Journal of Consulting and Clinical Psychology
1997, Vol. 65, No. 4, 627-635

0022-006X/97/$3.00

Prevention and Early Intervention for Anxiety Disorders: A Controlled Trial

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The Queensland Early Intervention and Prevention of Anxiety Project evaluated the effectiveness of a cognitive-behavioral and family-based group intervention for preventing the onset and development of anxiety problems in children. A total of 1,786 7- to 14-year-olds were screened for anxiety problems using teacher nominations and children's self-report. After recruitment and diagnostic interviews, 128 children were selected and assigned to a 10-week school-based child- and parent-focused psychosocial intervention or to a monitoring group. Both groups showed improvements immediately postintervention. At 6 months follow-up, the improvement maintained in the intervention group only, reducing the rate of existing anxiety disorder and preventing the onset of new anxiety disorders. Overall, the results showed that anxiety problems and disorders identified using child and teacher reports can be successfully targeted through an early intervention school-based program.

There is growing evidence to suggest that anxiety disorders in childhood and adolescence are significant and warrant more attention from researchers and clinicians. Anxiety disorders are the most common form of psychological distress reported by children and adolescents (Garralda & Bailey, 1986; Kashani, Orvaschel, Rosenberg, & Reid, 1989; Viken, 1985), tend to be stable through childhood and adolescence unless treated (Cantwell & Baker, 1989), and are associated with a range of psychosocial impairments (Mattison, 1992). Thus, although childhood can be expected to include transient fears and anxieties, a significant proportion of children will develop anxiety problems predictive of generalized and long-term impairment if left untreated.

Recently, controlled trials have demonstrated the effectiveness of psychosocial interventions for child and adolescent anxiety disorders. Kendall (1994) evaluated the effectiveness of a cognitive-behavioral therapy (CBT) program for 9- to 13-year-old children with overanxious, separation, and social anxiety disorders. Compared with a wait-list control, the treated children showed clinically significant gains that were maintained over an average follow-up period of 3.5 years (Kendall & Southam-Gerow, 1996). A second outcome study has shown similar effects (Kendall, Flannery-Schroeder, et al., 1997). Barrett, Dadds, and Rapee (1996) compared a CBT intervention based on Kendall's (1990) program to an intervention that included the CBT intervention plus a family intervention, for a mixed group of 7- to 14-year-olds with overanxiety, separation anxiety, and social phobia disorders. Both interventions achieved a no-diagnosis status (that is, no existing diagnosis) in over 60% of children at posttreatment compared with less than 30% of children on the wait-list. At the 12-month follow-up, no-diagnosis rates were 70% and 95% for the CBT and CBT + family intervention groups, respectively.

These clinical trials indicate that anxiety disorders in late childhood and early adolescence can be effectively treated. However, tertiary treatments may not be the most effective or efficient method for managing child psychopathology and behavior disorders (Kazdin, 1987). Early intervention and prevention programs aimed at larger cohorts of children in community settings have the potential to be more cost-effective in reducing the overall incidence of childhood disorders and their cost to the community. Although no such work with community cohorts of anxious children has been reported, a number of authors (King, Hamilton, & Murphy, 1983; Spence, 1994) have discussed the potential of such programs for children at risk for the development of anxiety disorders.

A critical issue in the design of preventive programs is the choice of criteria for selection of at-risk children. To be exclusively "preventive" in focus would exclude children already showing anxiety problems from the benefits of early intervention. On the other hand, previous research has documented effective treatments for children with severe disturbance (Barrett et al., 1996; Kendall, 1994). Thus, the Queensland Early Intervention and Prevention of Anxiety Project (QEIPAP; Dadds &

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This research was supported by grants from the National Health and Medical Research Council of Australia and the Queensland Health Promotion Council. Thanks to Catholic Education of Queensland for their help.

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Spence, 1994) combined a preventive with an early-intervention approach to managing the development of anxiety disorders in young people. The aim was to intervene for children, from those who were disorder-free but showed mild anxious features to those who met criteria for an anxiety disorder but were in the less severe range. These children are henceforth referred to as at risk.

Three tools are required to mount effective prevention or early intervention programs: (a) an identification strategy (screen) that reliably identifies children at risk; (b) an access point where such children can be identified; and (c) an intervention procedure that can be implemented without major cost to the clientele or the mental health system. For anxiety disorders, these requirements are partly in place. Child and parental report measures are available that offer moderate accuracy in identifying children with, or at risk for, anxiety problems (King, Hamilton, & Ollendick, 1988; Laurent, Hadler, & Stark, 1994; Perrin & Last, 1992), and the Anxiety Disorder Interview Schedule (ADIS; Silverman & Nelles, 1988) reliably identifies children with specific anxiety disorders as listed in the *Diagnostic and Statistical Manual of Mental Disorders* (3rd ed., revised; *DSM-III-R;* American Psychiatric Association, 1987; Rapee, Barrett, Dadds, & Evans, 1994). Although existing measures may be of limited validity in their ability to discriminate anxiety problems from other behavior problems in children (Perrin & Last, 1992), the use of multiple informants and measures can be used to reliably identify children at risk for anxiety problems.

School systems can provide access points to the cohorts of children in appropriate age ranges for the identification of children at risk, and intervention programs are available that have been shown to reduce anxiety problems when implemented with groups of children with established anxiety disorders (Barrett, Dadds, Rapee, & Ryan, 1993). This program used reports from teachers and children accessed in the school system to identify at-risk children and used a combined social learning/family approach to intervention within a randomized design. We were interested in designing a program that could be easily and effectively mounted in most school settings and that would meet the needs of the majority of children at risk for anxiety problems (i.e., was comprehensive). Most anxiety problems in children emerge in late childhood, and at least this level of maturity is needed for children to benefit from cognitively focused psychotherapies. Thus, the primary school age group of 7- to 14-year-olds was selected as our target population.

The overall aim of the present study was to evaluate an early intervention and prevention program. The specific aims were to examine the remediating effects of the intervention on children's functioning at postintervention and at 6-month follow-up, in comparison with a no-intervention monitoring group. It was hypothesized that the intervention would be associated with lower rates of anxiety problems and disorders, compared with nonintervention, postintervention, and 6-month follow-up, as measured by diagnostic interviews with parents and standardized self-report forms.

Method

Participants

Initial participants were a cohort of 1,786 children (1,056 girls [59.1%], 730 boys [40.9%]), representing all children between 7 and 14 years of age from Grades 3 to 7 of eight preselected primary schools in the metropolitan area of Brisbane, Australia, an urban city of approximately 1 million people. The schools were selected to represent each of three levels of socioeconomic status on the criteria of average income and occupational status of the population of the school catchment area. The percentage of families in each of the eight catchment areas earning less than $16,000 per year ranged from 4% to 24%, and the percentage of those earning above $60,000 ranged from 7% to 30%. The majority of children attending these schools (and living in Brisbane in general) were White, Anglo-Saxon, Catholic or Protestant Christian, and working to middle class. Substantial ethnic populations of Chinese, Vietnamese, Latin American, Greek, and Italian also existed in various numbers (5% to 27% from non-English-speaking backgrounds) across catchment areas.

Procedure: Screening and Selection

A screening procedure incorporating both children's and teachers' reports was used to identify children at risk for anxiety disorders.

Screening 1. All children (N = 1,786) completed the Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1979). This checklist measures physiological symptoms, worry, and inattentiveness associated with anxiety problems in children, and produces an overall anxiety score and a lie scale. Our previous research and other studies (e.g., Perrin & Last, 1992) have shown that no single self-report measure of anxiety in children can reliably discriminate anxious children from children with other behavior problems. Thus, we expected Screening 1 to identify children in each school with anxiety problems but also a small number of children with attention deficit and oppositional problems without anxiety problems (Perrin & Last, 1992). Given that this was the first trial of implementing an anxiety treatment in school settings, we were concerned that the inclusion of children with comorbid disruptive behavior problems would compromise the specificity of our results and pose difficulties for therapists working with groups of children. Another screening phase was used, therefore, to exclude children with disruptive behavior problems from the sample.

Screening 2. Teachers nominated up to 3 children from each class who displayed the most anxiety (i.e., were shy, nervous, afraid, inhibited; this was an *inclusion* criterion) and up to 3 who displayed the most disruptive behavior (i.e., were impulsive, aggressive, hyperactive, noncompliant; this was an *exclusion* criterion). Previous research has supported the ability of teachers to identify children at risk for anxiety problems (Strauss, Frame, & Forehand, 1987) and disruptive behavior problems (Kazdin, 1987).

Screening 3. Preliminary scanning of the children recruited through the first two screens revealed that there were children who had scored highly on the RCMAS but were inappropriate for inclusion in the intervention; that is, they had developmental problems or disabilities, or came from homes where English was not spoken. It was additionally apparent that convergence between teachers' and children's reports was unexpectedly low, suggesting the possibility that some of the recruited children were not anxious, but rather, had completed the RCMAS invalidly (i.e., answered "yes" to all the questions). To correct for these concerns, we submitted the lists of children who had been selected for the project, through either RCMAS score or teacher nomination, back to class teachers and asked them to identify any children on the list who (a) did not speak English in the home, (b) had substantial learning problems, disability, or developmental delay, or (c) clearly had no anxiety problems (i.e., teachers were confident that the child was well adjusted). Children who were selected for the final sample ready for parental interviews thus met the following criteria: They (a) scored 20 or above on the Anxiety scale of the RCMAS or (b) were included in the teacher's list of anxious children, and (c) were not included in the teacher's list of disruptive children, and (d) were not excluded by teachers on any of the aforementioned grounds.

Screening 4. Parents of children included after meeting these criteria were telephoned and briefly interviewed with the aim of arranging a face-to-face diagnostic interview (school or home). The telephone calls and interviews were conducted by clinicians (postgraduate clinical psychology students and clinical psychologists) who had received 10 hr of training in the specific protocol skills for approaching and interviewing families. At the face-to-face interview, we asked parents to provide demographic data and to complete the Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1983), which was used as a treatment outcome measure and not for screening, and we administered the Anxiety Disorders Interview Schedule for Children—Parent Version (ADIS-P; Silverman & Nelles, 1988) to produce a diagnostic formulation for each child in accordance with the fourth edition of the *DSM* (*DSM-IV;* American Psychiatric Association, 1994). The ADIS-P assessed internalizing disorders (separation anxiety [SAD], social phobia, specific phobias, generalized anxiety [GAD], panic disorder with or without agoraphobia, obsessive and compulsive behaviors, posttraumatic stress, sleep terror, dysthymia, and major depression), externalizing disorders (attention deficit/hyperactivity, oppositional defiant, and conduct problems), and functional enuresis, substance abuse, and schizophrenia. Children exhibiting primarily externalizing behaviors were considered unsuitable for inclusion in the project and were excluded. No parent reported substance abuse or schizophrenia.

Clinicians rated the severity of children's disordered behavior and the extent of interference caused by those behaviors on an 8-point rating scale: 0 = *absent* (no interference), 2 = *mild* (slightly disturbing/not really disabling), 4 = *moderate* (definitely disturbing/disabling), 6 = *marked* (markedly disturbing/disabling), 8 = *severe* (very severely disturbing/disabling). A rating on the scale was given for each diagnostic category for which parents reported their child showing problems. Children who met criteria for a *DSM–IV* anxiety disorder received a severity rating of 3 or more. Children who met one or more but not all of the criteria for a *DSM–IV* anxiety disorder were classified as having "features" of the disorder and received a rating of 1 or 2 on the scale. Several children whom parents reported as shy–sensitive yet did not show behaviors specific to an anxiety diagnosis were considered to have a "nonspecific sensitivity" and received a rating of 1 on the scale. Those children who either (a) met criteria for a *DSM–IV* anxiety disorder with a severity rating of 5 or less, or (b) did not meet criteria but had features of an anxiety disorder or a nonspecific sensitivity, were offered participation in the study. Any child with an anxiety disorder of a clinical severity rating of 6 or more was referred for individual treatment and not included.

Final selection and allocation. At the conclusion of the interview, parents and their child were given feedback about the assessment. Those children who fell within the at-risk selection criteria were invited to participate in the early intervention and prevention study proper. Children selected were allocated to the intervention or monitoring condition on the basis of school. Schools matched for size, sociodemographics, and socioeconomics were randomly allocated to condition.

Intervention and comparison groups. Intervention was based on *The Coping Koala: Prevention Manual* (Barrett, Dadds, & Holland, 1994), which is identical to *The Coping Koala: Treatment Manual* (Barrett, Dadds, & Rapee, 1991), an Australian modification of Kendall's (1990) Coping Cat anxiety program for children, except that it is presented in group format in 10 sessions. The Coping Koala treatment manual and its original source have been described in detail elsewhere (Barrett et al., 1996; Kendall, 1994; Kendall & Treadwell, 1996). The Coping Koala prevention manual is a CBT program that teaches children strategies for coping with anxiety within a group format. These strategies centered on Kendall's FEAR Plan, in which each child develops and implements their own plan for graduated exposure to fear stimuli using physiological, cognitive, and behavioral coping strategies: F, for feeling good by learning to relax; E, for expecting good things to happen through positive self-talk; A, for actions to take in facing up to fear stimuli; and R, for rewarding oneself for efforts to overcome fear or worry. Group processes are used to help children learn positive strategies from each other and reinforce individual efforts and change. The program was conducted over 10 weekly, 1- to 2-hr sessions at each intervention school. Group sizes ranged from 5 to 12 children. More specific descriptions of the interventions can be found in the Kendall and Barrett references cited above.

Leaders of the groups were clinical psychologists trained in delivering the program and were assisted by one or two postgraduate students as cotherapists. Initial therapist training was conducted as a 1-day workshop in which delivery of the intervention sessions was rehearsed and discussed. Therapists met weekly with program leaders over the 10 weeks to review treatment integrity and discuss any intervention problems or issues. Supervisors were required to take written records of any departures from the prescribed treatment protocol. No significant departures from the prescribed protocol were noted. Furthermore, the supervising therapists had previously participated in controlled trials in which treatment integrity measures were taken, and they were shown to be consistent in their delivery of the program (i.e., Barrett et al., 1996; Cobham & Dadds, 1995).

Parental sessions were conducted at the intervention schools in Weeks 3, 6, and 9. Session 1 introduced parents to child management skills (reinforcement skills, planned ignoring, giving and backing up clear instructions) and how to use these skills to manage their child's anxiety. Session 2 explained what the children were learning in the Coping Koala Prevention Program and how parents could model and encourage the use of strategies learned. Session 3 showed parents how they could use the same strategies—that is, Kendall's FEAR plan—to manage their own anxiety. Presenters were a subset of the clinical psychologists who presented the child intervention. The presentations were standardized through a set format of visual slides with accompanying written scripts to ensure the integrity of this part of the intervention.

The comparison groups received no intervention but were told that they would be contacted for monitoring in 12 weeks and then at 6-month intervals for 2 years.

Follow-up assessments. After the intervention, and again after approximately a 6-month interval, parents completed the CBCL, and children completed the RCMAS. Clinicians who had not been informed of intervention status contacted parents by telephone and administered a shortened version of the ADIS-P diagnostic interview that assessed SAD, social and simple phobias, GAD, and agoraphobia without panic disorder. As part of this telephone interview, parents rated the child on six dimensions of change (overall functioning, overall anxiety, avoidant behaviors, change of family disruption by child's behavior, change of parental perception of own ability to deal with child's behavior, and change of child's ability to deal with previously feared situations), and at the end of the interview the clinician rated the child on one dimension of change (clinical global impression; Barrett et al., 1996). Any child who met a diagnosis rated at a clinical severity rating of 6 or more or whose parents requested individual help for their child's anxiety problems was referred for individual treatment and excluded from further follow-up assessment.

Diagnostic reliability. We conducted reliability checks on 27% of all face-to-face initial diagnostic interviews by audiotaping the initial interview and having an independent diagnostic formulation made on the basis of the tape recording by another clinician who had not been informed of the primary interviewer's formulation. Accuracy of interrater reliability was calculated for diagnoses categorized as either no diagnosis, anxiety disorder, or other diagnosis. This yielded kappas of .88 and .79 for primary diagnosis and secondary diagnosis (i.e., a second diagnosis that was less severe than the primary diagnosis), respectively, and correlations of $r = .89$ and .92 for the two ratings of severity of primary and secondary diagnoses, respectively. Reliability checks were

also conducted on 18% of telephone interviews using two clinicians, one who conducted the interview and made a diagnostic formulation and one who listened on another telephone extension and made an independent diagnostic formulation. The kappas for primary and secondary diagnoses were 1.00 and .62, respectively, and correlations between the primary and secondary severity ratings were $r = .96$ and .94, respectively. These data indicate adequate reliability levels consistent with our previous studies of interrater reliability using the ADIS-P (Rapee et al., 1994).

Results

One hundred sixty children (9.0%) were identified by teachers as having conduct problems and were, thus, excluded. The group did not differ significantly in age from the nonaggressive population. All of the children nominated as having conduct problems were excluded from further data analyses.

From the remaining 1,626 children, 157 (9.7%) were identified by teachers as having anxiety problems. Of these, 61.1% were female, closely corresponding to the proportion expected given the overall proportion of girls in the population screened (59.1%). The age of this group did not differ from that of the sample of students not identified by teachers as anxious. A separate group of 171 children (10.5%) scored 20 or above on the RCMAS. The proportion of girls in this group (74.9%) was significantly higher than both the proportion recruited through teacher nominations, $\chi^2(1, N = 1) = 7.10$, $p < .01$, and that expected from the larger school sample, $\chi^2(1, N = 1) = 12.01$, $p < .001$. Age of the self-report anxious children did not differ from that of other groups of anxious children or that of children not identified by self-report.

In terms of convergence of children's and teacher's reports, only 33 children (2.0%) both were nominated by teachers and scored above 19 on the RCMAS. The proportion of girls (75.8%) in this group was similar to that found for the children recruited by self-report only (i.e., higher than that for the teacher-reported group and that expected in the general population); however, the differences were not significant because of the lower number of cases in this group. The age of the group also did not differ from that of the other groups. Of the 361 children (22%) included because of children's or teachers' reports (or both), 47 (13%) were excluded from screening 3 because of (a) the teacher's opinion that the child did not have any anxiety problems (6.9%); (b) lack of English as first language in the home (3.6%); (c) an invalid RCMAS, that is, the child had ticked "yes" to every answer (0.8%); or (d) having a developmental delay or other problem (1.7%).

Of interest was the low level of convergence between teacher nominations and children who scored high on the RCMAS. An analysis of variance (ANOVA) comparing scores on the RCMAS Lie scale showed that children nominated by teachers only (i.e., had low RCMAS scores) had significantly higher lie scores, $F(2, 125) = 6.12$, $p < .003$, than children from the self-recruited group. Thus, it appears that the low convergence between teachers' and children's reports may have been, in part, due to the tendency of some children to not accurately report their anxiety due to social desirability factors.

After the initial school screenings, the parents of children ($n = 314$) were telephoned to recruit their involvement in the next assessment phase. One hundred sixteen (37%) withdrew from participation (not interested, 18.2%; unable to contact, 9.9%; no English language, 3.8%; child no problem or in other treatment, 1.3%; moving house, 1.3%), leaving 198 (63%) available for face-to-face interviews. Of these, 17 (8.6%) did not show for interviews. The remaining data on diagnoses are, thus, based on an n of 181 children. Fifty-three of these (29.3%) were excluded from the project for various reasons following interview (other diagnosis–treatment, 12.2%; no problem, 10.5%; not interested–moving house, 6.6%). The remaining 128 children (70.7%) whose parents verified that they had anxiety problems (i.e., a *DSM–IV* disorder or features) entered into the project. Of the 181 children interviewed, 100 (55.2%) met criteria for at least one *DSM–IV* anxiety diagnosis.

Table 1 shows the primary Axis I diagnoses for the 181 children on the basis of the parental structured interview using the ADIS-P, broken down by method of entry into the program. The table gives percentages of children who met *DSM–IV* criteria for an anxiety disorder, and the percentage of extra children who had features of that anxiety disorder or a nonspecific sensitivity. As well, Table 1 shows that a further 19 children (10.5%) met, or had features of, another disorder—mainly oppositional defiant disorder or attention deficit with hyperactivity. Less than 2% of children met criteria for depression.

The percentages of children in each entry group who were found to have a primary diagnosis of an anxiety disorder were similar (i.e., self-report on RCMAS, 54.2%; teacher, 56.2%; both, 55%). However, the pattern of diagnoses differed within each group. The majority of children who scored high on the RCMAS but were not nominated by teachers had GAD and simple phobias. Children who were nominated by teachers but scored low on the RCMAS were more likely to have social or simple phobias. Children identified by both teacher and self-nominations were more likely to have SAD and GAD, and they were less likely to have a primary diagnosis of a simple phobia, than those identified by either method alone. Recruitment method was marginally related to number of diagnoses per child, with children appearing on both teachers' and self-report lists showing a trend, $F(2, 174) = 2.56$, $p < .09$, to more coexisting problems (teacher report, $M = 0.96$, $SD = 0.95$; self-report, $M = 0.83$, $SD = 0.84$; both, $M = 1.30$, $SD = 1.38$). No significant difference in number of comorbid problems was found for gender or age of child.

Children who met criteria for a primary anxiety problem were more likely than not to also have a secondary anxiety problem (i.e., 71.4%, 66.7%, 57.4%, and 73.3% of children whose primary anxiety problem was GAD [$n = 35$], SAD [$n = 6$], simple phobia [$n = 47$], and social phobia [$n = 45$], respectively, also reported a secondary anxiety problem). Five children also had secondary features of an externalizing problem although we had previously screened out children who exhibited behavior problems in the classroom. The children with a primary diagnosis of depression ($n = 2$), as well as the 53% of children with an externalizing disorder ($n = 15$), had a secondary anxiety problem.

There were nonsignificant age differences across the diagnostic groups; however, the proportion of boys and girls was not equally distributed across groups, $\chi^2(9, N = 9) = 19.5$, $p < .05$. Boys were overrepresented in the externalizing disorder categories, but within the anxiety disorders, girls were overre-

Table 1
Numbers and Percentages of Children With Primary DSM–IV Diagnoses and Diagnostic Features by Recruitment Method

	Teacher report (n = 89)				Child report (n = 72)				Both (n = 20)			
	Full disorder		Features		Full disorder		Features		Full disorder		Features	
Diagnosis	n	%	n	%	n	%	n	%	n	%	n	%
Generalized anxiety	9	10.1	3	3.4	12	16.7	5	6.9	4	20.0	2	10.0
Separation anxiety	2	2.2	1	1.1	1	1.4	0	0.0	2	10.0	0	0.0
Simple phobia	15	16.9	6	6.7	17	23.6	5	6.9	3	15.0	1	5.0
Social phobia	24	27.0	6	6.7	9	12.5	2	2.8	2	10.0	2	10.0
Nonspecific sensitivity	0	0.0	5	5.6	0	0.0	2	2.8	0	0.0	1	5.0
Total: Any anxiety problem	50	56.2	21	23.5	39	54.2	14	19.4	11	55.0	6	30.0
Depression	1	1.1	0	0.0	1	1.4	0	0.0	0	0.0	0	0.0
Oppositional defiant disorder	1	1.1	0	0.0	4	5.6	0	0.0	1	5.0	0	0.0
Attention deficit disorder	3	3.4	1	1.1	4	5.6	0	0.0	1	5.0	0	0.0
Other	2	2.2	1	1.1	1	1.4	0	0.0	0	0.0	0	0.0
Total: Other diagnoses	7	7.8	2	2.2	10	14.0	0	0.0	2	10.0	0	0.0

	Teacher report		Child report		Both	
Any *DSM–IV* diagnosis	57	64.0	49	68.2	13	65.0
No diagnosis, having features	23	25.8	14	19.4	6	30.0
No diagnosis, no features	9	10.1	9	12.4	1	5.0

Note. Mean number of diagnoses is as follows: For teacher report, M = 0.96, SD = 0.95; for child report, M = 0.83, SD = 0.84; for both reports, M = 1.30, SD = 1.38. *DSM–IV* = *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.).

presented in all of the anxiety disorders (GAD, 77.1%; SAD, 100%; simple phobia, 83.3%) except social phobia, in which their proportion (57.8%) corresponded to that of the larger sample (59.1%).

Intervention Participation and Effects

Table 2 shows demographic and diagnostic comparisons of the 128 children participating in the intervention trial. There were nonsignificant differences between the groups on any of these variables. By the 6-month follow-up, 5 children had withdrawn from participation in the program: 3 children from the monitoring group and 2 children from the intervention group. At 6-month follow-up, 4 children from the monitoring group received a clinical severity rating above 6 with associated parental requests for individual clinical help. Data for these children were included in the 6-month follow-up analyses, and the children were referred for individual therapy. No such cases occurred in the intervention group.

Data were kept on attendance rates at intervention sessions for children and parents in the intervention group. For the 10 child intervention sessions, attendance was high: M = 8.1, SD = 2.4, Mdn = 9, mode = 10. For the three parent sessions, attendance by mothers was as follows: M = 1.7, SD = 1.1, Mdn = 2, Mode = 3; for fathers: M = 0.63, SD = 1.0, Mdn = 0, Mode = 0.

Statistical comparisons between intervention and monitoring groups can be conducted using degrees of freedom derived from the number of children (ns = 61 and 67, respectively) or the number of schools (ns = 4 and 4, respectively) in each condition. The latter was deemed more appropriate because schools, rather than children, were the unit of our random assignment. Differences between groups were tested both ways and results were substantially similar. Also, there were nonsignificant differences between schools on demographic or diagnostic variables either between or within groups. Given that basing the statistics on the number of children in each group gave extra information of variance within groups, we have thus reported statistics using children rather than schools as the basic data unit.

Figure 1 (top panel) shows comparisons of the diagnostic status of children in the intervention versus monitoring groups at pretreatment, posttreatment, and 6-month follow-up. At pretreatment, approximately 75% of children interviewed met criteria for a *DSM–IV* diagnosis, with nonsignificant differences across groups, $\chi^2(1, N = 1) = 1.75$, *ns*. The percentage of children meeting diagnosis at postintervention decreased for both groups. Although the decrease was visibly larger in the intervention group, no statistical differences were found between groups, $\chi^2(1, N = 1) = 2.83$, *ns*. At the 6-month follow-up, the intervention group continued to show improvement, whereas recidivism was evident in the monitoring group. Differences in rates of diagnosis was significant at this 6-month follow-up, $\chi^2(1, N = 1) = 10.67$, $p < .001$.

The middle and bottom graphs in Figure 1 break down diagnosis rates by the child's pretreatment status. The middle graph shows the diagnostic status of children who had a *DSM–IV* diagnosis at preintervention (ns = 42 and 53 for intervention and monitoring groups, respectively). At postintervention, both intervention and monitoring (n = 52) groups showed improvement, with nonsignificant differences between groups, $\chi^2(1, N = 1) = 1.83$, *ns*. At the 6-month follow-up, continued improve-

Table 2
Demographic and Diagnostic Status of Children in the Intervention and Monitoring Groups

Demographic and status	Intervention (n = 61)		Monitoring (n = 67)	
	M	*SD*	*M*	*SD*
Mean of Axis 1 severity	3.2	1.5	3.3	1.2
Mean no. of diagnoses	1.2	1.1	1.1	0.8
Mean age of mother (in years)	39.1	4.7	38.3	5.2
Maternal education[a]	1.3	0.7	1.5	0.7
Mean age of father (in years)	42.3	6.1	40.5	5.1
Paternal education	1.4	0.7	1.5	0.6
Age of child	9.5	1.6	9.3	1.6
No. of siblings	2.3	1.3	2.3	1.4
% female	73.8		71.6	
% two-parent families	69.4		81.8	
	%		%	
Children with:				
Any anxiety diagnosis	68.9		79.1	
GAD	14.8		20.9	
SAD	4.9		3.0	
Simple phobia	16.4		29.9	
Social phobia	29.5		22.4	
Other diagnosis	3.3		3.0	
Anxiety features	31.1		20.9	
Recruitment method				
Teacher	45.9		56.7	
Self-report	39.3		32.8	
Both	14.8		10.4	

Note. GAD = generalized anxiety disorder; SAD = separation anxiety disorder.
[a] Education rated on a 3-point scale on which 1 = *less than secondary school,* 2 = *completed secondary school,* and 3 = *university.*

ment was evident in the intervention group (n = 41), but some relapse was evident in the monitoring group (n = 52), $\chi^2(1, N = 1) = 5.79, p < .05$. The bottom graph in Figure 1 shows parallel data for children who were diagnosis-free at preintervention; that is, they only had features of an anxiety disorder or a nonspecific sensitivity (ns = 19 and 14 for intervention and monitoring, respectively). At postintervention, approximately 10% of children in both groups had developed a full *DSM–IV* anxiety diagnosis, with no significant differences between groups, $\chi^2(1, N = 1) = .11$, *ns.* At 6-month follow-up, 54% of the 13 children in the monitoring group had developed an anxiety disorder, compared with only 16% of the 18 children in the intervention group, $\chi^2(1, N = 1) = 4.77, p < .05$.

Table 3 shows ratings of change by parents and the clinician of child and family adjustment at postintervention and 6-month follow-up. Positive change ratings were higher in the intervention group on each of the seven rating scales at both postintervention and follow-up. A multivariate analysis of variance (MANOVA) combining the seven scales was followed, where significant, by a series of one-way ANOVAs comparing groups on the seven scales at postintervention. The MANOVA revealed a significant treatment effect, $F(7, 118) = 3.38, p < .005$. All follow-up univariates showed significant differences: Overall functioning, $F(1, 124) = 8.72, p < .004$; overall anxiety, $F(1, 124) = 7.03, p = .009$; avoidance, $F(1, 124) = 13.51, p < .001$; family disruption, $F(1, 124) = 9.20, p < .003$; parent's ability, $F(1, 124) = 14.25, p < .001$; child's ability, $F(1, 124) = 12.12, p < .001$; and clinician's rating of global impression, $F(1, 124) = 14.65, p < .001$.

The MANOVA at 6-month follow-up evidenced a treatment effect, $F(7, 114) = 2.17, p < .05$. For the follow-up univariate analyses, four of the scales continued to show significant superiority to the intervention group: Overall anxiety, $F(1, 121) = 4.33, p < .05$; avoidance, $F(1, 121) = 5.67, p < .02$; child's ability, $F(1, 121) = 4.09, p < .05$; and clinician's rating of global impression, $F(1, 121) = 10.13, p < .002$.

Table 4 shows comparisons of group means on the CBCL (by parents) and the RCMAS (by children). Both monitoring and intervention groups showed improvement over time on the

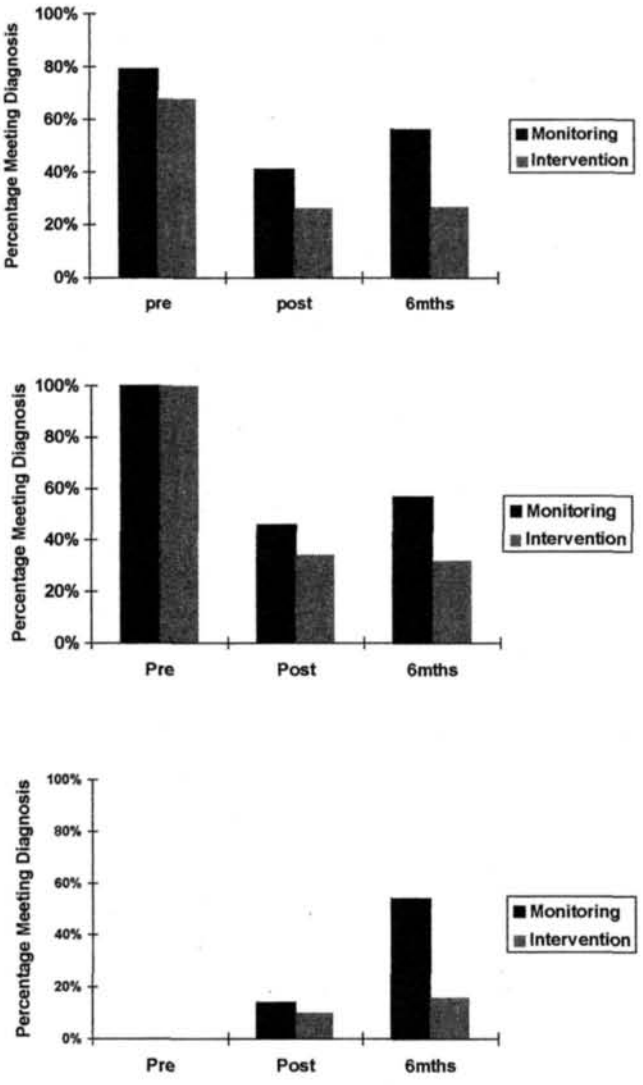

Figure 1. Diagnostic changes in children in the intervention and monitoring groups at postintervention (post) and 6-month follow-up (6 mths) for all children (top panel), children who met *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.) criteria for an anxiety disorder at preintervention (pre; middle panel), and children who were diagnosis-free at preintervention (bottom panel).

Table 3
Ratings of Change in Adjustment for Children and Their Families in the Intervention and Monitoring Groups Postintervention and at 6-Month Follow-Up

	Clinician's rating		Overall functioning		Overall anxiety		Avoidance		Family disruption		Parent's ability		Child's ability	
Time and group	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Postintervention														
Monitoring	3.52	0.93	3.62	0.92	3.59	0.89	3.32	0.75	3.20	0.64	3.41	0.84	3.68	0.79
Intervention	4.23	1.17	4.12	0.96	4.03	1.03	3.95	1.16	3.62	0.90	4.02	0.97	4.27	1.09
6-Month follow-up														
Monitoring	4.13	0.99	4.33	1.10	4.02	1.16	4.06	1.00	3.05	0.95	3.55	1.14	4.03	1.01
Intervention	4.75	1.15	4.61	1.13	4.46	1.19	4.49	.99	3.37	1.03	3.80	1.06	4.41	1.05

Internalizing scales of the CBCL and the RCMAS, and stability on the CBCL Externalizing scale. Nonsignificant differences between groups were found on these measures. Further analyses of CBCL Internalizing subscales (anxiety/depression, social withdrawal) again found no group differences. It was noted earlier that children who were recruited by teachers had significantly higher Lie scale scores than the other groups only at pretreatment. At posttreatment and 6-month follow-up, this was no longer the case. However, there was a relationship between lie scores and diagnostic status at posttreatment in the teacher-recruited children only; that is, only those teacher-recruited children who still had an anxiety diagnosis at posttreatment had significantly higher RCMAS Lie scale scores than children who were diagnosis-free. Thus, it appears unlikely that these children were accurately reporting on their levels of anxiety.

Our numbers did not provide sufficient power for analysis of all possible interactions of gender, age, and specific diagnosis on intervention outcome. Thus, analyses were restricted to examination of main effects of age (younger: 7–10 years; older: 11–14 years), gender, and preintervention diagnosis (GAD, SAD, simple phobia, social phobia), and rates of being diagnosis-free at postintervention and 6-month follow-up. To do this, we conducted chi-square analyses for the entire sample and then within the intervention and monitoring groups separately. No significant effects were found for age, gender, or pretreatment diagnosis for any of the groups at either postintervention or 6-month follow-up.

Table 4
CBCL and RCMAS Scores for the Intervention and Monitoring Groups at Pre- and Postintervention and at 6-Month Follow-Up

	CBCL					
	Externalizing T score		Internalizing T score		RCMAS	
Time and group	*M*	*SD*	*M*	*SD*	*M*	*SD*
Preintervention						
Monitoring	46.51	9.44	58.76	8.56	17.15	5.73
Intervention	49.66	10.99	61.28	11.74	16.98	6.92
Postintervention						
Monitoring	47.48	9.72	55.25	9.03	11.46	7.00
Intervention	48.68	11.29	57.15	11.46	11.52	7.32
6-Month follow-up						
Monitoring	46.15	9.11	52.84	9.66	9.57	6.35
Intervention	49.23	12.50	56.05	12.34	9.25	7.45

Note. CBCL = Child Behavior Checklist; RCMAS = Revised Children's Manifest Anxiety Scale.

Discussion

The main aim of this study was to evaluate a combined child- and parent-focused intervention for prevention and early intervention for anxiety problems. The results were very promising. The rate of recruitment into the project (7% of total screened population) was comparable with the 9% recruitment of the population achieved by Jaycox, Reivich, Gillhan, and Seligman (1994) in their study of prevention of depressive symptoms in childhood. Attendance at intervention sessions was high for the children themselves (approximately 80%), moderate (approximately 58%) for mothers, and lower for fathers (approximately 30%). As a group, children who received the intervention emerged with lower rates of anxiety disorder at 6-month follow-up, compared with those who were identified but monitored only. Of those who had features of, but no full disorder, at pretreatment (n = 33), 54% progressed to a diagnosable disorder at the 6-month follow-up in the monitoring group, compared with only 16% in the intervention group. These results indicated that the intervention was successful in reducing rates of disorder in children with mild to moderate anxiety disorders, as well as preventing the onset of anxiety disorders in children with early features of a disorder. The differences at 6-month follow-up between the groups on rates of diagnosable disorder were reinforced by differences in ratings of improvement on the measures of child and family adjustment.

The finding that over half of the children in the monitoring group who were at risk progressed into a formal anxiety disorder at the 6-month monitoring period highlights the importance of late childhood and early adolescence as a critical time in the development of anxiety disorders. A number of studies (e.g., Keller et al., 1992) reported that many anxiety disorders have their onset around this time, and that, without treatment, may persist well into adulthood. Furthermore, studies have demonstrated the effectiveness of treatment for this age group (Barrett et al., 1996; Kendall, 1994). Thus, researchers interested in the

development, prevention, and treatment of anxiety disorders may be well advised to focus on the late childhood period.

At postintervention, differences between the groups were not found consistently across the diagnostic measures. The ratings measures pointed to superior child and family adjustment in the intervention group. Although there was a trend toward superiority of the intervention group, statistical differences between the rates of diagnosable disorder across groups did not emerge until the 6-month follow-up. A putative delay in intervention effects is consistent with the results of a similar prevention trial (Jaycox et al., 1994). However, a strong qualification is needed in concluding that no differences between groups occurred at postintervention. Because of timing constraints, our postintervention evaluations had to be conducted during the school summer vacation. During the diagnostic interviews at this time, parents from both groups reported that many of the children with separation, social, and performance fears had temporarily improved because of not having to face the daily challenges of school life. This temporary improvement of both groups and, thus, the lack of a statistical difference between the groups at posttreatment could have been associated with temporary changes in school attendance, and the 6-month follow-up results may be more truly indicative of the status of the children in the respective groups.

The intervention effect found on the diagnostic and rating measures was not replicated on the self-report measures. The CBCL and the RCMAS have demonstrated reliability and validity; however, a previous treatment outcome study with similar anxious children reported less sensitivity to different intervention outcomes on these self-report measures, despite strong differential treatment effects on diagnostic measures (Barrett et al., 1996). Furthermore, evidence was found that method of recruitment may have been associated with high social desirability in children's self-reports of anxiety. That is, children who self-reported low anxiety but were identified by teachers had higher RCMAS Lie scale scores at pretreatment. Of this group, those who failed to improve at posttreatment were similarly more likely to have higher lie scores. Thus, there may be a group of anxious children who do not readily acknowledge their anxiety problems; multiple informants may be necessary to identify them and extra attention to engagement and treatment progress with these children may be beneficial.

A number of further discussion points relate to the intervention. It is not clear what characteristics of the intervention were responsible for its success, as the intervention included a range of child- and parent-focused strategies. For the sake of efficiency, it will be important to conduct component analyses of the intervention with children at various stages of development of, and risk for, disorder. Previous research by Barrett et al. (1996) indicated that there may be age and gender effects in terms of children's response to child- and family-focused interventions for anxiety problems. In this study, we found no effects of age, gender, or preintervention diagnosis on diagnostic outcome. Apart from the positive main effect associated with receiving the intervention, all children appeared to show a similar course in the development of their anxiety problems. Barrett et al.'s (1996) finding was that these demographic variables might influence responsiveness to individual- versus family-based treatment. The present study found demographic variables had little influence on responsiveness to an intervention containing both individual and family involvement.

Our screening procedure warrants discussion. Although the present study was not designed to produce estimates of rates of anxiety problems in the population, the identification procedure indicated approximately 1 in 6 children between 7 and 14 years old either had a diagnosable anxiety disorder or had features of one. The screen is more prone to the existence of false-negatives than false-positives. The self-report measures detected the proportion of girls in the general population, but teachers were more likely to nominate boys than their representation would predict. There may be a number of reasons for this. Boys may make more of a public or disruptive show of their anxiety problems, teachers may consider anxiety to be more of a problem in boys, or teachers may be more attentive to boys in the classroom. Girls were overrepresented in the diagnostic categories of GAD, SAD, and simple phobia but were represented at the population rate for social phobia. As significantly more reports of social phobia came from teacher nominations than self-report, the present study indicates that the salience of anxiety disorders to teachers may be, in part, associated with the gender of the children showing the problems.

The method of recruitment—that is, teacher nominations or children's self-report, or both—made little difference to the rates of actual anxiety disorder detected. Approximately 55% of children identified by each recruitment method were found to have an anxiety disorder, and a further 16% to 25% of the other children showed anxiety problems characteristic of the major anxiety disorders but of insufficient severity or range to warrant a diagnosis. Thus, the recruitment methods used appear to be highly useful, complementing screening procedures for identifying anxious children in that approximately 75% of children identified by each method were found to have anxiety problems with the use of a formal interview validation.

The rate of concordance between teachers' and children's reports was quite low. Of the 361 children found to have anxiety problems using either criteria, only 33 (9.14%) appeared on both teachers' lists and their own self report. Given that each recruitment method resulted in high detection rates of children with anxiety disorders and problems and that each method detected different types of anxiety problems, both methods may need to be used in parallel in future clinical studies if comprehensive detection of anxiety problems is to be achieved.

Although a number of steps was used to screen out children with conduct and hyperactivity problems, these problems were still evident in the sample identified by self-report and teacher nominations before the formation of intervention groups. This reinforces the conclusions of Perrin and Last (1992), who found that self-report measures of childhood anxiety do not clearly discriminate between children with anxiety disorders and those with attention deficit–hyperactivity disorder. In support of this, the percentage of children with attention deficit–hyperactivity disorder and oppositional problems was higher in the group recruited through self-report than in the group recruited through teacher nominations.

Time and resource restraints meant some limitations to the study. Diagnostic interviews were not conducted with a proportion of the "nondetected" children. This would have yielded more conclusive data on the adequacy of the screening proce-

dure. Furthermore, parents were the sole informants of diagnostic status and because there was some loss of participants entering the diagnostic interview, some bias may have been introduced through selective loss of children with or without anxiety problems.

The project raises several ethical issues. First, given that children in the monitoring group were at risk for, or already had, an anxiety diagnosis, safeguards had to be built into the design so that individual help was always available if needed. Second, teachers were asked to nominate children with psychological problems, raising the issue of detrimental labeling effects. Third, contacting parents regarding their child's participating in a group educational program (or passive monitoring program) may inadvertently convey that their child has a problem. Thus, to both parents and teachers, participation in the intervention was described as a positive skill-building experience rather than a remedial treatment, whereas participation in the monitoring group was described as an information-gathering/learning exercise for researchers.

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Received March 13, 1996
Revision received June 19, 1996
Accepted January 14, 1997 ■