Anxiety, $F(1, 51) = 13.3, p < .01$; Avoidant Behaviors,

$F(1, 51) = 6.2, p < .05$; Change of Family Disruption by the Child's Behavior, $F(1, 51) = 21.9, p < .01$; Change of Parent's Perception of Own Ability to Deal With Child's Behaviors, $F(1, 51) = 28.9, p < .01$, and Change of Child's Ability to Deal With Difficult Situations, $F(1, 51) = 15.9, p < .01$.

At the 12-month follow-up, the MANOVA indicated a significant difference between treatments, $F(7, 42) = 4.8, p < .01$. Follow-up ANOVAs showed that the CBT + FAM treatment group was again significantly superior to the CBT group on all seven clinical evaluation scales: Clinical Global Impression, $F(1, 48) = 5.6, p < .05$; Overall Functioning, $F(1, 48) = 13.3, p < .01$; Overall Anxiety, $F(1, 48) = 8.5, p < .01$; Avoidant Behaviors, $F(1, 48) = 7.5, p < .01$; Change of Family Disruption by the Child's Behavior, $F(1, 48) = 24.0, p < .01$; Change in Parent's Perception of Own Ability to Deal with Child's Behaviors, $F(1, 48) = 24.7, p < .01$; and Change of Child's Ability to Deal With Difficult Situations, $F(1, 48) = 14.7, p < .01$.

Self-Report Measures

Tables 2 and 3 show means and standard deviations for the self-report measures at pretreatment, at posttreatment, and at 6- and 12-month follow-ups for the CBT, CBT + FAM, and WL treatment conditions. Results for each self-report measure were analyzed in two stages. First, we used a 3 (condition: CBT, CBT + FAM, WL) $\times$ 2 (phase: pre- vs. posttreatment) ANOVA or MANOVA to examine immediate treatment effects. Second, we

Table 2

Means (and Standard Deviations) of Child Self-Report Measures for the Three Treatment Conditions Pretreatment, Posttreatment, and Follow-Up (6-Month and 12-Month)

Measure	Pretreatment			Posttreatment			6-month follow-up		12-month follow-up	
	CBT	CBT + FAM	WL	CBT	CBT + FAM	WL	CBT	CBT + FAM	CBT	CBT + FAM
RCMAS										
M	12.7	11.5	13.3	9.0	6.6	11.6	5.6	3.8	4.9	4.3
SD	5.8	6.2	6.5	6.8	4.6	6.0	4.4	4.0	4.2	4.1
FSSCR										
M	131.4	127.1	141.6	119.9	114.2	134.3	105.5	100.8	103.8	87.9
SD	23.5	26.1	21.4	26.0	20.2	32.6	22.0	19.4	22.4	28.6
CDI										
M	8.3	8.6	8.4	4.5	4.1	6.8	3.7	2.4	2.8	2.2
SD	6.3	6.1	5.9	3.8	4.8	5.3	3.1	2.5	2.7	2.5

Note. CBT = cognitive–behavioral treatment; CBT + FAM = cognitive–behavioral treatment plus family anxiety management; WL = waiting list; RCMASs = Revised Children's Manifest Anxiety Scales; FSSCR = Fear Survey Schedule for Children—Revised; CDI = Children's Depression Inventory.

used a 2 (treatment: CBT, CBT + FAM) × 3 (phase: posttreatment, 6-month follow-up, 12-month follow-up) ANOVA or MANOVA to examine the durability of treatment effects for the two active treatments. MANOVAs were used for measures having multiple subscales. Where a significant interaction occurred between treatment and time, time effects were examined within each treatment group, and treatment conditions were compared at the relevant time. As an estimate of the clinical significance of change on self-report measures, percentages of children scoring in the normal range (*T* score < 70) were calculated for posttreatment and 12-month follow-up scores on mothers' CBCL Internalizing scale, the measure that has the best established discriminant validity for children in the age group used.

From pre- to posttreatment for the RCMAS, the ANOVA re-

vealed a time effect only, $F(1, 71) = 25.49$, $p < .01$, showing an overall reduction of self-reported anxiety for both treatments and the WL condition. The ANOVA comparing treatment conditions at posttreatment and at 6- and 12-month follow-ups also revealed phase effects only, $F(2, 427) = 8.55$, $p < .01$, indicating continued improvement for both treatments.

From pre- to posttreatment for the FSSC-R, the ANOVA revealed phase and treatment main effects, $F(1, 72) = 11.10$, $p < .01$, and $F(2, 72) = 4.18$, $p < .05$, respectively. The time effect indicated an overall reduction of self-reported fears for all conditions. The treatment effect appeared inconsistent with the earlier analysis showing that the conditions were not different on any of the measures at pretreatment. Post hoc univariate analyses comparing the three conditions confirmed no significant differences on the FSSC-R at pretreatment, but differences

Table 3

Means and Standard Deviations of Parent Self-Report Measures for the Three Treatment Conditions at Pretreatment, Posttreatment, and 12-Month Follow-Up

Parent and measure	Pretreatment			Posttreatment			6-month follow-up		12-month follow-up	
	CBT	CBT + FAM	WL	CBT	CBT + FAM	WL	CBT	CBT + FAM	CBT	CBT + FAM
Mother										
CBCL-I										
M	67.1	66.3	68.6	58.0	56.0	66.6	55.4	49.1	52.4	45.8
SD	7.5	7.3	6.3	8.3	8.1	9.5	8.6	9.4	9.6	7.6
CBCL-E										
M	57.1	53.5	58.1	51.5	48.2	55.2	49.4	46.0	46.9	40.2
SD	8.9	7.9	8.3	7.1	8.9	8.6	7.8	9.7	7.8	8.2
Father										
CBCL-I										
M	66.3	64.9	64.3	57.9	57.2	64.1	53.9	47.0	52.9	44.2
SD	7.3	8.2	8.7	8.6	8.0	10.1	6.7	10.7	9.1	8.7
CBCL-E										
M	58.7	54.7	57.9	54.8	49.2	55.4	49.6	45.5	47.3	39.8
SD	9.2	8.1	8.6	7.6	8.4	6.2	6.5	9.8	8.1	9.4

Note. CBT = cognitive–behavioral treatment; CBT + FAM = cognitive–behavioral treatment plus family intervention; WL = waiting list; CBCL-I = Child Behavior Checklist, Internalizing subscale; CBCL-E = Child Behavior Checklist, Externalizing subscale.

were evident at posttreatment, $F(2, 72) = 3.64$, $p < .05$, despite the lack of a Treatment × Time interaction. A post hoc Tukey's HSD test showed that at posttreatment, CBT + FAM had significantly lower fear scores than the WL group. The ANOVA comparing treatment conditions at posttreatment and at 6- and 12-month follow-ups produced a Time × Treatment interaction, $F(2, 46) = 3.87$, $p < .05$, and a time effect, $F(2, 46) = 11.53$, $p < .01$. Univariate comparisons of the conditions at the 6- and 12-month follow-ups showed that CBT + FAM had lower fear scores than CBT at 12-month follow-up, $F(1, 47) = 4.70$, $p < .05$, but not at the 6-month follow-up.

From pre- to posttreatment for the CDI, the ANOVA revealed a time effect only, $F(1, 73) = 25.27$, $p < .01$, showing an improvement in terms of overall reduction of self-reported depression for the three conditions. The same applied for the ANOVA comparing the treatment conditions at posttreatment, at 6-month follow-up and at 12-month follow-up, $F(2, 46) = 3.76$, $p < .05$, indicating that both treatment conditions continued to show reductions in CDI scores.

From pre- to posttreatment for mother's scores on the CBCL Internalizing and Externalizing scales, the MANOVA revealed a significant Treatment × Time interaction, $F(4, 140) = 4.06$, $p < .01$, as well as treatment and time main effects. For the Internalizing scale, there was a time effect associated with reductions in Internalizing scale scores for both CBT, $F(1, 22) = 21.19$, $p < .01$, and CBT + FAM, $F(1, 23) = 80.08$, $p < .01$, but not for WL, $F(1, 22) = 1.94$, ns. An ANOVA revealed significant differences across conditions on the Internalizing scale at posttreatment, $F(2, 71) = 10.1$, $p < .01$. A follow-up Tukey HSD test showed that children in both the CBT and CBT + FAM conditions had significantly lower internalizing scores than participants in the WL condition.

From pre- to posttreatment for mother's scores on the Externalizing scale, time effects associated with reductions in Externalizing scale scores were evident for CBT, $F(1, 22) = 11.24$, $p < .01$, and CBT + FAM, $F(1, 23) = 80.1$, $p < .01$, but not the WL, $F(1, 22) = 1.94$, ns. The ANOVA at posttreatment was significant, $F(2, 73) = 4.21$, $p < .05$, and a follow-up Tukey showed that only CBT + FAM had significantly lower Externalizing scale scores than the WL group.

The MANOVA comparing mother's CBCL scores for the two treatments at posttreatment, 6- and 12-month follow-ups, showed significant time, $F(4, 35) = 9.83$, $p < .01$, and treatment main effects, $F(2, 37) = 4.22$, $p < .05$, but a nonsignificant Treatment × Time interaction. Thus, both treatments continued to improve through follow-up, with the CBT + FAM group maintaining consistently lower internalizing and externalizing scores than the CBT-only group.

From pre- to posttreatment for father's scores on the CBCL Internalizing and Externalizing scales, the MANOVA revealed a significant Treatment × Time interaction, $F(4, 120) = 3.42$, $p < .05$, as well as treatment and time main effects. For the Internalizing scale, there was a time effect associated with reductions in Internalizing scores for both the CBT, $F(1, 21) = 29.36$, $p < .01$, and CBT + FAM, $F(1, 22) = 36.66$, $p < .01$, but not for the WL, $F(1, 16) = 1.45$, ns. An ANOVA revealed significant differences across conditions at posttreatment, $F(2, 61) = 3.44$, $p < .05$. A follow-up Tukey HSD test showed that children in

CBT + FAM had significantly lower Internalizing scale scores than children in the WL group.

From pre- to posttreatment for father's scores on the Externalizing scale, time effects were evident for the CBT, $F(1, 21) = 5.30$, $p < .05$, CBT + FAM, $F(1, 22) = 12.91$, $p < .01$, and WL conditions, $F(1, 16) = 6.50$, $p < .05$, indicating a general improvement in Externalizing scale scores for all three conditions. The ANOVA at posttreatment was significant, $F(2, 61) = 4.32$, $p < .05$, and a follow-up Tukey showed that CBT + FAM had significantly lower Internalizing scale scores than both the WL and CBT conditions.

The MANOVA comparing father's CBCL scores for the two treatment conditions at posttreatment and at 6-month and 12-month follow-ups, showed significant time, $F(4, 30) = 6.56$, $p < .01$, and treatment main effects, $F(2, 32) = 7.07$, $p < .01$, but a nonsignificant Treatment × Time interaction. Thus, as for mothers, both treatment conditions continued to improve through follow-up, with CBT + FAM maintaining consistently lower Internalizing and Externalizing scale scores than CBT.

In terms of the clinical significance of CBCL results, there were no significant differences between treatment conditions in the number of children scoring above the CBCL–Internalizing clinical cutoff at pretreatment. At posttreatment, 7.7% of the CBT group, 4.4% of the CBT + FAM group, and 39.1% of the WL were still in the clinical range. At the 12-month follow-up, 8.3% of the CBT, and 4.5% of the CBT + FAM group scored in the clinical range. Differences between the CBT and CBT + FAM groups were not significant at either posttreatment or the 12-month follow-up.

Age, Sex, and Diagnosis Effects

Numbers of participants did not provide sufficient power to analyze all possible interactions of age, sex, and specific diagnosis on treatment outcome using all measures. Thus, we restricted our analyses here to examination of main effects of age (coded as younger [7–10 years] and older [11–14 years]), sex, and pretreatment diagnosis (overanxiety, separation anxiety disorder, social phobia) on treatment outcome at posttreatment and at the 12-month follow-up using rates of being diagnosis-free as the dependent measure.

For male participants, there were no significant differences across treatment conditions both at posttreatment (diagnosis-free: 65% CBT, 84% FAM), $\chi^2(1, N = 33) = 1.5$, ns, and at the 12-month follow-up (diagnosis-free: 75% CBT, 92% FAM), $\chi^2(1, N = 33) = 1.5$, ns. For female participants, there were significant differences across treatment conditions, indicating a superiority of the CBT + FAM intervention both at posttreatment (diagnosis-free: 37% CBT, 83% FAM), $\chi^2(1, N = 20) = 4.43$, $p < .05$, and at the 12-month follow-up (diagnosis-free: 57% CBT, 100% FAM), $\chi^2(1, N = 17) = 5.20$, $p < .05$.

At posttreatment, there were no significant differences relative to absence of diagnoses, when participants' status was compared across pretreatment diagnosis groups, $\chi^2(2, N = 53) = 0.99$, ns (percentages of participants who were diagnosis free when considering pretreatment diagnosis: overanxiety disorder, = 68.2%; separation anxiety disorder, 77.8%; social phobia = 61.5%). Identical results applied at the 12-month follow-up

(overanxiety disorder, 75.0%; separation anxiety, 94.1%; social phobia, 76.9%), $\chi^2(2, N = 50) = 2.58$, ns.

In terms of age, younger children (7 through 10 years) had significant higher rates of diagnosis-free participants at posttreatment (100%) in the CBT + FAM condition in comparison with those (55.6%) in the CBT condition, $\chi^2(1, N = 33) = 8.8$, $p < .003$. Older children (11 through 14 years, 60% diagnosis-free for both CBT and FAM; $\chi^2[1, N = 20] = 0$, ns) did not show significant differences across CBT and CBT + FAM treatment conditions at posttreatment. The same effect was observed for both age groups at the 12-month follow-up, with only the younger group showing a significant higher proportion of participants diagnosis-free in the CBT + FAM group, $\chi^2(1, N = 31) = 4.3$, $p < .05$.

Experimental Measures

Table 4 shows the children's means and standard deviations for threat interpretations and avoidant solutions across the three treatment conditions. For these scores (children, mothers, and fathers), ANOVAs (repeated measures) comparing pre- and posttreatment indicated significant Treatment × Phase interactions. Hence, we dismantled the interactions by conducting a series of one-way AN-OVAs comparing conditions at each phase. At pretreatment there were no significant differences across conditions both for threat interpretations, $F(2, 77) = 2.3$, ns, and avoidant solutions, $F(2, 77) = 1.1$, ns. At posttreatment, both active treatment conditions showed less threat interpretations and avoidant responses. Post hoc tests indicated that, for threat interpretations, the CBT + FAM group had lower mean threat scores in comparison with both the CBT group and the WL group, $F(2, 75) = 12.1$, $p < 0.01$. For avoidant responses, post hoc tests indicated that the CBT + FAM group had lower scores than those of the WL group, $F(2, 75) = 3.3$, $p < .05$.

Table 5 shows the percentage of children choosing avoidant solutions before and after family discussions, pretreatment and posttreatment. At pretreatment, children in the three condi-

Table 4
Child Threat Scores and Avoidant Solutions Pre- and Posttreatment

Threat scores and avoidant solutions	CBT	CBT and family	Waiting list
Threat scores			
Pretreatment			
M	6.3	4.8	5.8
SD	2.5	2.3	2.5
Posttreatment			
M	4.0	2.0	5.8
SD	3.1	1.4	3.2
Avoidant solutions			
Pretreatment			
M	3.8	3.3	2.8
SD	3.5	3.2	2.8
Posttreatment			
M	2.2	0.8	3.5
SD	4.0	1.2	4.6

Note. CBT = cognitive–behavioral treatment.

Table 5
Percentage of Children in Each Treatment Group Choosing Avoidant Solutions Pre- and Post-Family Discussions, Before and After Treatment

Treatment group	Pretreatment		Posttreatment	
	Pre	Post	Pre	Post
Waiting list	23.3	71.7	30.3	67.8
CBT	38.4	88.5	15.9	3.9
CBT and family	25.0	88.5	15.9	0.0

Note. Pre = prediscussion; Post = postdiscussion; CBT = cognitive-behavioral treatment.

tions similarly increased their avoidant plans of action after family discussions. At posttreatment, children in both the CBT and the CBT + FAM groups decreased their avoidant plans after the family discussions, compared with the WL group children who maintained similar percentages of avoidant responses.

For specific details on methodology and results of this section, please refer to Barrett et al. (in press).

Discussion

Both active treatment conditions produced significant change in the dependent variables in contrast to the WL control condition. Improvement occurred across measures and was maintained at the 6- and 12-month follow-ups. Furthermore, the condition with the added family training component showed significant improvement on a number of measures in comparison with the CBT condition.

Similar to Kendall's (1994) study, the present study demonstrated the effectiveness of using cognitive–behavioral procedures with anxious children. Kendall's controlled treatment study showed that 64% of children who had received CBT intervention no longer met diagnostic criteria at posttreatment. In the present study, 57% of children who had received the shortened CBT (12 instead of 16–20 sessions used in Kendall's intervention) no longer met diagnostic status at posttreatment. For the same group, the proportion of children who were diagnosis free increased at the 6-month follow-up to 71%, and this was maintained at the 12-month follow-up (70%). For the children in the CBT + FAM condition at posttreatment, 6-month follow-up, and 12-month follow-up, 84%, 84%, and 95% of children were diagnosis-free, respectively. The success of both treatments and the extra benefits associated with the adjunctive family intervention applied equally to each specific anxiety group (overanxious, separation anxiety, and social phobia).

On the independent clinical evaluation scales, both the CBT and the CBT + FAM groups showed improvement at posttreatment that was maintained at all follow-ups. Participants in the latter group reported continued significant improvement on all clinical evaluation scales both at the 6- and the 12-month follow-ups, supporting the usefulness of a family component in the maintenance and generalization of therapeutic gains.

Different treatment success rates by gender and age in response to the CBT and CBT + FAM treatment conditions were evident. Younger children (7- to 10-year olds) responded better

to the CBT + FAM condition, but for older children (11- to 14-year-olds), there was no significant difference across treatment conditions both at posttreatment and at follow-up. Enhancing parenting skills may be important for younger children, but for older children individual child cognitive work and exposure to feared stimuli may be sufficient to produce improvement in anxiety problems.

Regarding gender, some interesting findings were also observed when we considered diagnostic status at posttreatment and at the 12-month follow-up: Female participants responded better in the CBT + FAM treatment condition, but male participants did equally well in both treatment conditions. We are reticent to attempt an interpretation of this finding, given the small numbers of female participants involved in the comparisons. However, it is interesting to note that previous research has found gender differences in the way parents interact with anxious children (Krohne & Hock, 1991), and further studies are needed for examination of the interaction between gender and family in the development and treatment of anxious children.

For the parent self-report measures, both CBT and CBT + FAM showed improvement at posttreatment in comparison with the WL group. For both the Internalizing and Externalizing scales of the CBCL for mothers and fathers, both treatment conditions improved at posttreatment and continued to improve through follow-up, with CBT + FAM maintaining consistently lower Internalizing and Externalizing scale scores than the CBT-only group. The greater improvement in externalizing problems for the children in CBT + FAM may point to the importance of teaching parents contingency management skills to help their children deal with feared stimuli and maximize the benefit of exposure techniques. Overall, the parent report measures support the extra benefits of the CBT + FAM intervention.

The children's self-report measures also showed the benefit of active treatment, with limited support for the superiority of the CBT + FAM condition. In the case of the FSSC-R, the CBT + FAM group produced significantly lower FSSC-R scores at the 12-month follow-up than the CBT group did. For the CDI, scores were below the clinical level for all conditions, so it was not surprising that no differences were found between WL and active treatment conditions at posttreatment and follow-ups. However, one needs to be cautious when interpreting child self-report measures, because previous research has questioned their validity in discriminating anxious from nonclinic children (Perrin & Last, 1992).

Another issue relates to the length and number of therapeutic sessions necessary for long-term successful results and the implementation of cost-effective strategies. The present study's CBT program (twelve 60- to 80-min sessions) showed similar success to Kendall's (1994) CBT intervention with sixteen 50- to 60-min sessions. Perhaps future research could further examine the issue of optimum intervention length for anxious children. With respect to demands for therapist's expertise, family interventions require specific parent management skills and sound knowledge of family processes during therapy. Future studies implementing behavioral family programs need to take these considerations into account.

On the experimental tasks, children in the CBT + FAM group showed significant reductions in the number of threat interpretations and avoidant plans at posttreatment, in comparison with children in the WL and CBT conditions. However, children in both active treatment conditions showed a reduction in the FEAR effect (Barrett et al., in press; Dadds et al., in press) in comparison with WL participants. We would have expected that the CBT + FAM treatment group would differ from the CBT-alone group on this specific experimental measure of family interaction. The results show otherwise, perhaps because parents of the CBT children were aware of the exposure techniques and the emphasis on substituting avoidance with proactive behaviors that was taught to their children during therapy. Other possible explanations are that no differences were found because of a ceiling effect for change on the measure being reached or that a structured intervention at any level of a system (parents and child vs. child alone) will induce changes in the system's ability to problem solve in a proactive manner, at least in front of the experimental team in the clinic.

The family intervention we evaluated incorporated a combination of three components, and future research would benefit from assessing which specific family treatment components enhanced effectiveness and whether families with identifiable characteristics respond differentially to the different components. Future studies could also be improved by the inclusion of a WL group in which equal therapist unstructured play contact would be provided so that possible relationship effects could be ascertained.

Other considerations have to be taken into account when interpreting the results of the added FAM treatment components. The benefits documented in this study could simply be due to the adding of multiple treatments; the FAM benefits could be interpreted with extra confidence if the study included another condition in which an adjunctive treatment was provided to CBT that did not produce additional gains. It is possible that parents in the FAM treatment were more motivated to provide a favorable rating of the outcomes associated with the extra family condition because of the extra effort they contributed in that condition.

In conclusion, the provision of a structured intervention for parents improved outcomes in the CBT of anxious children. Further research is needed to establish the specificity of effect of this intervention as a whole and in terms of its specific components with regard to different ages and gender of children, and with regard to parental characteristics such as psychosocial adjustment.

It would also be beneficial to implement controlled treatment studies with long-term follow-ups (throughout childhood and adolescence) to ascertain maintenance effects and the value of developing prevention programs targeting children with identified vulnerability for anxiety disorders in childhood.

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