# Prevention of anxiety symptoms in primary school children: Preliminary results from a universal school-based trial

### Paula Barrett\* and Cynthia Turner

Mt Gravatt Campus, Griffith University, Brisbane, Australia

Preliminary data are presented on the effectiveness of a universal school-based intervention for the prevention of anxiety symptoms in primary school children. A sample of 489 children (aged 10–12 years) were assigned to one of three intervention conditions: a psychologist-led preventive intervention, a teacher-led preventive intervention offered was the *Friends for Children* programme, a 12-session cognitive-behavioural intervention, originally based upon Kendall's (1994) *Coping Cat* programme. Participants in both intervention conditions reported fewer symptoms of anxiety at post-intervention than participants in the usual care condition. These preliminary results suggest that universal programmes for childhood anxiety are promising intervention strategies that can be successfully delivered to a school-based population and integrated into the classroom curriculum.

A large body of research has now been amassed indicating that childhood anxiety disorders represent a serious mental health problem. First, anxiety disorders are among the most prevalent forms of psychopathology affecting children and adolescents (Anderson, Williams, McGee, & Silva, 1987; Kashani & Orvaschel, 1990). Second, anxiety symptoms and disorders significantly interfere with children's interpersonal and academic functioning (e.g. Last, Hanson, & Franco, 1997; McGee & Stanton, 1990). Third, anxiety symptoms and disorders in childhood appear to signal significant risk for other disorders, particularly other anxiety disorders and depression (e.g. Cole *et al.*, 1998; Orvaschel, Lewinsohn, & Seeley, 1995). Fourth, without treatment, childhood anxiety can have a chronic and unremitting course (Keller, Lavori, Wunder, Beardslee, & Sohwartz, 1992).

Given the potentially serious consequences associated with childhood anxiety disorders, it is essential to address these problems effectively. Controlled clinical trials by Kendall (1994), Kendall and Southam-Gerow (1996) and Barrett, Dadds, and Rapee (1996) have demonstrated that childhood anxiety can be effectively treated with an individually administered cognitive-behavioural intervention. More recently, studies

\* Requests for reprints should be addressed to Dr Paula Barrett, School of Applied Psychology, Mt Gravatt Campus, Griffith University, Brisbane, Qld 4111, Australia (e-mail: p.barrett@mailbox.gu.edu.au).

have suggested that group format cognitive-behavioural treatments may be equally effective in treating childhood anxiety (e.g. Barrett, 1998; Silverman *et al.*, 1999; Shortt, Barrett, & Fox, in press). However, treating children who are already experiencing significant anxiety problems may not be the most effective or efficient means of reducing the incidence of childhood anxiety in the general population. The potential of prevention programmes, which intervene prior to the development of significant anxiety symptomatology, needs to be investigated (Greenberg, Domitrovich, & Bumbarger, 1999).

Dadds, Spence, Holland, Barrett, and Laurens (1997) conducted the first published study examining the efficacy of a programme for preventing childhood anxiety. This study evaluated a group-based early intervention programme for a selected group of children 'at risk' of developing anxiety disorders within a school setting. Their aim was to provide intervention for a range of children—from those who were disorder-free but showed mild anxious symptomatology, to those who met criteria for an anxiety disorder but were in the less severe range. From the 1786 children screened, 128 children were 'selected' to participate and were randomly allocated to either an intervention or monitoring control group. Both groups showed improvement immediately postintervention. However, at 6 months follow-up, the improvement was maintained in the intervention of existing rates of anxiety disorder and prevention of the onset of new anxiety disorders through to the 2-year follow-up (Dadds, Holland, Barrett, Laurens, & Spence, 1999).

Traditionally, three levels of prevention have been described: primary, secondary and tertiary (Caplan, 1964). Primary prevention refers to interventions that reduce the incidence of psychopathology by intervening prior to the onset of a disorder. Secondary prevention seeks to reduce the prevalence of pathology by intervening once problems have been identified, but before the problems become severe. Tertiary prevention involves treatment of existing disorders and prevention of relapse. The disadvantage of this classification system was that the secondary and tertiary levels related more to treatment than to prevention. Prevention of psychological problems is now recognized as the target of mental-health policies across the world. The prevention literature has therefore adopted an alternative approach to classifying interventions, based upon the presence and extent of risk factors related to the development of a disorder (Gordon, 1987). Under this approach, prevention programmes can be described as universal, selective and indicated.

Universal interventions are those applied to whole populations, regardless of their risk status. In some instances, universal preventive interventions are designed to enhance general mental health or to build resiliency, whereas others are targeted at one specific disorder. Selective prevention efforts are applied to those individuals who are members of a group, the membership of which places them at increased risk for the development of a mental-health disorder. Indicated prevention approaches are those applied to individuals or groups who are found to manifest mild symptomatology, identifying them as being at extremely high risk for the future development of full-blown mental health disorders. This paper adopts Gordon's (1987) prevention terminology because it is currently the most widely accepted model.

Universal programmes have a number of advantages over selected programmes. In

selected programmes (e.g. Dadds *et al.*, 1997), the screening measures used to identify 'at risk' children are subject to false-negative errors, and often, children who need assistance are overlooked. In addition, screening for and selecting 'at risk' children carry a strong social stigma. These issues clearly indicate the potential for a universal preventive intervention that will provide all participants, regardless of their risk status, skills that will enhance emotional resilience and inoculate them from anxiety disorders.

To date, there have been no trials of universal programmes for preventing childhood anxiety. A few studies have examined the effectiveness of universal prevention programmes for internalizing symptomatology (e.g. Clarke, Hawkins, Murphy, & Sheeber, 1993; Klingman & Hochdorf, 1993; Orbach & Bar-Joseph, 1993). However, these used adolescent samples, and measured effectiveness in terms of preventing depression and/or suicide, not anxiety. Nonetheless, these studies do provide evidence to support the potential efficacy of universal school-based preventive interventions.

The current study therefore aims to overcome gaps in the childhood anxiety literature by examining the effectiveness of a universal school-based preventive intervention for childhood anxiety. It takes a preliminary look at the post-intervention results obtained from the first 12 months of a large-scale longitudinal prevention project. The specific aims of this study were threefold. First, to examine the preventive effects of the intervention on participants functioning post-intervention, in comparison with a usual care (standard curriculum) with monitoring condition. Conceptually, it is possible that an effective psychosocial group-based intervention might not be efficacious as a universal preventive intervention for a variety of reasons (e.g. large numbers of children, many of whom would not be at risk). However, it is possible that the intervention would be efficacious, for example, by providing all children with positive coping and problemsolving skills. Given the effectiveness of group-based psychosocial interventions for remediating childhood anxiety (Barrett, 1998; Silverman et al., 1999), it was hypothesized that the intervention would result in lower rates of self-reported anxiety symptoms, compared with the self-reports of participants in the standard curriculum condition.

Given that the intervention was to be offered to participants through a classroom curriculum, a second aim of this study was to compare the effectiveness of teachers versus trained psychologists as group leaders. Empirical evidence for the generalizability of the intervention protocol has practical significance. There is mounting pressure on researchers and clinicians alike to offer preventive interventions that are cost-and timeefficient. Disseminating such an intervention through the classroom is a cost- and timeefficient means of service delivery, and demonstrating its efficacy when administered by teachers serves to provide empirical support for the practicality of the intervention.

When working with the general population of children, there will always be large numbers of children who do not present any risk for anxiety. Consequently, examining the effectiveness of an intervention on the total population may mask intervention effects for the subgroup of children who do manifest risk for anxiety disorders. Consequently, a third goal of the current study was to examine the effectiveness of a universal intervention on those children who do exhibit risk or show clinical levels of internalizing symptomatology. Again, given the effectiveness of psychosocial interventions for selected groups of 'at-risk' children (Dadds *et al.*, 1997), it was hypothesized that the universal intervention, in comparison with a standard curriculum condition, would be effective in reducing internalizing symptoms for those participants identified as being 'at risk' prior to the intervention.

#### Method

#### Participants

All participants for the current study were Grade 6 children (mean age 10.75 years, range 10–12 years, SD = 0.53 years) living in the metropolitan area of Brisbane, Australia. Participating schools responded to a written invitation to participate in an anxiety prevention research programme. Schools selected for approach were representative of varying levels of socio-economic advantage and religious affiliation. Of the 12 schools that were invited to participate in the research, 2 declined, leaving the remaining 10 schools to participate. All schools were coeducational, and 6 of the 10 schools extended from primary through to secondary school. Children attending these schools (and living in Brisbane in general) were predominantly from Anglo-Saxon families with English as their primary language. Children came from both dual-parent (75.35%) and single-parent (11.55%) families (13.1% of participants did not report on their family composition). Schools, rather than participants, were selected as the unit of random assignment, and the schools were randomly assigned to one of three intervention conditions: psychologist-led intervention (PI), teacher-led intervention (TI), or a standard curriculum (usual care) with monitoring condition (SC). This resulted in 188 children (107 boys, 81 girls; mean age 10.54 years) in the PI condition, 263 children (120 boys, 143 girls; mean age 10.53 years) in the TI condition, and 137 children (70 boys, 67 girls; mean age 10.96 years) in the SC condition.

#### Measures

The Spence Children's Anxiety Scale (SCAS; Spence, 1997) is a self-report measure of anxiety designed for use with children aged 8–12 years. The SCAS consists of 44 items, 38 of which assess specific anxiety symptoms (e.g. symptoms of social phobia, separation anxiety, panic attack and agoraphobia). The remaining 6 items serve as positive 'filler items' in an effort to reduce negative response bias. Respondents are asked to indicate the frequency with which each symptom occurs on a 4-point scale ranging from Never (scored 0) to 'Always' (scored 3). A total SCAS score is obtained by summing the 38 items that assess anxiety symptoms. This total anxiety score was used in this current study. Sound psychometric properties have been achieved and reported by Spence (1997).

The Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1978) consists of 28 items assessing a child's chronic or trait anxiety and 9 items assessing social desirability (or potential for lying). Children respond by indicating whether or not each item is true of them, and items are scored as either 1 (true) or 0 (not true). The 28 anxiety questions can be summed to provide a total anxiety score, and this was used in the current study. The RCMAS has achieved a high internal consistency and moderate retest reliability (r = .68; Reynolds & Richmond, 1985).

The Children's Depression Inventory (CDI; Kovacs, 1981) has 27 items related to the cognitive, affective and behavioural signs of depression. Each item contains three statements, and children select the one statement that best describes them in the past 2 weeks. Statements within each item are scored according to symptom severity: no symptomatology present (0), mild symptomatology (1), or severe symptomatology (2). A total depression score is calculated by summing respondents' endorsed statements. The scale has high internal consistency and moderate retest reliability (Saylor, Finch, Spirito, & Bennett, 1984).

*Protocol integrity measures.* To assess the integrity of the intervention protocol, all group leaders were required to complete a checklist indicating compliance with the manual content for each session. Using a Likert-type scale, the checklist provided four response categories: 'extremely well', 'moderately well', 'not very well', and 'not at all.' The checklist assessed how well the group leader met the aims of each activity. In order to determine compliance with manual content, the top two ('extremely well' and 'moderately well') and bottom two ('not very well' and 'not at all') categories were collapsed to provide a dichotomous variable indicating protocol compliance ('complied' and 'did not comply'). The protocol integrity for

each group leader was calculated as a percentage of the total number of activities within the programme. In addition, 25% of all PI intervention sessions were observed live by an independent clinician, and 25% of all TI intervention sessions were observed on videotape.

#### Procedure

An information sheet outlining the aims and objectives of the project was sent home to all parents of participating children. Each information sheet contained an informed consent slip, which parents were asked to sign and return. A good consent rate was obtained for each condition: therapist-led (87.4%), teacher-led (99.2%), and standard curriculum with monitoring (74.3%). Once all consent forms had been returned, teacher training and pre-intervention screening were organized.

Participating children completed the self-report questionnaires within normal class time. All students were asked to sit at their own desk and to listen carefully to the instructions that were provided. A trained clinical psychologist read the instructions and questionnaires aloud to all students, and assisted students who did not understand the questions. Students were informed that all questionnaire responses were confidential, and upon completion of the questionnaires, all participants were encouraged to ask any questions they may have had.

All teachers who were identified as group leaders for the intervention were released from classroom duties for one full day to complete an intensive workshop covering the principles and practices of prevention and early intervention. In addition, the workshop provided a step-by-step guide to the intervention programme. Full details about this workshop and its evaluation are reported by Lowry-Webster, Barrett, and Dadds (in press).

Following the pre-intervention screening and training workshop, the preventive intervention was commenced in those schools assigned to either the teacher-led (TI) or psychologist-led (PI) interventions. The intervention was typically conducted during social science classes. For those schools within the usual care with monitoring condition, the students completed the standard classroom curriculum. For participants in the psychologist- or teacher-led intervention, the *Friends for Children* intervention was run for 10 weeks, with one 75-min session held at the same time each week. The agenda for each session was clearly outlined in the *Group Leader Manual*, and all group leaders were required to adhere to this protocol. Group leaders were also asked to rate the intervention integrity at the conclusion of each session. Self-report integrity ratings showed an 89% concordance between session and manual content for each session. In addition, live observation by a postgraduate psychologist occurred for 25% of all sessions. This independent observer used the same integrity checklist. This integrity check showed an 88–92% concordance between session and manual content for each session. Participating children were given their own workbook that outlined session activities. For the PI condition, the same clinically trained psychologist conducted all intervention sessions for the schools within that condition.

At the completion of the final session, all participants (PI and TI intervention participants plus SC participants) were asked to complete the self-report questionnaire package again, using the same standardized instructions and procedures as for the pre-intervention assessment.

#### Intervention protocol and materials

Friends for Children (Barrett, Lowry-Webster, & Turner, 1999a, 2000b) is a brief cognitive-behavioural intervention initially designed and validated as a group-based treatment for clinically anxious children (Shortt *et al.*, in press). The programme, described in detail by Barrett (1999), assists children in learning important skills and techniques that help them cope with and manage anxiety. These techniques include relaxation, cognitive restructuring, attentional training, parent-assisted exposure, and family and peer support. Friends for Children originated from the Coping Koala programme (Barrett *et al.*, 1996), which was an Australian adaptation of Kendall's Coping Cat programme (Kendall, 1994). Friends for Children consists of 10 weekly sessions, with two booster sessions designed to fall 1 month and 3 months after the final session. The word FRIENDS is an acronym that helps participants to remember the coping steps to follow (see Table 1). The programme also incorporates four evening sessions for parents, which are scheduled at regular intervals throughout the 10 weeks of the programme. These psychoeducational sessions provided parents with an opportunity to learn about the programme their children were

completing, and to discuss parenting and reinforcement strategies. The parent sessions were based upon the family intervention described by Barrett *et al.* (1996).

Table 1. Acronym for the Friends for Children intervention

F	=	Feeling worried?
R	=	Relax and feel good
Ι	=	Inner thoughts
Ε	=	Explore plans of action
Ν	=	Nice work, reward yourself
D	=	Don't forget to practice
S	=	Stay cool!

Group leaders each received a copy of the *Friends for Children Group Leader Manual*—Edition III (Barrett *et al.*, 2000a). The manual describes the goals and strategies for each session, the desired outcomes, and the specific exercises to be used in meeting these outcomes. Participants were each given a *Friends for Children Workbook* (Barrett *et al.*, 2000b). The workbook allowed participants to apply each of the skills taught to their own life situation. To reinforce and generalize the skills introduced in the sessions, homework tasks were assigned to each session, and participants were required to bring completed home activities to the following sessions.

### Results

#### Preliminary analyses

Preliminary analyses were conducted to ensure that groups of participants within each of the intervention conditions (TI, PI, SC) did not differ from each other. There were no significant differences in the gender ratio ( $\chi^2 = 4.768$ , p > .05) across groups. Comparisons across the intervention conditions, using a series of one-way ANOVAs, revealed no significant differences in the pre-intervention means on the Spence Children's Anxiety Scale (F(2,479) = 0.047, p > .05), the Children's Depression Inventory (F(2,483) = 0.238, p > .05) or the Revised Children's Manifest Anxiety Scale (F(2,484) = 0.708, p > .05). Table 2 displays the means and standard deviations on each dependent measure, at pre- and post-intervention. Means on all measures are not in the clinical range of functioning, consistent with the sample being drawn from a community rather than from a clinical population.

Prior to statistical analyses, the data were screened for the presence of outliers and violations of the assumptions of analysis of variance. Two cases within the psychologist-led condition were identified as outliers, and these were deleted from all subsequent analyses. Data screening also revealed a number of children who did not complete all the questionnaires (N = 42), or who completed the questionnaires incorrectly (N = 46). All such cases (N = 88) were removed from subsequent analyses. The data screening resulted in 152 participants remaining for analysis in the psychologist-led condition, 253 participants in the teacher-led condition, and 84 participants in the standard curriculum condition.

	SCAS				CDI				RCMAS			
	Pre-		Post-		Pre-		Post-		Pre-		Post-	
Group	М	SD	М	SD	М	SD	М	SD	М	SD	М	SD
Control	27.44	12.37	23.15	13.04	8.62	6.43	7.40	6.19	11.36	5.83	9.58	6.44
Psychologist	26.76	15.23	19.14	11.89	9.18	8.32	6.86	6.34	10.96	7.55	7.04	6.08
Teacher	27.00	17.79	18.77	14.45	9.33	8.65	11.91	10.07	10.40	/.08	/.35	6.93

Table 2. Means and standard deviations on each dependent variable at pre- and post-treatment by group

Note. SCAS = Spence Children's Anxiety Scale (Spence, 1997); CDI = Children's Depression Inventory (Kovacs, 1981); RCMAS = Revised Children's Manifest Anxiety Scale (Reynolds & Richmond, 1978).

## Universal programme effects

To examine the statistical significance of the intervention, participants' pre-intervention scores were compared with their post-intervention scores on each of the dependent measures. On the Spence Children's Anxiety Scale (SCAS), a 2 (time: pre-intervention, post-intervention)  $\times$  3 (intervention condition: TI, PI, SC)  $\times$  2 (gender: male, female) mixed factorial ANOVA was performed. A significant interaction was found between group and time (F(2,451) = 3.25; p < .05). Follow-up tests revealed that the psychologist- and teacher-led interventions demonstrated a significantly stronger decrease in self-reported anxiety on the SCAS compared with the monitoring (SC) group, with no differences between the two intervention conditions (F(2,462) = 3.45; p < .05). The results also indicated a significant main effect of time (F(1,451) = 124.53, p < .01) and gender (F(1,451) = 22.49; p < .01). Inspection of the means indicated that scores on the SCAS had significantly decreased from pre- to post-treatment. Males reported significantly lower anxiety than females at pre- and post-treatment.

On the Children's Depression Inventory (CDI), a 2 (time: pre-intervention, postintervention)  $\times$  3 (intervention condition: TI, PI, SC)  $\times$  2 (gender: male, female) mixed factorial ANOVA was performed. A significant group  $\times$  time interaction was revealed (F(2,455) = 14.34; p < .05). Follow-up tests revealed that the teacher-led intervention demonstrated a significantly greater increase in self-reported CDI scores across time, compared with the participants in the monitoring (standard curriculum) and psychologist-led interventions (F(2,463) = 19.63; p < .01). There were no differences in CDI scores between these latter two conditions. Here, it must be emphasized that while the participants' scores in the teacher-led intervention showed a statistically significant change on this measure, both pre- and post-intervention scores remained well within the non-clinical range, and there is no evidence to suggest that this statistically significant difference holds any clinical implications.

For the Revised Child Manifest Anxiety Scale, a 2 (time: pre-intervention, postintervention)  $\times$  3 (intervention condition: TI, PI, SC)  $\times$  2 (gender: male, female) mixed factorial ANOVA was performed. A significant interaction was found between

#### Paula Barrett and Cynthia Turner

group and time (F(2,457) = 4.24; p < .05). Follow-up tests revealed that the psychologist-led and teacher-led interventions demonstrated a significantly stronger decrease in self-reported anxiety on the RCMAS compared to the monitoring (standard curriculum) condition. However, the effects of the psychologist-led and teacher-led interventions did not differ significantly from each other. In addition, the results indicated a significant main effect for gender (F(1,457) = 4.87, p < .05). Girls reported higher levels of anxious symptomatology than boys at pre- and post-intervention.

## Intervention effects for at-risk children

In addition to analysing the statistical significance of change on the self-report measures, it was of interest to examine the clinical significance of the intervention. Elevated levels of anxious symptomatology is a known risk factor for anxiety and depressive disorders in adolescence (Cantwell & Baker, 1989; Cole *et al.*, 1998). Consequently, the data were examined to identify the number of participants scoring in the clinical range on one of the self-report measures of anxiety. Participants were divided into two groups, 'at risk' or 'healthy', based on their pre-intervention score on the SCAS. A score of 42.48 or above on the SCAS is considered in the clinical range (Spence, 1997), and participants scoring 42.48 or above were placed in the 'at risk' group. Twenty-seven participants (18%) in the psychologist group were classified 'at risk', 45 participants (18%) in the standard curriculum condition were classified 'at risk'. There were no significant differences between the frequencies of children 'at risk' in each condition at pre-test.

To measure the preventive impact of the *Friends for Children* intervention, it was important to evaluate the change in status of these 'at risk' students. Figure 1 presents the frequencies of the pre-intervention 'at risk' students who either moved into the 'healthy' range at post-intervention, who remained at risk, or who moved from the healthy range into the 'at risk' range at post-intervention. Although these frequencies indicate that children in the intervention groups were more likely to move into the healthy range, there was insufficient power to detect any statistical significance due to the relatively small numbers of students within the 'at risk' category.

## Discussion

The current study aimed to examine the preventive effects of a universal school-based anxiety intervention. Results indicated that all children who received the intervention (regardless of intervention condition) showed improvements from pre- to postassessment on self-report measures of anxiety. In comparison, children in the monitoring condition showed no significant change. Self-reported depression decreased slightly in the PI and standard curriculum (monitoring) conditions, while slight increases were noted in the TI condition. However, inspections of participants' mean scores indicate that scores fluctuated within the 'healthy' (non-clinical) range. Consequently, the increase in depression scores in the TI group was statistically, but not clinically, significant.

A second aim of this study was to examine the generalizability of the intervention, by comparing the effectiveness of teachers versus clinically-trained psychologists as group



Figure 1. The frequencies of pre-intervention 'at risk' participants within each condition who were 'healthy' at post-intervention, who remained 'at risk' at post-intervention, or who moved from a 'healthy' to an 'at risk' range at post-intervention.

leaders. While this study provides preliminary support to demonstrate that both psychologists and teachers are effective group leaders, a lack of statistical power (due to relatively small sample sizes) prevents any more conclusive analyses about group leader effectiveness at this preliminary stage. However, there was evidence to suggest that the intervention was generalizable and sustainable within a school-based setting. The programme was accessible to the population of interest, was integrated into the functioning of the school system, and appeared to meet the developmental needs of the children involved. It also had the support of parents within the school communities, as over 85% of the parents approached expressed interest in the programme and consented to their children participating.

A final aim was to examine the preventive effects of a universal intervention on a group of children 'at risk' of anxiety. Risk status was defined by participants' preintervention scores on one of the self-report anxiety measures, using an established and validated critical cut-off score. Limited numbers again prevented sufficient power for statistical analyses to reach significance; however, examination of the frequencies of 'at risk' children who became 'healthy' at post-intervention indicated some positive trends. Compared with the monitoring control condition, greater numbers of 'at risk' participants in the teacher-led and psychologist-led interventions moved into the 'healthy' category.

These trends are consistent with the results of a previous study supporting the effectiveness of a school-based selected intervention for 'at risk' children (Dadds *et al.*, 1997, 1999), and are especially encouraging in light of one of the frequently reported disadvantages of a universal intervention. That is, because of the relatively low dosage that participants receive in a universal intervention, children 'at risk' of pathology might not receive sufficient exposure (duration or intensity) to alter their pathological developmental pathway (Greenberg *et al.*, 1999). The trends indicated by the current results suggest that intervention participants do receive sufficient exposure to the intervention. With ongoing data collection, and a greater sample size, it is anticipated

that sufficient power will be available to statistically confirm the trends reported in the current paper.

Indeed, the breadth of effect of the current intervention is unlikely to be known until follow-up assessments are completed. Sandler (1999) suggests that the effects of prevention programmes should be judged by how well they change targeted outcomes over time, rather than in terms of immediate effects. Consequently, while the preliminary results of the current trial are encouraging, the most important questions about the public health benefit of the intervention have yet to be answered.

Two limitations to the current study were noted; the reliance on children's self-report assessment measures, and the use of live observers to conduct programme integrity checks. Although parents in the project were asked to complete measures regarding their child's anxiety, the majority of the post-intervention checklists were not returned as they were posted only a matter of days before the school Christmas vacation. Therefore, while pre- and post-intervention comparisons on the parent-report measures were not possible, it is hoped that follow-up assessments will incorporate multi-method assessments, as recommended in the child psychology literature (Kazdin, 1986). Secondly, the use of live observers may have led to inflated integrity ratings because therapists were aware of which sessions were being observed.

Barlow, Levitt, and Bufka (1999) have recently called for the conscientious dissemination of empirically supported interventions. They highlighted the gap that exists between the relatively large amount of efficacy research, and the relatively small amount of effectiveness research, which contributes to the larger problem of the dissemination of empirically supported treatments. The current study provides preliminary support for the generalizability and dissemination of an empirically supported intervention. The *Friends for Children* programme has demonstrated that it can be successfully delivered to a school-based population and integrated into the classroom curriculum. The preliminary results indicate that the intervention is successful in reducing symptoms of anxiety within the general population of school-aged children. However, more promising were the trends for greater numbers of 'at risk' children in the psychologist-led and teacher-led intervention conditions to move into a healthy score range. These findings encourage the pursuit of further research into universal childhood anxiety prevention programmes.

### References

- Anderson, J. C., Williams, S., McGee, R., & Silva, P. A. (1987). DSM-III disorders in preadolescent children: Prevalence in a large sample from the general population. *Archives of General Psychiatry*, 44, 69–76.
- Barlow, D. H., Levitt, J. T., & Bufka, L. F. (1999). The dissemination of empirically supported treatments: A view to the future. *Behaviour Research and Therapy*, 37, S147-S162.
- Barrett, P. M. (1998). Group therapy for anxiety disorders in children. *Journal of Clinical Child Psychology*, 27, 459–468.
- Barrett, P. M. (1999). Interventions for child and youth anxiety disorders: Involving parents, teachers, and peers. Australian Educational and Developmental Psychologist, 16, 5–24.
- Barrett, P. M., Dadds, M. R., & Rapee, R. M. (1996). Family treatment of childhood anxiety: A controlled trial. *Journal of Consulting and Clinical Psychology*, 64, 333-342.
- Barrett, P. M., Lowry-Webster, H., & Holmes, J. (1999a). Friends for Children group leader manual (2nd ed.). Australian Academic Press: Brisbane, Australia.

- Barrett, P. M., Lowry-Webster, H., & Holmes, J. (1999b). Friends for Children participant workbook (2nd ed.). Australian Academic Press: Brisbane, Australia.
- Cantwell, D. P., & Baker, L. (1989). Stability and natural history of the DSM-III childhood disorders. Journal of the American Academy of Child and Adolescent Psychiatry, 28, 291-700.
- Caplan, G. (1964). Principles of preventative psychiatry. New York: Basic Books.
- Clarke, G. N., Hawkins, W., Murphy, M., & Sheeber, L. (1993). School-based primary prevention of depressive symptomatology in adolescents: Findings from two studies. *Journal of Adolescent Research*, 8, 183–204.
- Cole, D. A., Lachlan, G. Peeke, Martin, J. M., Truglio, R., & Serocynski, A. D. (1998). A longitudinal look at the relation between depression and anxiety in children and adolescents. *Journal of Consulting* and Clinical Psychology, 66, 451–460.
- Dadds, M. R., Holland, D., Barrett, P. M., Laurens, K., & Spence, S. (1999). Early intervention and prevention of anxiety disorders in children: Results at 2-year follow-up. *Journal of Consulting and Clinical Psychology*, 67, 145–150.
- Dadds, M. R., Spence, S. H., Holland, D. E., Barrett, P. M., & Laurens, K. R. (1997). Prevention and early intervention for anxiety disorders: A controlled trial. *Journal of Consulting and Clinical Psychology*, 65, 627–635.
- Gordon, R. (1987). An operational classification of disease prevention. In J. Steinberg & M. Silverman (Eds.). *Preventing mental disorders: A research perspective*. Department of Health and Human Services: National Institute of Mental Health (pp. 20–26).
- Greenberg, M. T., Domitrovich, C., & Bumbarger, B. (1999). *Preventing mental disorders in school-age children: A review of the effectivenes s of prevention programs*. Centre for Mental Health Services (CMHS), US Department of Health and Human Services, Washington, DC.
- Kashani, J. H., & Orvaschel, H. (1990). A community study of anxiety in children and adolescents. *American Journal of Psychiatry*, 147, 313–318.
- Kazdin, A. E. (1986). Research designs and methodology. In S.L. Garfield & A.E. Bergin (Eds.), Handbook of psychotherapy and behavior change (3rd ed., pp. 23-69). New York: Wiley.
- Keller, M. B., Lavori, P. W., Wunder, J., Beardslee, W. R., & Schwartz, C. E. (1992). Chronic course of anxiety disorders in children and adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry*, 31, 595–599.
- Kendall, P. C. (1994). Treating anxiety disorders in children: Results of a randomized clinical trial. Journal of Consulting and Clinical Psychology, 62, 200–210.
- Kendall, P. C., & Southam-Gerow, M. A. (1996). Long-term follow-up of a cognitive-behavioral therapy for anxiety-disordered youth. *Journal of Consulting and Clinical Psychology*, 64, 724–730.
- Klingman, A., & Hochdorf, Z. (1993). Coping with distress and self-harm: The impact of a primary prevention program among adolescents. *Journal of Adolescence*, 16, 121–140.
- Kovacs, M. (1981). Rating scales to assess depression in school-aged children. Acta Paedopsychiatry, 46, 305-315.
- Last, C. G., Hanson, C., & Franco, N. (1997). Anxious children in adulthood: A prospective study of adjustment. Journal of the American Academy of Child and Adolescent Psychiatry, 36, 645-652.
- Lowry-Webster, H., Barrett, P. M., & Dadds, M. (in press). A universal prevention trial of anxiety and depressive disorders in childhood: Preliminary data from an Australian study. *Behaviour Change*.
- McGee, R., & Stanton, W. R. (1990). Parent reports of disability among 13-year-olds with DSM-III disorders. Journal of Child Psychology and Psychiatry and Allied Disciplines, 31, 793–801.
- Orbach, I., & Bar-Joseph, H. (1993). The impact of a suicide prevention program for adolescents on suicidal tendencies, hopelessness, ego identity, and coping. *Suicide and Life-Threatening Behavior, 23*, 120–128.
- Orvaschel, H., Lewinsohn, P. M., & Seeley, J. R. (1995). Continuity of psychopathology in a community sample of adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry*, 34, 1525–1535.
- Reynolds, C. R., & Richmond, B. O. (1978). What I think and feel: A revised measure of children's manifest anxiety. *Journal of Abnormal Child Psychology*, 6, 271–280.
- Reynolds, C. R., & Richmond, B. O. (1985). *The Revised Children's Manifest Anxiety Scale: Manual*. New York: Western Psychological Services.

- Sandler, I. (1999). Progress in developing strategies and theory for the prevention and treatment of anxiety and depression. *Prevention and Treatment*, 2, Article 9.
- Saylor, C. F., Finch, A. J., Spirito, A., & Bennett, B. (1984). The children's depression inventory: A systematic evaluation of psychometric properties. *Journal of Consulting and Clinical Psychology*, 52, 955– 967.
- Shortt, A., Barrett, P. M., & Fox, T. (in press). Evaluating the FRIENDS program: A cognitive behavioural group treatment for anxious children and their parents. *Journal of Clinical Child Psychology*.
- Silverman, W. K., Kurtines, W. M., Ginsburg, G. S., Weems, C. F., Lumpkin, P. W., & Carmichael, D. H. (1999). Treating anxiety disorders in children with group cognitive-behavioral therapy: A randomized clinical trial. *Journal of Consulting and Clinical Psychology*, 67, 995–1003.
- Spence, S. H. (1997). Structure of anxiety symptoms in children: A confirmatory factor-analytic study. Journal of Abnormal Psychology, 106, 280–297.

Received 8 August 2000; revised version received 12 December 2000