

Early Intervention and Prevention of Anxiety Disorders in Children: Results at 2-Year Follow-Up

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The Queensland Early Intervention and Prevention of Anxiety Project evaluated a child- and family-focused group intervention for preventing anxiety problems in children. This article reports on 12- and 24-month follow-up data to previously reported outcomes at posttreatment and at 6-month follow-up. A total of 1,786 7- to 14-year-olds were screened for anxiety problems using teacher nominations and children's self-report. After diagnostic interviews, 128 children were selected and assigned to either a 10-week school-based child- and parent-focused psychosocial intervention or a monitoring group. Both groups showed improvements immediately at postintervention and at 6-month follow-up; the improvement was maintained in the intervention group only, reducing the rate of existing anxiety disorder and preventing the onset of new anxiety disorders. At 12 months, the groups converged, but the superiority of the intervention group was evident again at 2-year follow-up. Severity of pretreatment diagnoses, gender, and parental anxiety predicted poor initial response to intervention, whereas pretreatment severity was the only predictor of chronicity at 24 months. Overall, follow-up results show that a brief school-based intervention for children can produce durable reductions in anxiety problems.

Anxiety problems are the most common form of psychological distress reported by children and adolescents (Garralda & Bailey, 1986; Kashani, Orvaschel, Rosenberg, & Reid, 1989; Viken, 1985). However, increasing evidence points to the amenability of these problems to psychosocial intervention. Evaluations of Kendall's (1994) program for 9- to 13-year-old children with overanxious, separation, and social anxiety showed that clinically significant gains can maintain over an average follow-up period of 3.5 years (Kendall & Southam-Gerow, 1996). A second outcome study has shown similar effects (Kendall et al., 1997). Barrett, Dadds, and Rapee (1996) compared a cognitive-behavioral intervention based on Kendall's (1990) program with an intervention that also included a family intervention, again for a mixed group of overanxious, separation-anxious, and socially phobic 7- to 14-year-olds. Both interventions achieved a no-diagnosis status in over 60% of children at posttreatment compared with less than 30% of children on the wait list, and the effects were maintained at 12-month follow-up. Using controlled trials, both Barrett (in press) and Cobham, Dadds, and Spence (1998) have shown that

similar success rates can be obtained by presenting the intervention in a cost-effective group format rather than in an individual format.

Inspired by these successes, the Queensland Early Intervention and Prevention of Anxiety Project (QEIPAP; Dadds, Spence, Holland, Barrett, & Laurens, 1997) aimed to evaluate the potential of these interventions to be used as preventive and early interventions. Thus, the project used a school-based screening procedure to identify, and then offer skills training to, high-risk children. The children ranged 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. At pretreatment, approximately 75% of selected children who were interviewed met criteria for an anxiety diagnosis (mild to moderate severity). At postintervention, improvement was noted for both intervention and monitoring groups. Children who received the intervention emerged with lower rates of anxiety disorder at 6-month follow-up compared with those who were monitored only. Of those who had features of but no full disorder at pretreatment, 54% progressed to a diagnosable disorder at 6-month follow-up in the monitoring group compared with 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.

In this article, we report on the QEIPAP children at 12 and 24 months after the termination of the intervention. It was hypothesized that the intervention would be associated with lower rates of anxiety problems and disorders and higher ratings of improvement made by parents and clinicians compared with the monitoring condition at these time points. A secondary aim was to examine child and family factors that were predictive of chronicity of anxiety problems. Specifically, we tested the findings of previous research that severity of initial problems, poor parental adjustment,

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and, more tentatively, female gender of the child are predictive of chronic anxiety problems (Barrett et al., 1996; Cobham et al., 1998).

Method

Participants

Details of the QEIPAP procedures are described in the Dadds et al. study (1997), so only critical details are presented here. Initial participants were 1,786 children (59% female, 41% male), representing all children aged between 7 and 14 years from Grades 3 to 7 of eight preselected primary schools in the metropolitan area of Brisbane, Australia. The schools represented diverse levels of socioeconomic status (SES). The majority of children attending these schools were White, Anglo-Saxon, Catholic or Protestant Christian, and working to middle class. Substantial ethnic populations of Chinese, Vietnamese, Latin Americans, Greeks, and Italians also existed in varying numbers (5% to 27% from non-English speaking backgrounds) across catchment areas.

Procedure: Screening and Selection

All children completed the Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1979), and class teachers nominated up to 3 children from each class who displayed the most anxiety (inclusion criterion) and up to 3 children who displayed the most disruptive behavior (exclusion criterion), using operational definitions provided by the researchers. Convergence between teachers' and children's reports was unexpectedly low, and so both groups were included. Thus, children selected for the final sample for parental interviews met the following criteria: (a) were not identified by teachers as having disruptive behavior problems (9% of original sample), (b) scored 20 or above on the Anxiety scale of the RCMAS (11%) or were included in the teacher's list of anxious children (10%) or both (2%), and (c) were not excluded by teachers on the basis of language or other developmental problems (13% of children who met all other inclusion criteria).

Parents of children included after meeting the above criteria ($n = 314$) were telephoned and briefly interviewed with the aim of arranging a face-to-face diagnostic interview (school or home) using the Anxiety Disorders Interview Schedule for Children—Parent Version (ADIS-P; Silverman & Nelles, 1988), which was adapted to produce diagnostic formulation for each child based on either the revised third edition or fourth edition (*DSM-IV*) of the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association, 1987, 1994, respectively). At the face-to-face interview, parents provided demographic data, completed the Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1991) and the Stress, Anxiety, and Depression Schedule (Lovibond & Lovibond, 1995), which was used to measure self-reported stress, anxiety, and depression problems in the parents. These self-report measures were used as predictors of treatment outcome measure, to conduct validity checks of the diagnostic interviews, and not for screening.

One hundred and sixteen families (37%) withdrew from participation (not interested = 18%, unable to contact = 10%, no English language = 4%, child no problem or in other treatment = 1%, moving house = 1%), leaving $n = 198$ (63%) available for face-to-face interviews. Of these, 17 (9%) did not show for interviews, leaving $n = 181$ children. Fifty-three of these (29%) were excluded from the project for various reasons following interview (other diagnosis or treatment = 12%, no problem = 11%, not interested or moving house = 7%). The remaining 128 children (71%) whose parents verified that they had anxiety problems (i.e., a *DSM-IV* disorder or features) entered into the intervention project.

Clinicians rated the severity of children's disordered behavior and the extent of interference caused by those behaviors on an 8-point scale (0 = no interference, 2 = slightly disturbing/not really disabling, 4 = moder-

ately disturbing/disabling, 6 = markedly disturbing/disabling, 8 = very severely disturbing/disabling). 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 or 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. Children who either (a) met criteria for a *DSM-IV* anxiety disorder with a severity 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 of 6 or greater was referred for individual treatment and not included in the study. Children were then allocated to the intervention or monitoring condition on the basis of school. Schools matched for size, sociodemographics, and SES were randomly allocated to condition.

Intervention and monitoring groups. The active intervention was based on the *Coping Koala: Prevention Manual*, 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* teaches strategies centered on Kendall's FEAR plan, in which each child develops and implements his or her 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. Group sizes ranged from 5 to 12 children. Leaders of the groups were clinical psychologists trained in delivering the program and were assisted by one or two graduate students as cotherapists. More specific descriptions of the intervention, therapist training procedures, and integrity measures can be found in the Dadds et al. study (1997).

Parental sessions were conducted at the intervention schools in Weeks 3, 6, and 9. Session 1 introduced parents to skills to manage their child's anxiety. Session 2 explained what the children were learning in the 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 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.

Fourteen months after the intervention, a booster package of intervention prompts were mailed to each family in the intervention group. The package contained a cover letter thanking them for continued participation and explaining that some children may benefit from booster work on their use of the program. Several sheets summarizing the main principles of the FEAR plan were included for their perusal.

The monitoring group received no active intervention over and above reviews of the child's progress at postassessment or at 6-, 12-, and 24-month follow-up assessments. Parents were informed that individual treatment would be provided at their request should their child be having adjustment problems related to anxiety and fear.

12- and 24-month follow-up assessments. Clinicians unaware of intervention status of the children contacted parents by telephone and administered the ADIS-P diagnostic interview. Self-report measures used during previous assessments were dropped for the follow-ups because parents and children complained about their repeated use. Parents also rated six dimensions of change on a 1-to-7 scale (overall functioning, overall anxiety,

avoidant behaviors, family disruption by child's behavior, perception of own ability to deal with child's behavior, and 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). The ratings ranged on a scale from 1 (*markedly worse*) to 3 (*the same*) to 7 (*markedly better*). Previous research has shown these ratings to be sensitive to clinical change in families undergoing similar interventions for childhood anxiety disorders (Barrett et al., 1996; Dadds et al., 1997). Any child who met a diagnosis rated at a clinical severity of 6 or greater 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 and validity. Diagnostic reliability and validity have been reported previously (Dadds et al., 1997) and calculated for diagnoses categorized as no diagnosis, anxiety disorder, or other diagnosis. Reliability checks on 18% of 12- and 24-month follow-up telephone interviews produced kappas for primary and secondary diagnoses of .80 and .66, respectively; correlations between the primary and secondary severity ratings were .92 and .97, respectively. To assess the validity of the diagnostic interviews, we calculated correlations between clinicians' diagnostic severity ratings and parents' ratings of the child's adjustment on the Internalizing scale of the CBCL. The correlations for pretreatment, post-treatment, 6-, and 12-month follow-up, respectively, were .36, .25, .51, and .40. These moderate-level correlations are consistent with typical concordance rates between clinician ratings and parent self-report measures of childhood anxiety (Silverman, 1994), and thus indicate our diagnostic ratings had acceptable validity.

Results

By the 12-month follow-up, 20 children had withdrawn from the study, 9 from the intervention group (not interested or uncontactable) and 11 from the monitoring group (7 not interested, 4 received a clinical severity rating above 6 with associated parental requests for individual clinical help). At 24-month follow-up, 3 withdrew from the monitoring group (2 uncontactable, 1 required individual treatment).

Figure 1 shows comparisons of the diagnostic status of children

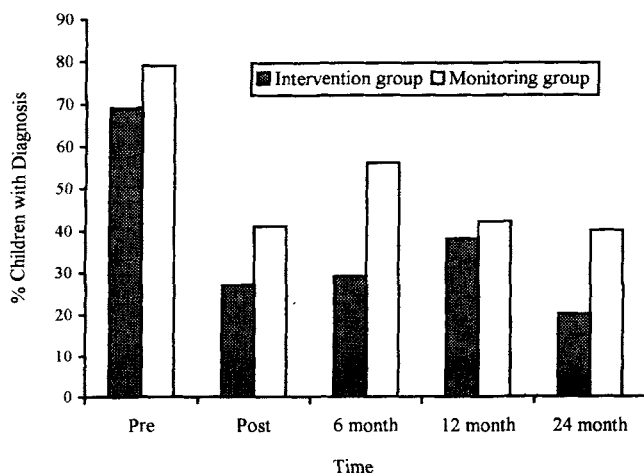


Figure 1. Percentage of children in the intervention and monitoring groups meeting criteria for an anxiety disorder based on the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association, 1994) at pre- and postintervention and at 6-, 12-, and 24-month follow-up. Pre = preintervention; Post = postintervention.

in the intervention versus monitoring groups at pre- and postintervention and at 6-, 12-, and 24-month follow-up. As reported by Dadds et al. (1997), differences between groups in rates of diagnosis emerged at 6-month follow-up (intervention = 27%, monitoring = 56%). At 12-month follow-up, rates of diagnosis for the two groups converged (37 vs. 42%), and no significant differences were found, $\chi^2(1, N = 118) = 0.15, ns$. At 24-month follow-up, the intervention group showed the lowest diagnosis rate at any point in the study (20%), whereas the monitoring group remained stable (39%), and the difference in diagnosis rate was significantly different, $\chi^2(1, N = 100) = 4.64, p < .05$. Figure 2 shows the percentage of children still having a *DSM-IV* diagnosis at 2-year follow-up, broken down according to preintervention severity (no diagnosis = severity 1-2, mild = 3-4, and moderate = 5). For the monitoring group, a clear trend is visible in which the likelihood of still having a diagnosis at 2 years increased as the severity of preintervention diagnosis increased. This effect was not evident for the intervention group. Accordingly, the intervention produced lower rates of diagnosis for all levels of preintervention severity, but the effect is more impressive as the child's preintervention severity increases because of the increases in the monitoring group.

Table 1 shows ratings of change by parents and the clinician of child and family adjustment at postintervention and at 6-, 12-, and 24-month follow-up. The multivariate analysis of variance (MANOVA) at 12-month follow-up showed no treatment effect, $F(7, 112) = 1.67, ns$, although all means were higher in the intervention group and the univariate scales of children's and parents' ability to cope were significantly different in favor of the intervention group. At 24-month follow-up, all means remained higher in the intervention group, and the MANOVA evidenced a treatment effect, $F(7, 105) = 3.40, p < .005$. For univariate analyses, two scales showed statistically significant superiority for the intervention group: Avoidance, $F(1, 111) = 8.65, p < .005$, and clinician's rating of Global Impression, $F(1, 111) = 14.22, p < .001$.

From the diagnostic data reported above, it can be seen that approximately 30% of children still had significant anxiety problems at 24-month follow-up (20% and 39% in the intervention and monitoring groups, respectively). The final aim of the study was to examine whether measures taken at pretreatment were predictive of chronicity. In all regressions, predictors were added in three blocks: (a) age of child, gender, and treatment group status; (b) severity of pretreatment diagnosis, CBCL internalizing score, CBCL externalizing score, RCMAS anxiety score, and RCMAS lie score; and (c) mother's scores on the Stress, Anxiety, and Depression scales.

First, logistic regression was used with final diagnostic status at posttreatment and at 24-month follow-up as dependent variables. For posttreatment diagnostic status, Block 1 resulted in no significant prediction for age, gender, or treatment group. The addition of Block 2 variables resulted in a significant equation, $\chi^2(5, N = 124) = 28.5, p < .001$, with 87% and 46% of participants classified correctly into without-diagnosis and with-diagnosis groups, respectively. Significant individual predictors were gender ($p < .01$), CBCL internalizing ($p < .05$), pretreatment diagnostic severity rating ($p < .001$), and, marginally, treatment group ($p < .06$). Thus, girls, those with higher initial severity of anxiety, and those in the monitoring group were more likely to have an anxiety

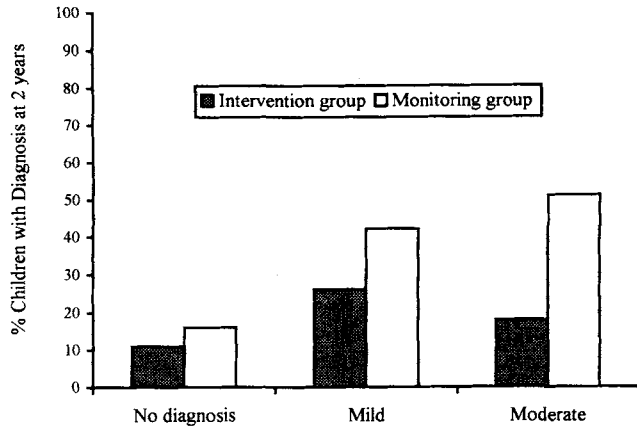


Figure 2. Percentage of children with a diagnosis based on the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (American Psychiatric Association, 1994) at 2-year follow-up according to preintervention diagnostic severity (no diagnosis = severity 1–2, mild = 3–4, moderate = 5) and intervention group.

disorder at posttreatment. The addition of parental variables in Block 3 resulted in no improvement in prediction.

For 24-month diagnostic status, Block 1 resulted in no significant prediction, although, consistent with the foregoing diagnostic data, treatment group membership was a significant univariate predictor ($p < .05$). Addition of variables in Block 2 resulted in significant prediction, $\chi^2(5, N = 111) = 10.9, p < .05$, with 91% and 21% of participants classified correctly into without-diagnosis and with-diagnosis groups, respectively. Significant individual predictors were treatment group ($p < .05$), CBCL internalizing ($p < .05$), and pretreatment diagnostic severity rating ($p < .05$). Thus, those with higher initial severity of anxiety and those in the monitoring group were more likely to have an anxiety disorder at posttreatment. Again, addition of parental variables in Block 3 resulted in no improvement in prediction.

Second, we conducted hierarchical regression analyses using severity of diagnosis on a 0-to-6 scale at posttreatment and at

24-month follow-up as dependent measures rather than categorical diagnostic status, embracing a more dimensional approach to the adjustment of the children. For posttreatment, Block 1 afforded no significant prediction. The addition of Block 2 variables accounted for 22% of the variance, $F(8, 102) = 3.51, p < .005$. Significant univariate predictors were gender ($p < .05$) and severity of diagnosis at pretreatment ($p < .005$). In this case, the addition of Block 3 variables improved prediction to 26% of the variance, $F(11, 99) = 3.18, p < .001$. Parental anxiety ($p < .05$) joined gender and severity of pretreatment diagnosis as significant predictors. For 24-month follow-up, Block 1 again afforded no significant prediction. The addition of Block 2 variables accounted for 12% of the variance at marginal significance, $F(8, 102) = 1.76, p < .09$. The significant univariate predictor was pretreatment CBCL internalizing score ($p < .05$). Addition of Block 3 variables led to no improvement in prediction.

Discussion

This study evaluated the long-term effects of a combined child- and parent-focused intervention for prevention and early intervention for anxiety problems. Overall, the results showed that a brief psychosocial intervention has potential to prevent children with mild to moderate anxiety problems from developing more serious anxiety disorders over a 2-year period. Recent controlled trials have shown that child and adolescent anxiety disorders can be successfully treated in the majority of referred cases by using a brief psychosocial intervention (Barrett et al., 1996; Kendall, 1994) and that results can be durable up to 3.5 years (Kendall & Southam-Gerow, 1996). The present study extends these findings to children who are showing anxiety symptoms and mild disorders but have not yet been referred to mental health services. Specifically, the intervention was associated with a 20% improvement at 2-year follow-up in the rates of anxiety disorder over and above the rate observed in children in a monitoring conditioning.

Notwithstanding the intervention effect, children in the present study showed a general improvement across time, regardless of intervention status, supporting recent findings by Last, Perrin, Hersen, and Kazdin (1996) on natural improvement rates in anx-

Table 1
Ratings of Change in Adjustment for Children and Their Families in the Intervention and Monitoring Groups at Postintervention and at 6-, 12-, and 24-Month Follow-Up

Time and group	Clinician's rating		Overall functioning		Overall anxiety		Avoidance		Family disruption		Parent's ability		Child's ability	
	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 months														
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	0.99	3.37	1.03	3.80	1.06	4.41	1.05
12 months														
Monitoring	4.73	1.17	4.64	1.25	4.21	1.30	4.17	1.20	3.34	1.11	3.59	1.11	4.48	1.08
Intervention	4.98	1.14	4.72	1.17	4.44	1.37	4.48	1.20	3.66	1.31	4.18	1.24	4.83	1.06
24 months														
Monitoring	4.64	0.98	4.89	1.18	4.67	1.16	4.10	1.24	3.28	1.08	3.79	1.06	4.67	1.04
Intervention	5.27	0.78	5.17	1.07	4.92	1.08	4.74	1.04	3.44	1.27	4.09	1.32	4.94	1.08

ious children. There could be a number of reasons for this. First, it is possible that anxiety problems show a peak around the late primary school period, and a proportion of children naturally overcome these fears as they move into adolescence. Second, there could have been a reporting effect in which parents (and interviewers) tended to overdiagnose anxiety problems early in the project simply because they were involved in a project focusing on anxiety and coping skills. Third, data presented earlier (Dadds et al., 1997) showed that, of the children who had been recruited into the project through teacher nominations (and not their own self-report), high lie or social desirability scores on the RCMAS were associated with the persistence of symptoms as reported by parents. Thus, it is possible that some children were prone to deny their anxiety problems as the project proceeded. Fourth, we became aware that there was some cross-fertilization of intervention with monitoring schools. Toward the end of the 1st year of the study, programs inspired by our intervention and focusing on interpersonal coping skills were run in some of the monitoring schools. These could have been partly responsible for improvements noted in the monitoring group at that time, and thus the lack of a difference between the groups at 12-month follow-up. We were also aware that at all follow-up assessments events at individual schools (such as exam times) were having transitory but powerful effects on anxiety levels in the children, and this could, in part, explain the instability of the rates of diagnosis. Given this experience with school effects, we would recommend that future researchers go to considerable care to control the timing of such assessments in relation to scheduled school assessment times and other potential stressors.

A secondary aim was to examine predictors of chronic anxiety problems in this age group. Thus, diagnostic status and severity of anxiety problems were used as criterion variables, and demographics, severity of initial anxiety problems, and parental anxiety, depression, and stress at pretreatment were used as predictors. For predictions of adjustment at posttreatment, being female, having more severe initial problems, and, to a lesser extent, being in the monitoring group and having high parental anxiety were associated with durable anxiety problems. At 2-year follow-up, having more severe initial problems and being in the monitoring group were predictive of long-standing problems. The most robust finding was that children with more severe problems are less likely to improve in the short term, and this was true for severity of primary anxiety problems, as well as elevated scores on general internalizing problems. Future research should specifically test whether the provision of more individualized attention than a group treatment can overcome chronicity in severe cases.

Girls tended to improve less than boys at posttreatment, but this effect disappeared by 24 months. It is difficult to interpret this finding, but it should be noted that previous researchers have reported gender effects both in etiological studies of childhood anxiety (Krohne & Hock, 1991) and treatment outcome studies (Barrett et al., 1996). Similarly, high parental anxiety was associated with short-term adjustment problems, but the effects did not last to 2 years. Given that another recent study specifically tested and confirmed that high parental anxiety is a risk factor for failure to respond to psychosocial interventions (Cobham et al., 1998), clinicians should routinely assess for this variable.

A strength of the present study was the sample size and the high retention rate over the 2-year period. However, the repetitious

follow-up assessments led to our not having data from the children themselves and relying solely on parental reports and clinician interviews with parents. It is generally recommended that multiple sources be used to assess childhood adjustment levels, but in this study parents reported that their children and that they themselves were becoming increasingly defiant about repeatedly filling in the checklists, and thus wanting to drop out. Rather than lose families, we omitted the self-report measures after the 6-month follow-up. Another limitation of the study was the absence of more general measures of the children's adjustment over and above the specific anxiety profile.

Notwithstanding these limitations, this study provides preliminary evidence that a brief psychosocial intervention can have a significant impact on levels of anxiety in large groups of school children selected for risk for anxiety disorders. This raises the exciting possibility that such interventions could be used as a regular part of school health promotion programs. In this study, the intervention was provided by clinicians specifically trained within a university research context. If such an intervention is to be viable more universally as a preventative program, a next step in research and development should be to assess the conditions under which such programs can be successfully implemented in schools using their existing resources rather than importing specialists.

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