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Preventing Anxiety and Promoting Social and Emotional Strength in Preschool Children: A Universal Evaluation of the Fun FRIENDS Program

Key words: anxiety; behavioural inhibition; prevention; early intervention; cognitive behaviour therapy

Introduction

Anxiety disorders are among the most common childhood psychiatric disorders, occurring in approximately 10–15% of young children (Briggs-Gowan *et al*, 2004; Egger & Angold, 2006). Only recently have researchers indicated that clinically significant anxiety can exist in preschool-aged children (Eley *et al*, 2003; Spence *et al*, 2001; Sterba *et al*, 2007) and can be subtyped into patterns similar to those of older children. A recent review of the prevention literature suggested that prevention

efforts ought to occur early in the life course to reduce the overall burden of anxiety disorders (Bienvenu & Ginsburg, 2007). Such early adaptation of skills may provide young children and their parents with the opportunity to learn anxiety-management skills and coping skills before entering primary school, thereby reducing the impact of anxiety on academic and social success (Hirshfeld-Becker *et al*, 2008).

The last few decades have seen a large shift in focus from treatment to prevention and early intervention in the late childhood/adolescent years (Greenberg *et al*, 1999). Practice parameters established for the assessment and treatment of child and adolescent anxiety disorders (Connolly & Bernstein, 2007) suggest that early inter-

A B S T R A C T

This study sought to examine, for the first time, the efficacy of The Fun FRIENDS program (Barrett, 2007a, b), a school-based, universal preventative intervention program for preschool children. The Fun FRIENDS program aims to teach children cognitive-behavioural strategies in a play-based manner to prevent anxiety and to increase social and emotional strength. Participants were 263 children aged four to six years attending preschool in Brisbane, Australia. Schools were randomly allocated to an intervention group (IG) or a waiting list control group

(WLG). Parent report data revealed no significant differences between the IG and WLG on anxiety, behavioural inhibition (BI) and social-emotional strength at post-intervention. At 12-month follow-up, improvements were found on anxiety, BI and social-emotional competence for children in the IG. Teacher reports revealed significant improvements at post-intervention on BI and social-emotional strength for children who had received the program. The implications of these findings are discussed, along with limitations and directions for future research.

vention and prevention offer a proactive method for alleviating anxiety symptoms. In their review, Bienvenu and Ginsburg (2007), noted that, due to the early onset of most anxiety disorders, prevention efforts ought to occur early in the life course to reduce the overall burden. They have suggested that delivering preventative interventions when children are very young (for example aged three to five years) to those with early signs of anxiety or behavioural inhibition (BI) may represent the ideal stage of intervention (Rapee *et al*, 2005). Only recently have researchers begun to examine preventative interventions for internalizing problems in early childhood.

LaFreniere and Capuano (1997) examined a six-month (20-session) integrative, home-based indicated preventative intervention program for mothers and anxious/withdrawn preschoolers ($N = 45$, aged 31–70 months). The intervention involved setting up individualized programs focused on parental psychoeducation, child-directed play sessions, behaviour modification, training in parenting skills and building support networks. Results at post-intervention demonstrated significant improvements on teacher-rated social competence, but reductions in anxious-withdrawn behaviours only approached significance.

Rapee and Jacobs (2002) piloted the efficacy of a six-session selective, parent-based prevention program for anxiety in preschool-aged children (3.5 years to 4.5 years, $N = 7$) who exhibited parent-rated BI. While no immediate post-intervention results were reported, findings at 12-month follow-up indicated that the program was superior to the no-treatment comparison group in reducing BI and rates of anxiety disorder diagnoses in children.

In an extension to this work, Rapee and colleagues (2005) demonstrated that children with parents who received the intervention program ($N = 146$) experienced significantly fewer anxiety diagnoses at 12-month follow-up than the monitoring group. There were no significant effects between groups on measures of inhibition/withdrawal following this intervention. The mixed findings reported in this study make it difficult to interpret the effectiveness of this brief parent education program for preventing anxiety. However, the results demonstrated a significant reduction in parental report of child anxiety diagnoses, suggesting that early intervention targeted at children at increased risk for anxiety may reduce or prevent occurrence of anxiety disorders in later childhood.

Dadds and Roth (2008) conducted a large-scale controlled, universal prevention trial ($N = 734$) for parents of children aged three to six from 25 preschools in Brisbane. The intervention consisted of six

parent sessions over three months and focused on cognitive-behavioural models targeting self-talk, behaviour change and problem solving. Following the program, parents reported no significant changes in their children, and teachers tended to view all the children as becoming better adjusted over time. Social validity data indicated that the participants viewed the program as highly acceptable and useful. Several methodological problems were present in this study, but it provides initial support for the acceptability of a universal preventative intervention program for parents of preschool children.

Only one of the studies reviewed (Dadds & Roth, 2008) used a universal, school-based approach, and a majority of the interventions were delivered directly to parents, not to children. This paper aims to expand on the existing literature by examining, for the first time, *The Fun FRIENDS* program (Barrett, 2007), a universal preventative intervention program delivered directly to preschool-aged children in their classroom. *The Fun FRIENDS* program aims to teach children cognitive-behavioural strategies to prevent anxiety and to build social and emotional strength, in a play-based manner. Hirshfeld-Becker *et al* (2008) recently demonstrated that CBT treatment modalities can be successfully adapted to preschool-aged children.

The Fun FRIENDS program (Barrett, 2007) is a downward extension of the *FRIENDS for Life* program (Barrett, 2004, 2005) for children and young people. *The FRIENDS for Life* program, based on Kendall's *Coping Cat* program (Kendall, 1994), has accumulated an evidence base as a universal prevention program for childhood and adolescent anxiety (Barrett *et al*, 2006; Barrett & Turner, 2000; Lock & Barrett, 2003; Lowry-Webster *et al*, 2001, 2003; Stallard *et al*, 2005, 2008, 2007).

The Fun FRIENDS program is similar to the *FRIENDS for Life* program (Barrett, 2004, 2005) in its cognitive-behavioural grounding, but its delivery varies since it relies heavily on play-based activities and experiential learning, which is more appropriate for a preschool-aged population. This paper reports results from the first, school-based universal trial of the *Fun FRIENDS* program. This study sought to examine whether children involved in the program experienced reductions in anxiety and BI and increases in social-emotional strength following the intervention as measured by parent and teacher reports, and whether the results were maintained at 12-month follow-up. Perceived intervention acceptability and perceived effectiveness of the program were examined through collection of social validity data.

The study

Participants

The participants were 263 (137 male, 126 female) preschool students attending one of 16 classes, in nine preschools in Brisbane, Australia (mean age = 4.56, s.d. = .51). Schools volunteered to participate following an invitation announced at a conference on early childhood. Classes were matched on socioeconomic status, class size and gender balance, and were randomly assigned by an independent research student to one of two intervention conditions: Intervention Group (IG) or Waitlist Control Group (WLG). This resulted in 134 (71 male, 63 female) children in the IG and 129 (66 male, 63 female) in the WLG. Of the families who participated, 251 completed information on annual income (4.6% missing). Approximately 19% of the sample had an annual income under \$40,000, 38.7% between \$40,001 and \$80,000, and 28% between \$80,001 and \$100,000 and over. Children in the study with language impairments and/or pervasive developmental disorders were excluded from statistical analysis ($N = 20$, already deducted from $N = 263$) but were still offered the intervention program. Such impairments were assessed by parent and teacher report followed by examination of school files if necessary.

Measures

All the measures listed (except the treatment integrity checklists) were completed by parents and teachers in the IG and the WLG at pre-intervention and post intervention. The measures were also completed at 12-month follow-up by parents in the IG only.

The Preschool Anxiety Scale, Parent Report (Spence *et al*, 2001)

The PAS is a 34-item parent report assessing DSM-IV child anxiety symptoms for preschool children. The PAS consists of 28 anxiety-based items with five non-scored post-traumatic stress disorder items and one open-ended item on traumatic events. A five-point Likert scale is used on how often the item occurred from 'not at all' to 'very often true'. The total anxiety score was used in the current analyses (range = 0–112). The PAS has adequate psychometric properties and good construct validity against the CBCL (Achenbach, 1991, 1992; Achenbach & Rescorla, 2000), correlations ranging from .59 to .68. This measure was completed by both parents conjointly.

Behavioral and Emotional Rating Scale, Parent Report and Teacher Report (Epstein & Sharma, 1998)

This is a 52-item measure designed to assess emotional and behavioural strengths in children and adolescents, and provides an overall strength index. The measure is rated by a four-point Likert scale ranging from 'not at all like your child' to 'very much like your child'. The BERS has excellent inter-rater reliability ($r > .83$) and moderate to high test-retest reliability across studies, ranging from .53 to .99 (Epstein *et al*, 1999; Epstein & Sharma, 1997). Validity studies have found moderate to high correlations among numerous measures of social competence (Epstein & Sharma, 1997). Several items on the BERS were slightly modified to make them more appropriate for preschool children, but care was taken to ensure that the meaning of these items was not altered (for example, question 51 was modified from 'Attends school regularly' to 'Attends preschool regularly').

The Behavioral Inhibition Questionnaire, Parent Report and Teacher Report (Bishop *et al*, 2003)

The BIQ is a 30-item measure that assesses the frequency of behaviours associated with BI on a seven-point Likert scale ranging from 'hardly every' to 'almost always' (range = 0–210). The BIQ has good psychometric properties and high internal consistency, with a Cronbach's alpha of .95 (total BI for mother's report) and .94 (total BI for father's report), and has strong convergent validity (.87 for mother's report, .86 for father's report) against the Temperament and Assessment Battery for Children Revised. Parents completed this measure conjointly.

Behavior Intervention Rating Scale, Parent Report and Teacher Report (Elliot & Von Brock Treuting, 1991)

This is a 24-item measure used to examine perceptions of treatment acceptability and perceived effectiveness of classroom interventions (social validity). Responses are provided on a five-point Likert scale ranging from 'strongly disagree' to 'strongly agree' (range = 0–120). This measure has strong internal consistency (.97) and good content and construct validity. Several items on the BIRS were modified slightly to correspond to the aims of the intervention protocol.

Treatment integrity, group leaders' report

To assess the integrity of the intervention protocol all group facilitators (postgraduate psychology students) were required to complete a weekly checklist indicating

compliance with the manual content of each session. The checklists contained the session objectives. For example, in session 4 facilitators would check off if they 'had a group discussion about relaxation games'.

The intervention program: The Fun FRIENDS Program

The Fun FRIENDS program teaches children cognitive-behavioural strategies which correspond to several areas of social-emotional learning. The program name *Fun FRIENDS* is an acronym for the strategies taught in the program – each letter corresponds to a component of the program. See **Table 1**, overleaf, for a detailed description of session content, along with Pahl and Barrett (2007).

Procedure

Following the selection and random assignment of preschools, parents and teachers were invited to attend an information session to obtain parental consent for participation. Only one child was not granted consent by his parents and was engaged in another activity at the school while the program sessions took place. Pre-intervention screening consisted of parents and teachers completing questionnaires in their own time. On certain questionnaire measures, parents were requested to complete them conjointly, and others required independent completion by a mother or a father. Preschool classes that were randomly assigned to the IG received the *Fun FRIENDS* program in their classroom from a clinically trained postgraduate psychology student for one hour each week for nine consecutive weeks. All sessions were held between 9.30 and 11.30 in the morning. The agenda for each session was outlined in a draft manual. The WLG received normal curriculum from their classroom teacher.

During program implementation, parents in the IG were invited to attend three parent information sessions which focused on anxiety psychoeducation and information regarding session content. Parents were also provided with weekly handouts outlining the session content, along with suggestions for home reinforcement of the skills.

All the teachers involved in the trial were invited to attend an intensive full-day accredited training workshop on delivery of the *Fun FRIENDS* program. The workshop focused on educating teachers about the risk and protective factors of anxiety, and the physiological,

behavioural and cognitive correlates of anxiety in childhood. Teachers were also taught the program skills, relevant background theory and implementation guidelines (for example, they were guided through hands-on activities demonstrating skill implementation). It was assumed that, following this workshop, teachers would feel confident in delivering the program on the basis of the volume of information provided to them. Teachers who implemented the program to children in the WLG (in the school term following implementation of the program to the IG) were contacted regularly by the postgraduate students and were offered support if needed. The postgraduate psychology students who implemented the program for children in the IG were trained extensively in program implementation by the primary author of the program. They engaged in weekly supervision meetings throughout the course of the project.

Upon completion of the intervention program for the IG, parents and teachers in both conditions completed post-intervention questionnaires, and then teachers in the WLG implemented the intervention program in their classroom (this was not evaluated). At 12-month follow-up, parents in the IG completed only a questionnaire package. The WLG was unable to participate in the 12-month follow-up assessment as ethical restrictions would not allow withholding of the intervention program for 12 months because of the young age of the participants.

Results

Preliminary analyses

Preliminary analyses were conducted to ensure that groups of participants in each of the intervention conditions (IG, WLG) did not differ from each other. There were no significant differences in the gender ratio ($\chi^2 = .09$, $p = .81$) across groups and no significant difference in age across groups ($\chi^2 = 2.11$, $p = .35$). Comparisons across a series of one-way ANOVAs revealed no significant differences in the pre-intervention means across conditions on the PAS [$F(1,261) = 2.05$, $p = .15$], the BERS [$F(1,261) = 2.99$, $p = .09$], and the BIQ [$F(1,261) = 1.34$, $p = .25$]. For teacher report, there were no significant differences between the IG and the WLG on the BERST [$F(1,261) = .62$, $p = .43$]. On the BIQT, children in the IG scored significantly higher than children in the WLG at pre-intervention [$F(1, 261) = 34.10$, $p < .05$]. The means and standard deviations for each variable are presented in **Table 2**, page 19.

TABLE 1 *Outline of Fun FRIENDS Session Content*

Session	Content of Session – Major Learning Objectives
Session 1	Developing a sense of identity, introduction to the group, name games Introduction of ‘being brave’ concept, social skills promotion (being brave = looking people in the eyes, using a brave voice, standing up tall, smiling). Children provided with a reward chart to encourage brave behaviours To assist in the promotion of a positive self-identity, children are also taught to accept similarities and differences between people
Session 2	F: Feelings This skill involves affective education, focused on understanding feelings in one’s self and in others. The focus is on empathy building, awareness of one’s own emotional responses, and emotional regulation
Session 3	F: Feelings Children learn how to cope with feelings, thumbs-up ideas and thumbs-down ideas. For example, when a scared feeling comes on, I can scream and kick (thumbs down) or I can take some deep breaths and talk to someone (thumbs up) Children discuss ways to help others when they experience feelings (for example, when Dad is sad, I can...)
Session 4	R: Relax Learning the physiological clues (‘body clues’) of anxiety (for example heart beats fast, butterflies in stomach) Children are taught that they can feel more calm and brave if they repair their body clues by practising relaxation exercises Relaxation strategies taught include diaphragmatic breathing (called milkshake breathing), progressive muscle relaxation, and visualisation
Session 5	I: I can try! This step introduces the cognitive strategies of the program. Children are taught to become aware of and pay attention to their inner thoughts or self-talk. Self-talk is described in terms of two different kinds – green helpful thoughts and red unhelpful thoughts The concept of red and green thoughts is introduced to the children using the analogy of a traffic light – green means go, red means stop. When we have happy green thoughts, we want to go! When we have unhappy red thoughts we want to stop!
Session 6	I: I try! Challenging unhelpful ‘red’ thoughts. Children are encouraged to identify their unhelpful red thoughts and come up with alternative helpful green thoughts
Session 7	E: Encourage Creating coping step plans (graded exposure hierarchies). Children are taught how to create a basic step plan. Parents and teachers are encouraged to create step plans for their children Focus on friendship skills: sharing, helping, listening and smiling
Session 8	N: Nurture The importance of role models and support teams in the home, school and wider community are discussed
Session 9	D: Don’t forget to be brave (practising the <i>FRIENDS</i> skills) S: Stay Happy! Review of all skills and have a party to celebrate the end of the program
Social-emotional skills	In addition to the cognitive-behavioural skills mentioned above, the <i>Fun FRIENDS</i> program also focuses on resilience promotion through development of social and emotional learning. The following skills are incorporated: developing a self-identity, emotion-regulation and feelings management, becoming responsible for oneself and others, and increasing prosocial behaviours via promotion of social skills and friendships skills. All these skills are administered in a play-based manner with multiple activities per session lasting approximately five to ten minutes each.

Baseline differences were examined among participants who dropped out of the research at post-intervention (non-completers, $N = 108$) and those who did not (completers, $N = 155$). Frequencies were examined for socio-economic status, and revealed a similar distribution across completers (mean = 7.71, range = 1–11) and non-completers (mean = 7.25, range 1–11). Pre-

intervention scores were also examined across completers and non-completers on anxiety and BI. A series of independent t-tests revealed that pre-intervention anxiety score was significantly different between completers [mean = 22.08, s.d. = 12.00] and non-completers [mean = 19.16, s.d. = 10.66, $t(261) = 2.04, p = .04$], completers scoring significantly higher. For BI, no

TABLE 2 Means and Standard Deviations for the PAS, BIQ and BERS, Parent and Teacher Report

Measure	Intervention Group						Waitlist Control Group								
	N	Pre Mean	s.d.	N	Post Mean	s.d.	N	Pre Mean	s.d.	N	Post Mean	s.d.			
PAS ($\alpha = .87$)															
Male	71	23.10	12.30	45	18.58	9.83	38	18.30	12.23	69	18.86	11.31	36	17.67	11.38
Female	63	20.51	10.59	34	18.53	11.83	37	16.14	10.92	63	20.87	11.64	40	18.75	10.99
Total	134	21.88	11.55	79	18.56	10.67	75	17.22	11.57	129	19.85	11.47	76	18.24	11.20
BIQ ($\alpha = .92$)															
Male	71	91.35	23.60	45	92.82	28.52	38	121.70	16.02	66	85.24	22.36	36	82.75	22.65
Female	63	92.53	25.98	34	86.56	25.06	37	83.97	27.18	63	92.05	21.45	40	89.13	26.54
Total	134	91.91	24.66	79	90.13	27.01	75	90.47	26.80	129	88.56	22.10	76	86.11	24.82
BERS ($\alpha = .95$)															
Male	71	118.70	15.54	45	117.51	17.45	38	121.70	16.02	66	122.37	15.69	36	126.17	17.68
Female	63	123.19	14.72	34	132.79	12.69	37	129.95	14.78	63	126.00	16.09	40	131.03	16.67
Total	134	120.95	15.49	79	124.09	17.26	75	125.82	15.86	129	124.14	15.92	76	128.72	17.21
BIQT ($\alpha = .94$)															
Male	71	113.27	6.54	71	88.96	27.12				66	108.15	6.48	66	93.08	22.95
Female	63	114.02	5.84	63	74.92	22.39				63	109.46	7.84	63	94.79	20.88
Total	134	113.62	6.21	134	82.31	25.87				129	108.79	7.18	129	93.91	21.89
BERST ($\alpha = .97$)															
Male	71	116.59	23.20	71	125.04	21.69				66	121.26	22.80	63	126.86	21.13
Female	63	127.83	19.89	63	137.81	18.85				63	118.14	20.77	63	122.41	19.19
Total	134	131.26	21.31	134	131.09	21.30				129	119.74	21.80	129	124.69	20.25

Note. BERS = Behavioral and Emotional Rating Scale; BERST = Behavioral and Emotional Rating Scale Teacher Report; BIQ = Behavioral Inhibition Questionnaire; BIQT = Behavioral Inhibition Questionnaire Teacher Report; PAS = Preschool Anxiety Scale.

significant differences were found between completers [mean= 90.24, s.d. = 21.31] and non-completers [mean= 90.30, s.d. = 26.33, $t(261) = -.023, p = .98$].

Data screening and attrition

Before the statistical analyses, the data were screened for completeness, the presence of outliers and violations of the assumptions of analysis of variance. Missing values analysis was conducted using SPSS version 15, and demonstrated that the data were missing at random, as evidenced by Little’s MCAR non-significant $\chi^2(9) = 12.37, p = .19$. The following percentages represent missing data for parent report before expectation maximization (EM) for both conditions pre-intervention: PAS (6.5%), BIQ (6.5%), BERS (6.5%). The EM procedure in the SPSS missing values module was implemented to replace missing values at pre-intervention only. At post-intervention missing values were as follows: PAS (41%), BIQ (41%), BERS (41%), and at follow-up: PAS (43%), BIQ (43%), BERS (44%). Due to the large quantity of missing data, data imputations were not used because this might have produced bias in the data.

Several extreme cases ($z = <3.29$; Tabachnick &

Fidell, 2007) were found in the dataset. Transformations were attempted with skewed data but did not produce significant changes to the data and untransformed data are reported. Scores on extreme outliers were changed to remain deviant, but with less impact (Tabachnick & Fidell, 2007). Each outlying case was assigned a raw score that was one unit larger or smaller than the next most extreme score in the distribution. This process was used at all time points.

For teacher report, pre-assessment missing data were minimal (fewer than two per cent). Missing values analysis indicated that data were missing at random, as evidenced by the non-significant Little MCAR’s test $\chi^2(2) = .53, p = .77$. Expectation maximization procedure was used on teacher data at pre-assessment. At post-assessment five cases were missing data (fewer than two per cent) from each questionnaire and were managed using the intention to treat method of using the participant’s score from pre-intervention at post-intervention. Analyses using the data imputations will be reported.

Intervention effects: parent report

To investigate the impact of the intervention, several 2

(time: pre-intervention, post-intervention) \times 2 (intervention condition: IG, WLG), \times 2 (gender: male, female) mixed between-within subjects ANOVAs were performed for parent and teacher report. The within-subject factor was time and the between-subjects factors were intervention condition and gender. No significant interaction effects were found for time by intervention condition, or for time by gender for anxiety (PAS). Inspection of mean scores indicated that anxiety scores decreased from pre- to post-intervention for both conditions, the IG experiencing a larger decrease in scores, but not large enough to produce a significant for intervention condition.

On the BIQ, a nearly significant time \times intervention type \times gender interaction was found [$F(1,151) = 3.6, p = .06, \text{partial } \eta^2 = .02$]. Investigation of mean scores revealed that all children in the IG and WLG decreased in BI scores from pre- to post-intervention, except for boys in the IG. Interestingly, girls in the IG experienced the largest decrease in BI scores from pre- to post-intervention. However, there was no significant difference between intervention groups or gender.

On the BERS, a significant interaction effect was found between time and gender [$F(1,151) = 6.40, p < .05, \text{partial } \eta^2 = .04$]. Over time, girls' (in both conditions) scores increased from pre- to post-intervention and boys (in both conditions) scores remained relatively consistent from pre- to post-intervention. No significant differences were found between intervention conditions.

Teacher report

On the BIQT, a significant time \times intervention type \times gender interaction was found [$F(1,259) = 5.39, p < .05, \text{partial } \eta^2 = .02$]. Investigation of mean scores revealed that children in the IG (males and females) experienced a significantly larger decrease in scores from pre- to post-intervention than children in the WLG. However, at pre-intervention children in the IG scored significantly higher than children in the WLG. Girls in the IG experienced the largest decrease in BI symptoms at post-intervention. A significant between-groups interaction between intervention type and gender was found [$F(1,259) = 8.16, p < .05$]. Investigation of mean scores revealed that girls and boys in the IG scored significantly higher in BI at pre-intervention and significantly lower in BI at post-intervention. Girls in the IG experienced the largest decrease in BI symptoms at post-intervention.

On the BERST, a significant interaction effect between intervention group and time [$F(1,261) = 8.63, p < .005$,

$\text{partial } \eta^2 = .03$] was found, with scores on social-emotional strength significantly larger for children in the IG at post-intervention than for children in the WLG. A significant between-groups interaction was found [$F(1,259) = 9.81, p < .005$] between intervention type and gender, and revealed that girls in the IG experienced the largest increase in scores from pre- to post-intervention.

Long-term maintenance effects for the IG

To examine the long-term effects of the intervention, a series of one-way repeated measures ANOVAs were conducted for the IG ($N = 61$). On the PAS, a significant effect for time [$F(2,58) = 4.53, p < .05, \text{partial } \eta^2 = .14$] was found. Post hoc analyses using the Bonferroni adjustment indicated that anxiety scores at pre-intervention decreased immediately following the intervention and nearly reached statistical significance ($p = .06$). A significant decrease in scores was evident from pre-intervention to 12-month follow-up ($p < .05$). No significant interaction was found with gender [$F(2,58) = .74, p = .54$].

On the BIQ, a significant interaction between time and gender was found [$F(2,58) = 4.71, p < .05, \text{partial } \eta^2 = .14$]. Investigation of mean scores revealed that girls' BI symptoms decreased at each time point, whereas boys' BI symptoms increased at each time point.

On the BERS, a significant interaction was found between time and gender [$F(2,58) = 3.19, p < .05, \text{partial } \eta^2 = .10$]. Post hoc analyses using the Bonferroni adjustment demonstrated a significant increase in mean scores from pre-intervention to 12-month follow-up ($p < .05$). Investigation of mean scores revealed that girls experienced higher levels of social-emotional strength than boys at all time points, as evidenced by a significant between-groups effect for gender [$F(1,59) = 11.47, p < .005$].

Treatment integrity and social validity

Facilitators of the program completed weekly treatment integrity checklists to measure protocol adherence. Mean adherence by the facilitators to the manual was 94% (range = 90–98%) averaged across the nine sessions, across the two facilitators and the eight classrooms. To assess perceived acceptability of the program, a one-way repeated measures ANOVA revealed no significant differences in participant responding at each time point. However, mean scores at all time points were relatively

high (pre mean = 108.80(8.99); post mean = 104.20 (14.76); follow-up mean = 100.82(14.99) indicating a stable perceived enjoyment of the intervention program (maximum score = 120). The large proportion of missing data (67% missing at post-intervention, 66% missing at follow-up) on this measure may have contributed to the lack of a significant effect.

Twelve teachers from both conditions completed the BIRS at pre-intervention with mean scores (mean = 112.83, s.d. = 7.27, range = 95–120) indicating that teachers' expectations of the program before its implementation were positive. At post-intervention, seven teachers in the IG completed the measure with mean scores slightly higher than at pre-intervention (mean = 113.71, s.d. = 7.89, range = 98–120) but not large enough to be statistically significant.

Discussion

The purpose of this study was to assess the efficacy of a universal preventative intervention program (*Fun FRIENDS*) for preschool-aged children (four to six years) aimed at decreasing and/or preventing anxiety and increasing social and emotional strength. The first objective of the study was to assess changes in anxiety, BI and social-emotional strength at post-intervention. Children in both intervention conditions (IG and WLJ) had improved significantly on anxiety at post-intervention. At pre-intervention, study non-completers (drop outs) were found to have lower levels of anxiety than program completers (non-drop outs). This finding indicates that non-completers may not have dropped out of the program because of symptom relapse (as their anxiety was low) but for other reasons such as moving house, changing schools or voluntary withdrawal from the research. This seems to suggest that participants with higher levels of anxiety at pre-intervention (program completers) continued their participation in the intervention program because of a greater investment in learning the strategies, possibly due to their higher level of anxiety.

Children in both conditions decreased (nearly significant) in BI symptoms at post-intervention, except for boys in the IG. Significant increases in social-emotional strength were found for girls in both conditions, but not for boys. It appears that the majority of children improved on anxiety, BI and social-emotional strength regardless of the intervention condition (IG or WLJ). Interestingly, girls appeared to improve on social-emotional strength more than boys, indicating that

girls may be more emotionally and socially developed during the preschool years.

The second objective of the study was to examine the long-term impact of the program, for the IG only. Nearly significant decreases in anxiety were found at post-intervention and further significant decreases were found at 12-month follow-up. Improvements in BI were found at all time points for girls but not for boys. Improvements on social-emotional strength were found from pre-intervention to 12-month follow-up, girls scoring significantly higher than boys at all time points, although boys' scores did increase over time. In this study we did not have a 12-month follow-up comparison group and so do not know whether significant differences would have existed between both conditions at 12-month follow-up, making it difficult to draw conclusions about the efficacy of the intervention.

The lack of a significant difference between intervention conditions from pre- to postintervention has been commonly cited in universal, school-based trials (Barrett *et al*, 2005; Dadds *et al*, 1999, 1997; Gillham *et al*, 2006; Misfud & Rapee, 2005) and in other studies using the same age group (LaFreniere & Capuano, 1997; Rapee & Jacobs, 2002; Rapee *et al*, 2005). In their recent review of school-based prevention for anxiety, Neil and Christensen (2009) noted that, without long-term follow-ups, potential effects could be missed, leading to under-estimation of the effectiveness of programs. It has been suggested in the literature that participants may need to pass through a period of elevated risk for preventative effects to emerge, and that this might take time (Gillham *et al*, 2001). This may explain the lack of significance found in the current study at post-intervention and the more positive findings found at 12-month follow-up.

Parental involvement may have also played a role. Parents were invited and encouraged to attend three parent information sessions, but attendance at these sessions was low. The exact number of parents in attendance was not recorded, so the effects cannot be analyzed. The low level of parental attendance may be reflected in the lack of group differences on parent-report measures. If parental attendance had been higher, parents might have adopted the skills, leading to more significant findings.

It is often difficult to recruit parents to attend school-based information sessions. To increase parent attendance, it is recommended that future researchers:

- organise parent information sessions at convenient

times when parents are already at the school (for example at drop-off or pick-up time)

- involve the teachers and principal in advertising the sessions, highlighting their importance and value
- provide food and beverages and engaging incentives for parents (for example a prize draw for a gift voucher)
- call parents to remind them of the sessions and provide each family with an opportunity to speak with a researcher or program facilitator.

It is also recommended that the researchers obtain numerous contact details from participants (including the contact details of extended family members) to increase the likelihood of contact at follow-up.

The lack of significance between conditions at post-intervention may also be attributed to the natural maturation of the children in the WLG, increased familiarity with the classroom setting and more noticeable assertive behaviours, and increased formation of friendships at the time of post-assessment, leading to more positive observations and report by parents. The large proportion of missing data at post-assessment may have contributed to the lack of significant results.

For teacher report, children in the IG improved significantly more on BI than the WLG at post-intervention, indicating that the intervention program may have had a positive impact on these children in learning strategies to manage BI symptoms. However, at pre-intervention scores on BI were significantly different, the IG scoring higher than the WLG, so these results should be interpreted with caution. Similar to parent report, girls in the IG experienced the largest decrease in BI symptoms at post-intervention. On social-emotional strength, children in the IG improved significantly more than children in the WLG at post-intervention, girls in the IG experiencing the largest improvement from pre- to post-intervention, as in parent report. These results indicate significant improvement for children in the IG following the intervention program, based on teacher report.

Previous studies examining universal, school-based interventions using the *FRIENDS* program have found gender to play an important role in intervention outcomes (Barrett *et al*, 2006, Lock & Barrett, 2003). These studies demonstrated that girls (aged 10–11 years) tended to be at higher risk for anxiety than boys, but also more responsive to an intervention up to 12-month follow-up. The gender differences in BI in this study follow a similar pattern. Girls in the IG improved on BI more than

boys at post-intervention and at 12-month follow-up. These results may indicate that girls were more receptive to the intervention skills at this early age, or that boys may need an additional dose of intervention (for example more sessions over a longer period of time). Longitudinal data will shed light on whether these gender patterns exist in the longer term.

It should be noted that teachers in the IG were fully aware that they were part of an active intervention (as were parents), which may have influenced their reporting. Although this is true, teachers can be good observers and reporters of child behaviour. A large proportion of children spend most of their time awake in the classroom, interacting with peers and teachers, making teachers valuable sources of information. Teachers are able to observe first-hand how children manage frustration, how they cope with their feelings, and how they engage with other children and adults, making them an important source when gathering data.

The results obtained from this study suggest that intervention programs can be adapted for use with young children aged four to six years, and can be implemented in the school environment. When teaching skills to young children it is important that the techniques be implemented with flexibility, creativity and developmental sensitivity (Kendall *et al*, 1998). All the *Fun FRIENDS* skills were delivered in a play-based manner with a strong focus on experiential learning. Social validity data revealed that both parents and teachers rated the program favourably at all time points, demonstrating the acceptability and usability of the intervention program.

Limitations

A drawback of the study is the lack of a comparison group at 12-month follow-up. For ethical reasons we were unable to obtain ethical clearance to have a long-term comparison group. This lack prohibits us from comparing the positive results achieved at 12-month follow-up with a waitlist control condition. We therefore lack the evidence to suggest that the intervention group improved more than the waitlist control group, or that the intervention is solely responsible for the positive changes that occurred in the children who had received the intervention. The long-term changes in anxiety, BI and social-emotional strength may reflect developmental changes which could have occurred naturally. It is recommended that future research include a 12-month waitlist control comparison group if ethical restrictions allow.

There was a significant proportion of missing data (around 40%) at post-intervention and at 12-month follow-up for parent report, which made it difficult to impute the missing data because of potential biases created by such a large proportion of attrition. We were unable to use intention-to-treat or expectation maximization procedures at post-intervention and 12-month follow-up because of the risk that the data would be biased following imputation (masking significant results). It is not known for certain why such a large proportion of parents did not complete the post-assessment measures. The reasons noted included moving house, moving interstate, decreased desire to complete the assessment package, and changed contact details (for example phone disconnected or unreachable). Despite the significant proportion of attrition, a number of measures were taken to minimise its occurrence, including follow-up phone calls, incentives (lucky dip draws) and availability of help with completing the questionnaire. Comparable rates of missing data have been evidenced in other 12-month follow-up evaluations of the *FRIENDS* program for children and young people when delivered as a universal, school-based intervention (Barrett *et al*, 2005; Lock & Barrett, 2003; Stallard *et al*, 2008).

The assessment measures used in the study were based on parent and teacher self-report, which raises reliability issues commonly encountered in research with young children. The reliability of parent report can be questionable, as it is susceptible to the biased perceptions or motivations of the parent (Rapee, 2002). Several questions on the BERS and BIRS were slightly modified to make them more appropriate for preschool-aged children and to correspond to the intervention protocol. Care was taken to ensure that the meaning of these items was not altered, but this may have slightly influenced the results. Recommendations for future research are to examine alternative means of assessment including observation, child report and diagnostic interviews (such as PAPA, Egger & Angold, 2004). The participants in the sample were primarily middle to upper class, which limits the generalisability of the findings to other sociodemographic groups.

Summary

This study was the first to examine the efficacy of the *Fun FRIENDS* program implemented as a universal, preventative intervention program. The results suggest that cognitive-behavioural interventions can be implemented with young children and can demonstrate

some positive changes in BI and social-emotional strength. However, it is difficult to draw conclusions about the efficacy of the *Fun FRIENDS* program without a comparison group at 12-month follow-up. Social validity data indicated that the program was found enjoyable and useful by parents and teachers. Continuous research is needed:

- to examine the long-term preventative impact of the *Fun FRIENDS* program with a comparison group at follow-up
- to examine the *Fun FRIENDS* program as implemented by teachers using a 'train the trainer' intervention system, in which teachers run the program themselves; results derived from this model would provide information on the usability and sustainability of the program within the school system and the practicality of teaching staff implementing the program within their classroom
- to assess the influence of both parents on intervention outcome.

Our results provide initial support for the usability of the *Fun FRIENDS* program, showing that some positive changes were evidenced immediately following the program (teacher report only) and at 12-month follow-up (parent report).

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