# A Universal Prevention Trial of Anxiety and Depressive Symptomatology in Childhood: Preliminary Data from an Australian Study

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This paper describes the development and preliminary findings of a program designed to prevent the development of anxiety and depressive symptoms in children aged 10 to 13 years. Using a universal prevention approach, a total of 594 children were randomly assigned on a class-by-class basis to either a 10-session family group CBT program (FRIENDS) routinely implemented as part of the school curriculum, or to a comparison group. Pre-post intervention changes were examined universally, and for children who scored above the clinical cut-off for anxiety at pretest. Results revealed that children in the FRIENDS intervention group reported fewer anxiety symptoms, regardless of their risk status, than the comparison group at posttest. In terms of reported levels of depression, only the high anxiety group who completed the FRIENDS intervention evidenced improvements at posttest. Overall, these preliminary results appear to support the benefits of a school-based universal cognitive-behavioural intervention program. Implications of this study are discussed, and long-term follow-up measures are currently underway.

Prevention has been touted as the most important direction for researchers and clinicians to focus on in dealing with anxiety disorders during childhood and adolescence (Spence, 1994). It is now widely accepted that anxiety disorders are the most common form of psychological distress self-reported throughout this period of the lifespan (Ollendick & King, 1998). Indeed, current estimates of the prevalence of anxiety in children are alarming. Recent research suggests that around one in six children experience anxiety severe enough to interfere with their daily functioning (Boyd, Kostanski, Gullone, Ollendick, & Shek, in press; Dadds, Spence, Holland, Barrett, & Laurens, 1997). Beyond the high prevalence rates, anxiety disorders are associated with a wide range of psychosocial impairments (Last, Hanson, & Franco, 1997; Mattison, 1992). They have also been identified as significant risk factors for other disorders, particularly other anxiety disorders and depression (Cole et al., 1998; Orvaschel, Lewinsohn, & Seeley, 1995) and tend to be stable during childhood and adolescence, continuing into adulthood if left untreated (Cantwell & Baker, 1989; Keller, Lavori, Wunder, Beardslee, & Schwartz, 1992).

In addition to the personal suffering experienced by children and their families, anxiety disorders also have a tremendous cost to society. According to a study sponsored by the Anxiety Disorders Association of America, anxiety disorders cost the nation more that $42 billion dollars a year (Greenburg et al., 1999). Australia is likely to evidence a similar pattern of expense, with more than half of this cost associated with the repeated visits to health care services, with sufferers attempting to seek relief from anxiety symptoms that frequently mimic physical illnesses. Taken together, these factors

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are powerful forces in prompting researchers to develop ways to best intervene, reduce, or remediate the cognitive, behavioural, and emotional difficulties associated with anxiety.

Previous research has consistently shown that anxiety disorders in late childhood and early adolescence can be effectively treated using brief psychosocial interventions. In 1994, Kendall conducted the first published randomised clinical trial of cognitive-behavioural treatment (CBT) with 47 anxious children aged 9 to 13 years. Sixty-four per cent of the children who completed the treatment program (*The Coping Cat Program*; Kendall, 1990) were diagnosis free at posttreatment, and these improvements were maintained at 12-month follow-up.

Barrett, Dadds, and Rapee (1996) demonstrated similar effects with 79 anxious children aged between 7 to 14 years. They compared a CBT intervention based on Kendall's Coping Cat program (1990) with a CBT plus family condition (FAM). At posttreatment, 61% of children in the CBT group no longer met a diagnosis, compared with 88% in the CBT plus FAM treatment, and less than 30% in the waiting-list control group. Moreover, 5 to 7 years later, at long-term follow-up, 85.7% no longer fulfilled diagnostic criteria for any anxiety disorder, with CBT and CBT plus FAM being equally effective (Barrett, Duffy, & Dadds, in press). These findings clearly demonstrate the extended treatment effects and long-term clinical utility of cognitive-behavioural therapy in treating children suffering from anxiety disorders.

Recently, the effectiveness of these treatment programs has been further demonstrated when presented in a group format. For example, in a recent study conducted by Shortt, Barrett, and Fox (in press), 91 clinically anxious children ranging from 6 to 14 years old were randomly allocated to a family-based group cognitive behavioural treatment (FGCBT using the FRIENDS program) or a waiting-list control group. The FRIENDS program originated with the development of the Coping Cat (Kendall, 1990) and the Australian version, called the Coping Koala (Barrett, 1995) (see Barrett, 1998 for a complete developmental review). Results indicated that 68% of children who completed FGCBT were diagnosis free, compared to 14% of children on the waiting list. At 12-month follow-up, 76% of children were diagnosis free. Other studies examining the effectiveness of group CBT programs for anxiety have demonstrated similar effects (e.g., Barrett, 1998; Cobham, Dadds, & Spence, 1998; Mendolowitz et al., 1999; Silverman, Kurtines, Ginsburg, & Weems, in press).

Clearly, these clinical trials indicate that anxiety disorders in late childhood and early adolescence can be effectively treated, with benefits maintained at long-term follow-up. Yet, as Tuma (1989) and Day and Roberts (1991) highlighted, of those in need of mental health services, less than 20% receive appropriate care. Children in need are not being reached, waiting lists are long, and no-show rates and family dropouts sometimes exceed 50% (Weist, 1999). These data probably reflect a concern that is worldwide. Hence, prevention has been identified as the most important direction in which these services should move. The prevention of anxiety seeks to target a large number of individuals over a short period of time, avoid the high level of subjective distress on the part of children and their families, and reduce the large financial costs to communities at large. Given the existence of such a strong case for preventing anxiety disorders in children, it is astounding that relatively little research into the development and evaluation of prevention programs has been conducted.

Prior to reviewing the limited literature in terms of anxiety prevention, it is necessary to define the three levels of prevention as proposed by the Institute of Medicine (Mrazek & Haggarty, 1994). These levels are based on the assumption that most forms of psychopathology involve a gradual pathway of development. Consequently, these three levels are distinguished on the basis of their position of the target sample along a developmental continuum (see Figure 1). The first level, *universal preventive interventions,* are those that target the whole population group, for example, an entire grade or school population. Because universal programs are positive, proactive, and provided to participants regardless

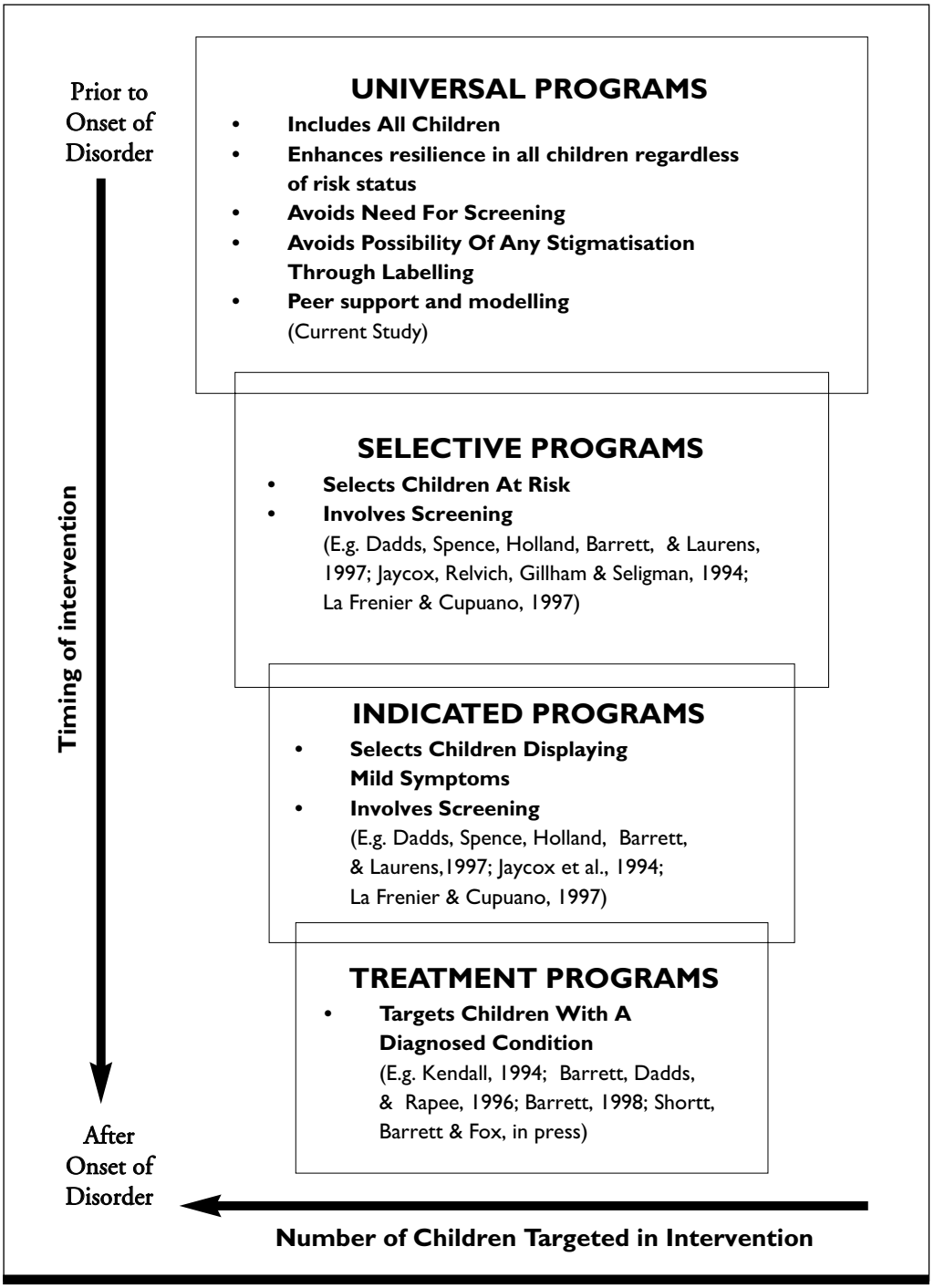


**FIGURE 1**

The intervention continuum: Prevention and treatment of internalising disorders.

of risk status, their potential for stigmatising participants is minimised. Hence, they may be more readily accepted and adopted. *Selective preventive interventions* target individuals or subgroups whose risk (based on biological or social risk factors) of developing mental disorders is significantly higher than average. *Indicated preventive interventions* target individuals who are identified as having minimal but detectable behavioural symptoms or biological markers related to mental disorders, but who do not yet meet diagnostic criteria (Greenburg, Domitrovich, & Bumbarger, 1999).

The majority of research studies to date have focused only on treatment interventions, with relatively little effort made to examine ways of preventing such problems. However, more recently, Dadds et al. (1997) conducted the first controlled prevention trial with a community cohort of anxious children in Australia. This project combined a selective with an indicated approach to managing the development of anxiety disorders in young people. The aim was to provide a comprehensive coverage of children, including those who were disorder free but showed mild anxious features, through to children who met diagnostic criteria for an anxiety disorder, but at a low level of severity. 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 (*The Coping Koala: Prevention Manual*; Barrett, Dadds, & Holland, 1994) or to a monitoring group. The results demonstrated not only a reduction in existing anxiety, but also a prevention effect, where 58% of children in the monitoring group progressed to a diagnosable disorder at 6-month follow-up, compared to only 16% of the intervention group. Moreover, even at 24-month follow-up, these improvements were maintained in the intervention group only (Dadds, Holland, Barrett, Laurens, & Spence, 1999). As such, this trial demonstrated that anxiety disorders can be ameliorated and prevented, avoiding the high level of subjective distress for individuals and their families, and the negative long-term consequences in terms of disruption to relationships, schooling, and vocational development.

Despite the exciting success of this research, it is not without limitations. Specifically, in this combined selective and indicated prevention trial, the intervention group leaders were clinical psychologists who had been specially trained and employed by the research team. Thus, the prevention trial demonstrated the efficacy of the intervention when managed by a specialist university team. Similarly, the few other prevention trials reported in the literature with internalising problems in young people (i.e., depression, Jaycox, Reivich, Gillham, and Seligman, 1994; and shyness in preschoolers, La Frenier & Capuano, 1997) also used specialised staff, and thus can only demonstrate efficacy under ideal staffing conditions. Hence, this method of prevention is still a somewhat costly alternative to treating anxiety disorders and difficulties. Moreover, as with the Jaycox et al. (1994) study, a labelling or stigmatising effect may have been created because the study was based on identifying adolescents "at risk" for anxiety or depression, and therefore may run contrary to the intention of promoting children's self-confidence and esteem. Further, the Jaycox et al. study encountered difficulties in recruiting and maintaining the attendance of participants, as the program was implemented outside of normal school hours. Hence, those students that remained in the study could potentially manifest a self-selection bias, being only the most motivated and committed children and families. Both the identified ethical problems of labelling and the attendance difficulties could be substantially reduced if future studies implemented prevention programs routinely as part of the school curriculum.

However, to date there has been no implementation of a universal prevention trial where programs are implemented to all children routinely as part of the school syllabus. It is anticipated that all children can benefit from such skills-building programs, which accordingly might bolster intervention effects through the general enhancement of interpersonal functioning in a school community. Moreover, there could be both a modelling and a "trickle down"

effect from those children who are more skilled at interpersonal functioning and coping. Hence, a fundamental question remains: how do universal prevention programs work when managed and implemented by pre-existing systems of a school, as opposed to specialised mental health professionals? The result of this question is a fundamental community health issue.

As such, this study seeks to extend research into the prevention of anxiety disorders and other mental health problems by implementing and assessing a universal intervention involving teachers and school counsellors already in place in the community setting. By involving and training teachers intensively in the skills and techniques surrounding the prevention of anxiety, significant advances in our knowledge of how best to design and implement preventive programs for young people with anxiety disorders and other mental health problems will be made.

If the implementation of these programs is found to be effective, this could allow future prevention programs with children and adolescence to reach a greater number of students over a shorter period of time. Hence, this has the potential to be a more cost-effective alternative to reducing the overall incidence of anxiety disorders within the community.

Further, a universal train-the-trainer model has the potential to reach individuals in increasingly remote areas. Sparsely populated and geographically remote communities increasingly struggle to maintain adequate general health-care services, let alone interventions for anxiety difficulties with children and youth. Moreover, the overall lack of trained mental health professionals in rural communities is a matter that affects both the availability of services and the quality of care provided.

In addition, a universal prevention program would help to overcome many of the problems encountered in clinical practice with the high levels of no-shows, dropouts, lengthy waiting lists, and reaching those in need, specifically because *all* children in a grade would be targeted. Although the combined approach of the universal train-the-trainer model cannot completely ameliorate the need for direct professional interventions, this service-delivery approach may reduce the demand and cost of anxiety problems by allowing school staff to effectively manage the program.

This study also seeks to explore the effectiveness of the anxiety-prevention program on levels of depression. The existence of a strong relationship between anxiety and depression has been widely demonstrated (Cole et al., 1998; Katon & Roy-Byrne, 1991). Orvaschel et al. (1995) noted that nearly two thirds (64.5%) of adolescents with a primary diagnosis of anxiety disorder later developed a second diagnosis of major depressive disorder. A number of researchers have suggested that anxiety and depression share a common underlying diathesis (Clark, 1989), or share overlapping symptomatology that makes them difficult to distinguish (Katon & Roy-Byrne, 1991). Others argue that depression develops secondary to anxiety as a result of the increasing feelings of frustration and failure, spurred on by the unsuccessful attempts to cope with, or manage, their anxiety disorder (Cole et al., 1998). Although the taxonomy of the relationship between anxiety and depression is still a major focus of current research, and review of this literature is beyond the scope of the current paper, it could be argued that a change in the level of anxiety from pre- to post-intervention may also result in a change in the level of reported depression. This argument is strengthened by the existence of many common overlapping elements of cognitive-behavioural treatments for both anxiety and depression that have demonstrated efficaciousness in the literature. For example, both treatments focus on affective education (see Barrett, 1995; Kendall et al., 1992; Stark, Rouse, & Livingston, 1991), relaxation training, enactive programming, scheduling of pleasurable activities, coping skills and problem-solving strategies, social support, issues associated with reinforcement, cognitive processes, and self-monitoring (see Kendall, Kortlander, Chansky, & Brady, 1992, for a review). Given these similarities in treatment components, the high comorbidity between anxiety and depression in children, and the identified risk factor of anxiety for the development of depression, it would appear somewhat artificial to focus solely

on anxiety. Moreover, if a single program can reduce levels of both anxiety and depression, the cost effectiveness of employing such interventions is further strengthened.

The current paper presents the preliminary results obtained from a large-scale prevention project. The overall aim of the current project was to evaluate a universal prevention program implemented by trained teachers already in place in the community. This program of research includes three major studies

***Study 1: Examination of proximal effects.*** To firstly train teachers (the change agents) in the skills and techniques associated with the prevention of anxiety, and assess whether such training produces change in these agents from pretest to posttest. A comparison group comprising of experts in the field of anxiety was also used. This manuscript is currently in preparation (Lowry-Webster & Barrett, 2001).

***Study 2: Examination of intermediate effects.*** To assess whether these change agents, after completing the training course, can effectively implement the prevention program within their individual school setting. As such, measures of program integrity and social validity were implemented.

***Study 3: Examination of distal effects.*** To evaluate the outcomes of the train-the-trainer model. Specifically, did the children involved in the program benefit from being members of the group in terms of reductions in anxiety and depression problems? In order to evaluate the effectiveness of the program for the children, multi-gate self-report measures, cognitive interpretation tasks, and follow-up diagnostic interviews will be implemented.

The aim of the current paper is to describe Study 3, namely the distal component of the project in terms of self-reported outcomes for children, and to present preliminary data on its effectiveness. It was hypothesised that the intervention group would result in lower rates of self-reported anxiety and depressive symptoms, compared with the participants in the comparison group.

## Method

### *Participants*

Five hundred and ninety-four children (314 females, 280 males) aged between 10 and 13 years were recruited from Grades 5 to 7, from seven Catholic schools in the Brisbane metropolitan area (approx. three groups per school = 85 students after refusals and dropouts). Children and their parents were allocated to the intervention or waiting-list condition on the basis of their school. Three of the control schools were shared, with a study conducted by a parallel research group (Barrett & Turner, 2001). Schools matched for size, sociodemographics, and socioeconomics were randomly allocated to conditions. As the program was universal, all children who agreed to participate from three class groups per school were invited to undertake the program (consent rate = 97.2%). Parents of these children were also invited to participate in three parent evenings (the family component).

### *Measures*

All children completed a battery of self-report questionnaires at pre- and post-intervention. All questionnaire items were read aloud to children to control for reading difficulties, and were administered on a class-by-class basis.

***Spence Children's Anxiety Scale (SCAS; Spence, in press; Spence, 1994, cited in Spence 1997).*** The SCAS is a 45-item child self-report measure designed to evaluate symptoms relating to separation anxiety, social phobia, obsessive-compulsive disorder, panic attack and agoraphobia, generalised anxiety, and fear of physical injury for 8- to 12-year-olds. Children were asked to rate, on a 4-point scale ranging from 0 *(never)* to 3 *(always)*, the frequency with which they experienced each symptom. This measure was selected due to its ability to reliably discriminate clinically anxious children from nonanxious controls and to provide information as to the specific anxiety diagnoses, and because the scale was normed on an Australian population. The clinical cut-off for this scale is 42.48 (Spence, 1994). Sound psychometric properties have been achieved and

reported by Spence (1997). Specifically, this measure has been found to have high internal consistency ($r$ = .92), high split half reliability ($r$ = .90), adequate test-retest reliability($r$ = .60), as well as showing good convergent and divergent validity.

***Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1978).*** The RCMAS provides a measure of a child's chronic anxiety. The questionnaire contains 37 items, 9 of which form a Lie scale. For each item, the child is asked to respond "yes" or "no". This measure has been found to have high internal consistency and test-retest reliability, as well as showing convergent and divergent validity (Reynolds & Richmond, 1985).

***Children's Depression Inventory (CDI; Kovacs, 1981).*** The CDI is the most widely used measure of childhood depressed affect (Cole & Turner, 1993), and has extensive support for its reliability and validity (e.g., Saylor, Finch, Spirito, & Bennett, 1984) in children from ages 7 to 17. The CDI contains 27 items; each item consists of three statements of different severity and requires the child to choose one statement that best describes him or her. Each item is scored from 0 to 2, and the sum of all item scores yields the total CDI score. Therefore, scores range from 0 to 54, with higher scores indicating more depressive symptoms. For the CDI, previous work has suggested that scores above 17 indicate a high likelihood of significant depressive symptomatology (Craighead, Curry, & Ilardi, 1995).

### *Procedure*

***Intervention group (FRIENDS).*** A letter including a consent form was sent to all parents, outlining that their child had been invited to participate in a group to help build their emotional resilience, coping skills, and problem-solving abilities. Interventions were based on the FRIENDS anxiety prevention program (Barrett, Lowry-Webster, & Holmes, 1998a–f). The FRIENDS program originated from the Coping Koala anxiety treatment program (Barrett, Dadds, & Rapee, 1991) and Kendall's (1990) Coping Cat anxiety treatment program. The Coping Koala and its original source have been described in detail elsewhere (Barrett, Dadds & Rapee, 1996; Kendall, 1994; Kendall & Treadwell, 1996).

***FRIENDS for children.*** The FRIENDS prevention program is a CBT program, which teaches children strategies for coping with anxiety and challenging situations within a group format. These strategies centre on the FRIENDS plan, which incorporates physiological, cognitive, and behavioural coping strategies. The word FRIENDS is an acronym, which assists participants to remember the coping steps to take: F for *what am I Feeling?* R for *learning to Relax and feel good*, I for *Inner thoughts*, E for *Explore plans of action*, N for *Nice work, reward yourself*, D for *Don't forget to practise*, and lastly S for *Stay cool and calm!*

Group processes were used to help children learn positive strategies from each other, and to reinforce individual efforts and change. Implemented by trained classroom teachers, the program involved 10 weekly 1? hour classroom sessions. Specifically, the FRIENDS program was implemented routinely as part of the school curriculum to whole classes of children during normal school hours. The FRIENDS program also comprised of two booster sessions, implemented at 1 month and 3 months following the initial intervention.

***FRIENDS for parents.*** The trained classroom teachers also conducted three parent sessions at their school. These sessions were conducted at times separate from the child program, at a time convenient to their individual school setting. Frequently, this involved the provision of both morning and evening sessions to give an opportunity for all parents to attend. Sessions 1 and 2 addressed what the children were learning in the FRIENDS program. Session 3 introduced parents to child-management skills (e.g., reinforcement skills, planned ignoring, giving and backing up clear instructions), and how to use these skills to manage their child's anxiety. In this session, parents were also shown how they could use these skills to manage their own anxiety.

As mentioned previously, leaders of the both the child and parent groups were classroom

**TABLE 1**
Mean Scores on Child Self-report Measures

| | Pre | | Post | |
|---|---|---|---|---|
| Measure | Intervention | Control | Intervention | Control |
| SCAS (universal) | | | | |
| *M* | 28.09 | 31.45 | 18.33 | 28.23 |
| *SD* | 18.45 | 14.76 | 14.07 | 17.80 |
| SCAS (high anx) | | | | |
| *M* | 57.61 | 53.6 | 31.83 | 45.87 |
| *SD* | 14.51 | 7.42 | 14.98 | 22.24 |
| RCMAS (universal) | | | | |
| *M* | 10.87 | 13.79 | 7.35 | 9.52 |
| *SD* | 7.19 | 10.20 | 6.62 | 6.37 |
| RCMAS (high anx) | | | | |
| *M* | 19.14 | 19.63 | 13.10 | 13.06 |
| *SD* | 5.25 | 4.45 | 6.67 | 6.66 |
| CDI (universal) | | | | |
| *M* | 9.74 | 12.42 | 9.97 | 11.64 |
| *SD* | 8.59 | 8.18 | 9.39 | 9.61 |
| CDI (high anx) | | | | |
| *M* | 18.26 | 16.65 | 11.99 | 14.46 |
| *SD* | 8.44 | 5.71 | 7.16 | 9.29 |

*Note.* SCAS = Spence Children's Anxiety Scale. RCMAS = Revised Children's Manifest Anxiety Scale.
CDI = Children's Depression Inventory.
$p = < .05$.

teachers trained in the delivery of the program. Initial training was conducted by two postgraduate psychology students and involved an intensive 2-day workshop. Topics for training included anxiety disorders and their risk factors, principles of prevention, a step-by-step guide through the FRIENDS program, ethical issues involved with running groups with children, and group-leader and group-process skills (encouraged through role plays and experiential exercises). All training manuals, training aids, handouts, exercises, discussion questions, videos, and overheads were standardised across training workshops via a training manual and resource kit (Barrett, Lowry-Webster, & Holmes, 1998a).

Teachers also met regularly with the program leader over the 10 weeks to review program integrity, and to discuss any intervention problems or issues. Random videotaping of the sessions was conducted to ensure program integrity, and no significant departures from the prescribed program manual were noted.

***Comparison group.*** Parents and children in the waiting-list group were informed that we would like to contact them and follow them up at regular intervals to learn more about anxiety in children. At these times, parents and children were asked to complete all assessment measures. Parents were informed that, at the follow-up intervals, any child who met a diagnosis rated at a clinical severity of 6 or more, or whose parents requested individual help for their child's anxiety problems, would be referred for

individual treatment and excluded from further follow-up assessment.

Immediately after the FRIENDS intervention, both groups were re-contacted to collect the same dependent measures as above.

## Preliminary Results

### *Group Comparability*

Preliminary analyses were conducted to ensure the equality of groups at pre-intervention. Chi square analyses revealed that there were no significant differences for gender $\chi^2(1) = 0.29$, *ns*. *T* tests analysing the dependent variables revealed no significant differences between the groups on the SCAS $t(564) = 1.66$, *ns*, but there was a significant difference between the groups on the RCMAS, $t(569) = 3.58$, $p < .05$, and on the CDI, $t(564) = 2.66$, $p < .05$, with the control group receiving higher scores on both these measures.

### *Effects of Intervention on the Self-report Measures*

Table 1 presents the means and standard deviations for the child self-report measures. To examine the immediate effect of treatment on the self-report measures and to control for pre-intervention differences on two of the dependent variables, a 2 (condition: intervention vs. waiting-list control) x 2 (time: pretreatment vs. posttreatment) repeated measures ANCOVA was used. The two covariates used in this analysis were the CDI and the RCMAS. After analysing universal effects (for all children), children were also stratified into two groups for additional analyses on the basis of their pretreatment SCAS scores:[1] high anxiety (those children scoring the clinical cut-off of 42.48 and above), and low anxiety (those children scoring below 42.48). This was to enable an independent examination of the benefits of being involved in the program for children with high levels of anxiety. Because those children in the intervention group with low levels or no anxiety at pretreatment are presumed to exhibit marginal or no change at posttreatment, the lack of change in their results on all self-report measures could mask the overall benefits for children with high levels of anxiety at pre-intervention. Hence, by stratifying kids into two groups, the benefits for the highly anxious group can be more accurately evaluated.

From pre- to post-intervention for scores for all children on the SCAS, the repeated measures ANCOVA shows that both the CDI and RCMAS were significant covariates for the within-subjects effects, CDI $F(1, 521) = 7.86$, $p < .05$, $\eta^2 = 0.01$ and RCMAS $F(1, 521) = 25.65$, $p < .05$, $\eta^2 = 0.04$, as well as the between-subject effects, CDI $F(1, 521) = 63.30$, $p < .05$, $\eta^2 = 0.10$ and RCMAS $F(1, 521) = 106.69$, $p < .05$ $\eta^2 = 0.17$. The ANCOVA also revealed a significant time by intervention condition interaction, $F(1, 521) = 34.64$, $p < .05$, $\eta^2 = 0.62$, and a significant main effect for group, $F(1, 521) = 7.65$, $p < .05$, $\eta^2 = 0.01$, but not for time $F(1, 521) = 1.55$, *ns*, $\eta^2 = .003$. Univariate analyses to examine this interaction indicated that scores on the SCAS for children in the intervention group significantly decreased from pretreatment to posttreatment, $t(391) = 12.86$, $p < .001$, as did the control group, $t(138) = 2.61$, $p < .05$. An independent samples *t* test conducted at posttreatment indicated that this decrease was significantly greater for the intervention group than for the comparison group, $t(545) = 6.59$, $p < .05$. When examining the effects for the high anxious group, the ANCOVA shows that only the RCMAS covariate was significant for the within-subject effects, $F(1, 99) = 7.372$, $p < .05$, $\eta^2 = 0.06$, while the CDI covariate was nonsignificant, $F(1, 99) = 0.00$, *ns*, $\eta^2 = 0.00$. In terms of the between-subjects effects, only the CDI covariate was significant, $F(1, 99) = 5.19$, $p < .05$, $\eta^2 = 0.05$, and not the RCMAS covariate, $F(1, 99) = 3.03$, *ns*, $\eta^2 = 0.03$. The ANCOVA also revealed a significant time by intervention interaction, $F(1, 99) = 20.74$, $p < .001$, $\eta^2 = 0.17$, and a significant main effect for group, $F(1, 99) = 5.88$, $p < .05$, $\eta^2 = 0.56$, but not for time, $F(1, 99) = .154$, *ns*, $\eta^2 = 0.002$. Follow-up univariate analyses revealed that the comparison group condition did not change significantly across time, $t(30) = 1.93$, *ns*, while the scores for the intervention group decreased

significantly from pretest to posttest, $t(30) = 13.18$, $p < .001$.

In regard to the universal CDI, the repeated measures ANCOVA revealed that the RCMAS was a significant covariate both for the within-subjects effects, $F(1, 517) = 15.47$, $p < .05$, $\eta^2 = 0.02$, and the between-subjects effects, $F(1, 517) = 105.57$, $p < .05$, $\eta^2 = 0.17$. The ANCOVA also shows no significant interaction, $F(1, 517) = 0.18$, *ns*, $\eta^2 = 0.00$, or group effects, $F(1, 517) = 2.04$, *ns*, $\eta^2 = 0.00$. However, a significant effect for time was found, $F(1, 517) = 7.84$, $p < .05$, $\eta^2 = 0.01$, with higher scores found at pre-intervention than post-intervention. When examining the effects for the high anxious group, the within-subjects covariate (RCMAS) was nonsignificant, $F(1, 93) = 1.10$, *ns*, $\eta? = 0.01$, while this same covariate was significant for the between-subjects effects, $F(1, 93) = 19.24$, $p < .05$, $\eta^2 = 0.17$. The ANCOVA revealed a significant interaction, $F(1, 93) = 4.25$, $p < .05$, $\eta^2 = 0.44$, but no significant effects for time, $F(1, 93) = 0.01$, *ns*, $\eta^2 = 0.00$, or group, $F(1, 93) = 0.01$, *ns*, $\eta^2 = 0.00$. Follow-up univariate analyses revealed that the comparison group condition remained stable across time, $t(25) = 1.11$, *ns*, while the scores for the intervention group decreased significantly, $t(70) = 6.20$, $p < .05$.

In terms of the RCMAS at the universal level, the ANCOVA revealed that the CDI covariate was significant for the within-group effects, $F(1, 520) = 6.68$, $p < .05$, $\eta^2 = 0.01$, and the between-group effects, $F(1, 520) = 190.97$,

**TABLE 2**

Risk Status of All Children at Pre- and Post-intervention

| Risk status | Intervention group (*n* = 392) | Control group (*n* = 139) |
|---|---|---|
| % of children not at risk at pretest or posttest | 78.3% (*n* = 307) | 73.4% (*n* = 102) |
| % of children at risk at pretest but not at posttest | 14.8% (*n* = 58) | 10.1% (*n* = 14) |
| % of children who were not at risk at pretest but were at risk at posttest | 2.04% (*n* = 8) | 4.3% (*n* = 6) |
| % of children who were at risk at pretest and posttest (i.e., remained at risk) | 4.8% (*n* = 19) | 12.2% (*n* = 17) |

*p* = < .05.

**TABLE 3**

Risk Analyses for Those Children at Risk at Pretest

| Risk status | Intervention group (*n* = 77) | Control group (*n* = 31) |
|---|---|---|
| % of children at risk at pretest but not at posttest | 75.3% (*n* = 58) | 45.2% (*n* = 14) |
| % of children who were at risk at pretest and posttest (i.e., remained at risk) | 24.7% (*n* = 19) | 54.8% (*n* = 17) |

*p* = < .05.

$p < .05$, $\eta^2 = 0.26$. The repeated measures ANCOVA also revealed a nonsignificant interaction, $F(1, 520) = 0.47$, *ns*, $\eta^2 = 0.00$. However, the effect for time was significant, $F(1, 520) = 27.02$, $p < .05$, $\eta^2 = 0.04$, with higher scores found at pre-intervention than post-intervention. The group effect was also significant, $F(1, 520) = 7.84$, $p < .05$, $\eta^2 = 0.01$, with the intervention group reporting lower scores at both phases. Lastly, when examining the effects for the high anxious group, the CDI covariate was nonsignificant for the within-subjects effects, $F(1, 94) = .18$, *ns*, $\eta^2 = 0.00$, but it was significant when looking at the between-subjects effects, $F(1, 94) = 16.69$, $p < .05$, $\eta^2 = 0.15$. The ANCOVA also revealed that neither the interaction effect, $F(1, 94) = .16$, *ns*, $\eta^2 = 0.00$, nor the condition effect, $F(1, 94) = 0.63$, *ns*, $\eta^2 = 0.00$, were significant. However, a significant effect for time was found, $F(1, 94) = 11.64$, $p < .05$, $\eta^2 = 0.11$, with lower scores found at post-intervention than at pre-intervention.

Chi square analyses were used to examine the effects of gender on treatment outcome at posttreatment, using level of anxiety (SCAS) as the dependent measure. There were no significant gender effects universally, $\chi^2(1) = 0.10$, *ns*, or for the high anxious group, $\chi^2(1) = 0.50$, *ns*.

### *Risk Analyses*

To further evaluate the effectiveness of the program, chi square analyses were conducted on the SCAS to examine the risk status of children at pretest and posttest. Using the SCAS clinical cut-off of 42.48 (Spence, 1997), participants were dichotomously divided into "at risk" or "healthy" groups on the basis of their pre- and post-intervention scores. This produced four separate groups: (a) healthy at pre and post, (b) healthy at pre but at-risk at post, (c) at risk at pre but healthy at post, and (d) at risk at pre and post.

A significant relationship between risk status and treatment group was found, $\chi^2$ (3) = 12.28, $p < .05$, when looking at the results for all children using the SCAS clinical cut-off of 42.48 (see Table 2 for percentages). In particular, a greater percentage than expected remained at risk in the comparison group. Similarly, when looking at the results for only those children at risk at pretest (i.e., the high anxious group), a significant relationship between risk status and treatment group was also found, $\chi^2$ (1) = 9.05, $p < .05$ (see Table 3 for percentages). Once again, a greater percentage than expected remained at risk in the control group. Notably, 75.3% of children in the intervention group who were at risk at pretest were no longer at risk at posttest, compared to 54.8% of children who were at risk at pretest in the comparison group and who remained at risk at posttest.

### *Relationship Between Anxiety and Depression*

Of the 594 participants, 118 (19.9%) were above the clinical cut-off of 42.48 for anxiety on the SCAS at pre-intervention; of these, 82 were females and 36 males. One hundred and forty-three children (24.1%; 80 females, 62 males) were above the clinical cut-off of 17 for depression on the CDI. Sixty-two children (10.4%; 44 females, 17 males) were above the clinical cut-off for both anxiety and depression. To further explore the relationship between anxiety and depression, a simple regression analysis was conducted. This revealed a moderate positive linear correlation between anxiety and depression at pre-intervention of $r = .53$. This significant relationship accounts for 27.7% of the variance, $F(1, 568) = 218.94$, $p < .05$.

## Discussion

In this paper, we have argued the importance of school-based prevention programs for anxiety disorders. The specific aims of this study were to examine the remediating effects of the intervention on children's self-reported levels of anxiety and depression symptomatology at post-intervention, in comparison to a waiting-list control group. The preliminary results of this study were very promising. As a group, children who received the intervention emerged with lower rates of self-reported anxiety, as measured by the SCAS, at post-intervention, compared with those who were in the waiting-list control group. Moreover, when evaluating

the effectiveness of this program for those children reporting clinical levels of anxiety at pre-intervention, these benefits were even more pronounced. Notably, 75.3% of children in the intervention group who were at risk at pretest showed significant benefits by being involved in the FRIENDS program, that is, they were no longer self-reporting their anxiety symptoms within the clinical range at posttest. Conversely, more than half (54.8%) of the children in the comparison group who were at risk at pretest remained at risk, scoring above the clinical cut-off on the SCAS.

These results were comparable to those results achieved in the Dadds et al. (1997) study when a trained clinical research team implemented the program with high-risk children and those children displaying mild symptoms of anxiety. Hence, this study appears to support the benefits of a school-based universal cognitive-behavioural prevention program. Interestingly, the Dadds et al. study found no significant differences on the self-report measures; rather, these benefits were identified through diagnostic interviews. However, it may be that the self-report measures implemented in the previous study were less sensitive to change. Indeed, the RCMAS, which was also implemented in the current study, evidenced no significant change or improvement at posttest. Hence, the SCAS could potentially provide a more useful and accurate measure in future research. This argument is further strengthened given that the SCAS was normed on an Australian population, and hence may be more relevant in terms of the items and use of vocabulary than the American-normed RCMAS. Diagnostic interviews are currently underway in the present study, and will assist in further exploring the reliability of the SCAS in detecting change.

In terms of levels of self-reported depression, universally there were no significant effects at post-intervention. This result is not surprising, given the nonclinical nature of a community sample, with scores fluctuating within the "normal" healthy range. However, when level of anxiety was controlled, so that examination of only clinically anxious children was used (as measured by the Spence children's anxiety scale), a significant reduction in self-reported depression was evident from pre- to post-intervention for the intervention group only. This suggests that levels of self-reported depression are also amenable to change via a universal anxiety-prevention program implemented by classroom teachers. This appears consistent with recent suggestions that universal prevention interventions may have the potential to promote enhancement in levels of functioning in multiple problem areas (Greenburg et al., 1999). Given the burgeoning research highlighting the shared, overlapping, and associated risk factors amongst various psychopathological disorders and, as in the case of anxiety and depression, the significant degrees of comorbidity, it appears logical that increased resilience and coping in one area would result in similar positive effects in another. Moreover, the moderate correlations evidenced between anxiety and depression in the current study add to the growing body of literature examining the relationship between these two constructs during childhood and adolescence (e.g., Cole et al., 1998; Orvaschel et al., 1995). As suggested by Cole et al., perhaps depression develops secondary to anxiety as a result of the increasing difficulty of failing to cope with the anxiety disorder; hence, as the individual learns new strategies to cope and to manage their anxiety more effectively, the feelings of hopeless and helpless of depression are elevated. Obviously, further research is needed to explore the direction of this relationship, and the developmental pathways of both anxiety and depression.

The finding that one in five children were currently experiencing high levels of anxiety is also consistent with previous research findings (e.g., Dadds et al., 1997), but the finding that one in four children were rating themselves within the clinical range of depression was somewhat higher than expected. Indeed, some studies have cited that only 2 to 3% of children meet diagnostic criteria for a major depressive disorder (e.g., Roberts, Lewinson, & Seeley, 1995). However, in terms of adolescents, studies have consistently demonstrated that between 21% and 32% of adolescents report mild to severe symptoms of depression (Ehrenberg, Cox, & Koopman, 1990; Oster

& Caro, 1990). Given that a significant proportion of the sample was made up of 13-year-olds, these results appear consistent with previous research findings.

This study is the first to examine the effectiveness of a universal prevention program implemented by school staff already in place in the community. This method of intervention overcomes many of the problems encountered in previous prevention research, such as low attrition rates and the ethical problems of labelling, which runs contrary to the overall aim of resilience-building programs. By training teachers to reduce levels of anxiety and depression, this approach may reduce the demand and cost of such internalising problems by allowing school staff to effectively manage the program.

However, the long-term benefits of this program remains to be demonstrated, before any definitive conclusions can be made, especially in regard to the potential prevention effect of such interventions. Diagnostic interviews, cognitive interpretation tasks, and 12-month follow-up measures are currently underway. Moreover, evaluation of the parent report measures is also needed to provide further support for the effectiveness of the intervention, and is currently being investigated both for posttest and 12-month follow-up. The prevention of anxiety disorders and depression symptomatology in children promises to be a fertile area of future investigation. Although preventive intervention research is still a relatively young field, and formidable tasks lie ahead, these preliminary results of the current study are encouraging. This study is the first to demonstrate, in a controlled universal prevention trial, a positive influence on the mental health of young people as well as the real-world benefits of using such innovative programs in the context of Australia's existing education services.

## Footnote

1 Due to timetabling constraints of schools, a limited number of children failed to complete *all* questionnaires in the questionnaire package within the times allocated. This included 41 children from the intervention group and 22 children from the control group. Ten of these children were those with high levels of reported anxiety.

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