Behaviour Research and Therapy 49 (2011) 315–323

Contents lists available at ScienceDirect

Behaviour Research and Therapy

journal homepage: www.elsevier.com/locate/brat

Evaluation of a preventive intervention for child anxiety in two randomized attention-control school trials

Lynn D. Miller [a,*], Aviva Laye-Gindhu [a], Yan Liu [a], John S. March [b], Dana S. Thordarson [a], E. Jane Garland [c]

[a] University of British Columbia, Dept of Educational and Counselling Psychology and Special Education, 2125 Main Mall, Vancouver, BC V6T 1Z4, Canada
[b] Duke University, School of Medicine, Psychiatry and Behavioral Sciences, Durham, NC, USA
[c] British Columbia Children's and Women's Hospital, Dept of Psychiatry, Vancouver, Canada

ARTICLE INFO

Article history:
Received 16 March 2010
Received in revised form
17 January 2011
Accepted 16 February 2011

Keywords:
Anxiety
School-based interventions
Effectiveness research
Attention control

ABSTRACT

The present research examined the effectiveness of a cognitive-behavioral therapy (CBT) based intervention program, FRIENDS, for children from grades 4 to 6, using random assignment at the school-level and an attention-control design in two longitudinal studies. The first study targeted children with anxiety symptoms ($N = 191$, mean age = 10.1) as screened with self, parent, and teacher-reports; the second study took a universal approach with full classrooms of children participating ($N = 253$, mean age = 9.8). The results showed no intervention effect in both studies, with children's anxiety symptoms decreasing over time regardless of whether they were in the story-reading (attention control) or FRIENDS condition. The findings also indicated that girls reported a higher level of anxiety than boys and children in higher grades reported lower anxiety relative to younger children in both studies. In addition, similar patterns were found using a subgroup of children with high-anxiety symptoms from both studies.

Anxiety disorders in children are widely understood to be prevalent, persistent, and responsive to psychological intervention (Barrett, Dadds, & Rapee, 1996; Kendall et al., 1997; Wittchen, Kessler, Pfister, & Lieb, 2000). With prevalence rates ranging from 10 to 17%, anxiety disorders are the most common cause of referral to children's mental health-care providers (March & Albano, 1998), and predominantly have an onset in childhood or early adolescence (Kessler et al., 2005; Wittchen et al., 2000). Sequelae include increased mood disorders, substance use disorders, higher rates of smoking tobacco, and suicidality (for review see Ost & Treffers, 2001). These disorders pervade and impair many domains of critical child development including the ability to function at school, with peers, at home and in the community (see also Neil & Christensen, 2009).

With emphasis on importing evidence-based protocols into "real world" settings, cognitive-behavioral (CBT) interventions targeting anxiety in community settings, such as schools, is becoming increasingly popular (Durlak, Weissberg, Quintana, & Perez, 2004; Lowry-Webster, Barrett, & Dadds, 2001; Stallard, Simpson, Anderson, Hibbert, & Osborn, 2007). Schools are a promising site for prevention and early intervention efforts not only due to the sustained daily contact with children, but also to advantages of reduced stigma, easier access to treatment, and naturally occurring peer-to-peer support. This approach has potential to decrease the "burden of suffering" caused by child psychiatric disorder by better meeting the needs of the more than 70% of children who need, but do not receive, psychological treatments (Offord, Kraemer, Kazdin, Jensen, & Harrington, 1998).

Mounting pressure for more comprehensive, integrated programs to address the mental health needs of children (World Health Organization, 2004) has resulted in more anxiety prevention and early intervention research trials in schools (Barrett & Turner, 2001; Bernstein, Layne, Egan, & Tennison, 2005; Lowry-Webster et al., 2001). Effectiveness studies with school-based samples have shown mixed results. Barrett and Turner (2001) and Lowry-Webster et al. (2001) conducted the first studies examining universal programming for preventing childhood anxiety using the manualized CBT-based intervention program, FRIENDS (Barrett, Lowry-Webster, & Turner, 2000), their adaptation of Kendall's (1994) widely used and effective protocol, Coping Cat. In their large trial ($N = 594$), Lowry-Webster et al. reported an overall decrease in anxiety symptoms in all children at post-test, with a significantly greater decrease for the intervention group compared to the control group (on one of two self-report measures used). Results were consistent at 12-month follow-up, when a greater number of intervention participants remained diagnosis-free. Similarly, in their study of 489 children, Barrett and

* Corresponding author. Tel.: 1 604 822 8539; fax: +1 604 822 3302.
E-mail address: lynn.miller@ubc.ca (L.D. Miller).

0005-7967/$ – see front matter © 2011 Elsevier Ltd. All rights reserved.
doi:10.1016/j.brat.2011.02.006

Turner (2001) reported significant decreases in self-reported anxiety symptoms compared to the monitoring condition, providing initial support for universal prevention approaches to child anxiety.

Similar group CBT clinical protocols for anxiety intervention have been evaluated in at-risk or symptomatic children in schools (Bernstein et al., 2005; Dadds et al., 1999; Dadds, Spence, Holland, Barett, & Laurens, 1997). In their study of 128 school children, Dadds et al. (1997) found no significant difference in percentage meeting anxiety diagnosis between group CBT and a monitoring condition at post-intervention. However, at 6-month follow-up, improvements were maintained by children in the intervention condition only. Follow-up revealed that group differences disappeared at one-year, but were evident again at two-years. In their school-based sample of 425 socioeconomically disadvantaged children, Mifsud and Rapee (2005) also reported decreased anxiety on child- and teacher-reports at post-test for their intervention compared to waitlist control.

Scant research utilizing attention-control conditions, designed to control for expectancy and the nonspecific effects of intervention, has been conducted. Of the 24 randomized controlled trials comparing the efficacy of psychological treatment of child anxiety disorders reviewed by In-Albon and Schneider (2007), only four studies used an attention placebo control condition, with a global effect size of 0.58. Two studies are notable exceptions for their inclusion of an education support condition as a control, although they are clinic-based (Last, Hansen, & Franco, 1997; Silverman et al., 1999). Silverman et al. examined the effectiveness of exposure-based contingency management and exposure-based cognitive self-control interventions, relative to an education support control condition, in a clinic-based sample of 104 children with phobias. Their results showed that all three conditions effectively produced and maintained treatment gains, with comparable (and nonsignificant) patterns across all measures and multiple sources (parent, child, therapist). Similar results were also reported by Last et al. in their study of 32 school-phobic children who received either individual CBT or education support. No studies reported in the literature of randomized school trials used an attention or alternate condition.

In the present research, we used a randomized, attention-control design with two community samples of children enrolled in public elementary schools. The primary purpose of this research was to investigate the effectiveness of both targeted (Study 1) and universal (Study 2) applications of a cognitive-behavioral protocol (FRIENDS) for preventing and reducing anxiety symptoms in children within the school setting over a period of 17 months. Our hypothesis was that the intervention group would report a greater decrease in anxiety symptoms at post-intervention (2.5 months) than the attention-control group, and that anxiety levels would be maintained or continue to reduce in small magnitude over time. In addition, the present research also examined whether the FRIENDS program was effective for a high-anxiety symptom subgroup.

Method

Participants

The University's institutional review board approved both studies. Written parental active consent and child assent were required as was child English language proficiency. Parents were sent home consent forms and parent-report measures via their child, with invitation to complete and return them to their child's school in a sealed envelope. During this same time period, children completed their self-report measure. All children participated in the screening process at school district request, in order to have all children feel included in the project, with the proviso that all data collected from those without consent would be eliminated from the study. Teachers were blinded to which children had parental consent to participate in data collection. The studies were conducted in two different urban school districts in western Canada over a two-year period.

Study 1: Targeted

All children in grades 4–6 ($N = 998$) in the 17 participating elementary schools (year 1 = 6 schools, year 2 = 11 schools) were screened in order to determine children's level of anxiety symptoms (see Fig. 1). Following the screening, children were invited to participate in the study if their self-reported anxiety total score was elevated (*T*-score of 56 or higher; March, 1997). If a child's anxiety score did not fit this criterion, but a parent and/or teacher indicated anxiety was a concern on a brief checklist of anxiety symptoms, the child was selected for participation. Not all selected children received parental consent to participate. The final sample consisted of 191children (48% girls) with a mean age of 10.1 (SD = .93). Notably, 48% of the sample reported speaking a language other than English in the home (predominately Chinese, 18%, with over twelve other languages represented). The diversity in home language may have affected lower rates of active parental consent.

Study 2: Universal

All children in grades 4–6 ($N = 373$) in the seven participating elementary schools (see Fig. 2) received the intervention. However, because some parents did not return the consent form or refused the use of data from their child, a total of 253 children with an average age of 9.8 (SD = .78) was eligible for data analyses. Among them, 54% were girls and 18% spoke a language other than English in the home.

Measures

Children completed the *Multidimensional Anxiety Scale for Children* (MASC; March, 1997). The MASC is a 39-item self-report measure of anxiety symptoms and produces an overall anxiety score and composite scores. Raw scores are converted to *T*-scores. The MASC shows acceptable internal consistency (.90) and test-retest reliability (.72–.93), and captures clinically relevant anxiety symptoms both at the factor and item level (March, 1997; March, Parker, Sullivan, Stallings, & Conners, 1997). Children completed the MASC in the classroom, with instructions and items read aloud by trained graduate research assistants. The MASC demonstrated high internal reliability in the present studies, with coefficient alphas ranging from .90 to .92.

For children with parental consent to participate, parents and teachers completed the *Behavioral Assessment System for Children (Parent and Teacher Report Forms)* (BASC; Reynolds & Kamphaus, 1992). The BASC teacher report consists of 148 items related to behaviors that can be observed in the school setting, and the parent report consists of 138 behavioral items based on behaviors that can be observed in both home and community settings. The BASC anxiety subscale was of primary interest, comprised of 8 or 11 items for teacher and parent reports, respectively. Psychometric properties for the BASC are acceptable, with Cronbach alphas ranging from .74 to .90 and from .86 to .97 for subscales and composites, respectively, high test re-test and inter-rater reliabilities (Flanagan, 1995).

Procedures

For Study 1, assessments occurred across four time points: 1) pre-intervention (Time-1); 2) following the first 9-week intervention phase (Time-2, 2.5 months); 3) following the second 9-week intervention phase (delayed intervention, Time-3, 5 months);