

Prevention of Anxiety Symptoms in Children: Results From a Universal School-Based Trial

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The present study evaluated the effectiveness of a universal school-based cognitive behavior prevention program (the FRIENDS program) for childhood anxiety. Participants were 638 children, ages 9 to 12 years, from 14 schools in North Rhine-Westphalia, Germany. All the children completed standardized measures of anxiety and depression, social and adaptive functioning, coping strategies, social skills, and perfectionism before and after the 10-week FRIENDS program and at two follow-up assessments (6 and 12 months) or wait period. Children who participated in the FRIENDS program exhibited significantly fewer anxiety and depressive symptoms, and lower perfectionism scores than children in

the control group at 12-month follow-up. Younger children (9–10-year-olds) displayed treatment gains immediately after the intervention, whereas older children (11–12-year-olds) showed anxiety reduction only at 6- and 12-month follow-up. Perfectionism and avoidant coping acted as mediators of pre- to postintervention changes in anxiety scores. This study provides empirical evidence for the utility of the FRIENDS program in reducing anxiety and depressive symptoms among German children.

Keywords: anxiety symptoms; children; depression; prevention; school-based interventions

This study is part of a large-scale study on the prevention of anxiety disorders in children, funded by the Dr. Karl-Wilder Stiftung to Cecilia A. Essau. All authors disclose that there is no real or potential conflict of interest with other people or organizations within 3 years of beginning the work submitted that could inappropriately influence their work.

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0005-7894/43/450-464/\$1.00/0

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ANXIETY DISORDERS ARE AMONG the most common psychiatric disorders affecting children and adolescents in the general population (Cohen et al., 1993; Essau, Conradt, & Petermann, 2000; Lewinsohn, Hops, Roberts, Seeley, & Andrews, 1993; Reinherz, Giaconia, Lefkowitz, Pakiz, & Frost, 1993; Wittchen, Nelson, & Lachner, 1998). It is estimated that up to 10% of children and up to 20% of adolescents meet the criteria of an anxiety disorder. In addition to being prevalent, anxiety disorders occur frequently with numerous other psychiatric

disorders (Essau, 2003; Essau et al., 2000; Feehan, McGee, & Williams, 1993; Wittchen et al., 1998). When left untreated, anxiety disorders that begin early in life can become chronic and are often associated with a negative course and outcome (Keller et al., 1992; Ollendick & King, 1994).

Cognitive behavioral therapy (CBT) has emerged as the treatment of choice for anxiety disorders in children and adolescents with anxiety disorders (In-Albon & Schneider, 2007; Seligman & Ollendick, 2011). Following the first published randomized clinical trial of CBT with anxious children (Kendall, 1994), a considerable body of research has provided support for the efficacy and effectiveness of CBT in treating anxiety disorders in children and adolescents (Barrett, Dadds, & Rapee, 1996; Cobham, Dadds, & Spence, 1999; Kendall et al., 1997; Silverman et al., 1999). In one study, these improvements were maintained at 6-year follow-up (Barrett, Duffy, Dadds, & Rapee, 2001).

Despite the presence of effective interventions for childhood anxiety, the number of children with an anxiety disorder who received mental health services is low. As reported by Essau (2005), less than 20% of children and adolescents in need of mental health services receive such services. Based on various studies on mental health services conducted in various countries, barriers for receiving psychological treatment included the cost of treatment, time (of the parents, children, and therapists), availability, commitment, and location particularly for families living in rural or suburban areas (Barrett & Pahl, 2006). Children who need treatment are not being reached, waiting lists are long, and dropouts sometimes exceed 50% (Weist, 1999). Furthermore, childhood anxiety is frequently overlooked because anxiety symptoms are often unrecognized or misdiagnosed; children with anxiety disorders tend to be shy, cooperative, and compliant when in school (Albano, Chorpita, & Barlow, 2003). For these reasons, it is important to find strategies to make effective intervention accessible to those with anxiety disorders or to those with high risk of developing anxiety disorders. One such effort is to provide interventions in school settings that could prevent the development of anxiety disorders. Furthermore, given the high prevalence of anxiety disorders and societal and personal costs associated with these disorders, the need for a prevention program with established effectiveness is critical.

Prevention programs may be universal, selected, or indicated (Mrazek & Haggerty, 1994). Universal intervention is directed at the whole population. Selective intervention involves children who have been identified as at risk of psychological problems, whereas indicated intervention targets children who

have been identified as having mild to moderate symptoms of a disorder. A universal approach to prevention in schools seeks to target a large number of children regardless of their risk status over a short period of time, helps to reduce difficulties in screening for inclusion, potentially reduces the incidence of anxiety disorders by intervening before the onset of these disorders, and serves to reduce stigmatization. Because universal prevention also teaches children generic skills that may be used in a number of everyday situations, it also helps to promote learning and healthy development (Barrett, 2001).

Despite the potential for universal prevention programs (Spence, 1994), universal prevention programs for childhood anxiety are rare. An exception is the FRIENDS program, an Australian cognitive-behavior therapy-based program. The FRIENDS program has been endorsed by the World Health Organization (2004), as the only evidence-based program effective for childhood anxiety.

The first study to have examined the effectiveness of the FRIENDS program for the prevention of anxiety symptoms in children was conducted by Barrett and Turner (2001). In this study, classroom teachers and psychologists were trained to implement the FRIENDS program as part of the standard classroom curriculum. The children were assigned to one of three conditions: psychologist- and teacher-led interventions, and standard curriculum (i.e., control condition). Parents were also invited to participate in four parent sessions that are part of the program. Results showed significant reduction in anxiety symptoms across the two intervention groups, thus, providing initial support for the effectiveness of the FRIENDS program among school children.

In another study (Lowry-Webster, Barrett, & Dadds, 2001) that examined the effectiveness of the FRIENDS program in the prevention of anxiety, 594 children from Catholic schools in Brisbane were randomly allocated to either an intervention or a control group. At posttest, children in the intervention group reported significantly fewer anxiety and depressive symptoms; this salutatory effect was not found in the control group. Furthermore, 75% of the children who were classified as at risk in the intervention group at preintervention were no longer considered at risk at postintervention, compared to 42% of at-risk children in the control group. At 12-month follow-up assessment (Lowry-Webster, Barrett, & Lock, 2003), 85% of the children in the intervention group who scored above the clinical cutoff for anxiety and depression were diagnosis free, compared to 31% of the children in the control group.

These results further suggested that anxiety and depressive symptoms can be reduced through a universal intervention.

Subsequently, [Lock and Barrett \(2003\)](#) evaluated the effects of the FRIENDS program for childhood anxiety in two age groups of children: 9–10- and 14–16-year-olds. A total of 733 children were recruited from seven schools in Brisbane. Children in the intervention group showed a significant greater reduction in anxiety symptoms at posttest and at 12-month follow-up. The prevention effects were strongest for the younger (9–10 years) compared to the older children, and for girls compared to boys. [Barrett, Farrell, Ollendick, and Dadds \(2006\)](#) examined the long-term prevention outcomes by reassessing children who participated in the Lock and Barrett study. At 12- and 24-month follow-ups, girls in the intervention group reported significantly lower levels of anxiety than those in the control group. However, at 36-month follow-up assessment, no such differences were obtained. Their results also showed the percentage of students in the intervention group at high risk to remain relatively stable over time; 16, 17, and 12% remained in high risk at 12-, 24-, and 36-month follow-up assessment periods, respectively. In the control group, there was a substantial increase in the frequency of high-risk students over time. The percentages of those in the high risk at 12-, 24-, and 36-month follow-up assessments were 21, 25, and 31%, respectively.

The effectiveness of the FRIENDS program has also been evaluated in South Africa ([Mostert & Loxton, 2008](#)) and in the United Kingdom ([Stallard, Simpson, Anderson, Hibbert, & Osborn, 2007](#)). In the South African study ([Mostert & Loxton, 2008](#)), 66 school children (12–14-year-olds) from low socioeconomic (SES) background were randomly assigned to either an intervention group ($N=32$) or control group ($N=34$). The participants were followed over a course of 10 months. Although the results showed no significant program effects on anxiety symptoms at postintervention, significant effects were found at 4- and 6-month follow-ups. It was argued that only once the children become more accomplished at using coping and problem-solving skills for dealing with anxiety did they become effective in reducing their anxiety symptoms. Overall, this study provides support for the effectiveness of the FRIENDS program for the prevention of childhood anxiety among children from low SES backgrounds.

In the United Kingdom, [Stallard, Simpson, Anderson, Hibbert, & Osborn \(2007\)](#) examined the effectiveness of the FRIENDS program when delivered by trained school nurses. One hundred

and six children, ages 9–10 years, from three schools in Bath and North East Somerset, participated in the study. The children were assessed using two standardized measures (Spence Children's Anxiety Scale, and the Culture-Free Self-Esteem Questionnaire) at 6 months before the FRIENDS program, upon starting, and 3 months after completing the FRIENDS program. Anxiety symptoms and self-esteem were stable in the 6-month period before the FRIENDS program. At the 3-month follow-up assessment, anxiety symptoms significantly decreased and self-esteem increased. Children who benefited the most from the FRIENDS program were those with the most severe emotional problems. Thus, similar to the findings reported by Barrett and her colleagues in Australia ([Lock & Barrett, 2003](#); [Lowry-Webster et al., 2001](#)) and by [Mostert and Loxton \(2008\)](#) in South Africa, the FRIENDS program had a positive impact upon children's emotional health when delivered by nonmental health specialists.

Although the FRIENDS program has been widely used as a universal prevention for childhood anxiety in several countries, it is not widely used in Germany. It is therefore unknown whether the benefits reported in other countries could be generalized to German children due to differences in educational settings (independent vs. state schools), and the health systems (gate vs. non-gatekeeper health system). Furthermore, most of these studies have focused on changes in anxiety levels. Examining the impact of the FRIENDS program on specific correlates (i.e., perfectionism, coping strategies, and social skills) and associated features (e.g., psychosocial impairment, comorbidity with depression) of anxiety are important for a number of reasons.

First, studies have consistently reported a strong overlap between anxiety and depression ([Brady & Kendall, 1992](#); [Essau, 2005](#)) and children with an anxiety disorder have up to 29 times the risk of developing depression ([Costello, Mustillo, Erkanli, Keeler, & Angold, 2003](#)). Additionally, children with both anxiety and depression tend to be more symptomatic or psychologically distressed than children with only anxiety or depression ([Essau, 2005](#)). For this reason, it is important to examine whether participation in the FRIENDS program will also have an effect in reducing depressive symptoms.

Second, childhood anxiety has been reported to have moderate to high impact on psychosocial functioning on various life domains ([Essau, 2005](#)). In a high percentage of children with an anxiety disorder, these psychosocial impairments seem to continue into early adulthood ([Last, Hansen, &](#)

Franco, 1997). Several other studies have also reported children with anxiety disorders to have a low level of social skills (Strauss, Frame, & Forehand, 1987; see Ollendick, Costa, & Benoit, 2010, for a review).

Third, in coping with stressful situations (Parker, Rubin, Price, & DeRosier, 1995), children use a wide range of coping strategies that influence the level of distress and anxiety they experience (Compas, Malcarne, & Fondacoro, 1988). As reported in several studies (Compas, Worsham, Ey, & Howell, 1996; Smith & Brodzinsky, 2002), avoidant coping was associated with higher levels of anxiety symptoms. Some other studies have shown children with anxiety to experience significantly more stressful events than children without any anxiety disorders, and that they tend to perceive these events as more threatening (Allen, Rapee, & Sandberg, 2008; Gothelf, Aharonovsky, Horesh, Carty, & Apter, 2004). Therefore, teaching children coping skills will help them to develop effective strategies to cope with challenging situations and everyday occurrence, and to minimize anxiety. It is important therefore to examine the extent to which the FRIENDS program is able to teach children to develop effective coping strategies.

Fourth, perfectionism, which is defined as the desire to achieve the highest standards of performance and unduly critical evaluations of one's performance (Frost, Marten, Lahart, & Rosenblate, 1990), has been associated with anxiety and depressive symptoms (Hewitt & Flett, 1993; Mitchelson & Burns, 1998). Perfectionism is also associated with irrational beliefs such as high self-expectations, need for social approval, dependency, and anxious overconcern (Flett, Hewitt, Blankstein, & Koledin, 1991). The degree to which children's high level of perfectionism can be reduced through a prevention program is unknown. For this reason, we examine whether children's level of perfectionism can be reduced through participation in the FRIENDS program.

Fifth, in the last few years, several investigators have augmented child-focused CBT (CCBT) with family involvement (FCBT; e.g., Barrett et al., 1996; Cobham et al., 1999). The incremental benefits of FCBT over CCBT have produced inconsistent findings. Some treatment studies indicated that the effect of CCBT was enhanced when involving parents (Barrett et al., 1996; Cobham et al., 1999). However, in other studies, parental involvement failed to produce superior effects on treatment outcomes (Barrett et al., 1998; Mendlowitz et al., 1999; Nauta et al., 2001, 2003; Spence et al., 2000). It is not clear why some of these studies showed positive contribution of parental involve-

ment and some did not. In order to expand this line of research, one of the aims of our study was to examine the role of parent's involvement and satisfaction in the FRIENDS program on children's outcome.

Finally, the sociodemographic characteristic that is most related to anxiety is gender; in most studies, females have almost twice the risk of males (Costello et al., 2003; Essau, Muris, & Ederer, 2002). However, previous findings on the impact of preventive interventions on gender have been mixed. One targeted study (Dadds, Spence, Holland, Barrett, & Laurens, 1997; Dadds et al., 1999) and one universal study (Barrett, Lock, & Farrell, 2005; Barrett et al., 2006; Lock & Barrett, 2003) found that girls reported higher self-reported anxiety than boys as well as greater reductions in anxiety following exposure to the intervention. In another study by Lowry-Webster et al. (2003), however, there were no differences in anxiety levels between boys and girls in the intervention group. In sum, it remains unclear whether gender plays a role in response to intervention. Another sociodemographic feature that has been examined is age. Results from Lock and Barrett indicated that younger students (9–10 years) seemed to benefit more from the FRIENDS program than older students (14–16 years).

The main aim of the present study was to overcome gaps in the literature by examining the effectiveness of a universal school-based prevention program (the FRIENDS program) not only in reducing anxiety symptoms but also in its impact on the specific correlates of anxiety symptoms. The specific objectives were as follows: (a) to examine the effects of the FRIENDS program by comparing anxiety symptoms in children who participated in this program with those who did not receive the program (i.e., those in the control group) at the follow-up assessment periods (6 and 12 month); (b) to examine the effects of the FRIENDS program on children's social and adaptive functioning, coping styles, social skills, and perfectionism at the follow-up assessment periods; (c) to examine the moderating role of gender and age on the effectiveness of the FRIENDS program; and (d) to investigate mediating factors that predict the effectiveness of the FRIENDS program.

The hypotheses to be explored in this study are as follows: (a) in comparison to children in the control group, children who participate in the FRIENDS program will report a significantly lower level of anxiety symptoms at 6- and 12-month follow-ups. In addition, children in the intervention group will show greater reduction in depressive symptoms than those in the control group; (b) children in the

FRIENDS program will report a lower level of perfectionism scores and a higher level of social skills and social/adaptive functioning. With regard to coping skills, children who participate in the FRIENDS program will report lower cognitive avoidance but higher assistance-seeking and cognitive-behavioral problem-solving coping skills compared to children in the control group; (c) girls compared to boys, and younger compared to older children, will benefit more from the FRIENDS program; and (d) finally, parent involvement and satisfaction with the FRIENDS program will predict better outcomes in children.

Method

PARTICIPANTS

Participants were 638 children (346 males, 292 females), ages 9 to 12 years (mean age=10.91 years; $SD=0.86$). A total of 302 children participated in the FRIENDS program and 336 were in the control group. Schools and not participants were used as the unit of random assignment. That is, schools were randomly assigned to either an intervention or a control condition. No incentives were given to the children for participating in this project. They were informed that they would be taught specific skills that they would need to better cope with challenging and anxiety-provoking situations both now and in the future.

INTERVENTION GROUP

Three hundred and fifty children were approached to participate in the intervention study, of which 311 children agreed to participate; however, 9 children were unable to obtain a signed consent form from their parent or guardian. Of the 302 children who participated in this study, 161 were males and 141 females. The average age was 10.72 years ($SD=.96$). Most of the youth indicated Catholic as their religious affiliation (63%), followed by Protestant (10.9%). Almost all the sample was of German origin (95%), with the remainder coming from other ethnic backgrounds, mostly from Southern and Eastern Europe. At 12-month follow-up, there were a total of 155 participating students (49.7% males, and 50.3% females).

Children in the intervention group participated in 10 weekly sessions of the FRIENDS program (Barrett, Lowry-Webster, & Turner, 2000; Essau & Conrads, 2003), and two booster sessions. Each child was given a workbook (Essau & Conrads, 2003) that he or she used throughout the program. Children were allowed to miss a maximum of three sessions; however, they were required to complete an individual session with their trainer before they could join the subsequent group session. A total of

21 children missed one group session, 14 missed two group sessions, and another 6 missed three group sessions; all these children received an individual session before joining the next group session. Thus, effectively, all the children participated in all of the FRIENDS sessions. During the implementation of the FRIENDS program, children who declined to be in the study participated in various other activities that were offered by the school such as drawing, dancing, swimming, and computer courses.

Parents of these children were also invited to participate in four parent evening sessions. About half (54%) of the parents, mostly mothers, participated in these sessions. Almost all parents who did not participate reported lacking the time due to a busy lifestyle as the main reason for their non-participation. Of those who participated, 20.6, 30.3, 31.5, and 17.6% finished one, two, three, and four group sessions, respectively. The modal number of sessions attended was three. Parental education ranged from elementary school through university and college degrees, with most parents (72%) reporting a high school educational level.

CONTROL GROUP

Four hundred and forty children were approached to participate in the control study. A total of 341 children agreed to participate; however, 5 children were unable to obtain a signed consent form from their parent or guardian. Of the 336 children who participated in this study, 179 were males and 157 females. The average age was 11.08 years ($SD=.73$). Most of them indicated Catholic as their religious affiliation (48.5%), followed by Protestant (39.6%). The ethnic composition was similar to the children in the intervention group in that almost all were of German origin (97%). At the 12-month follow-up, there were a total of 154 participating students (47% males, and 53% females). Parental education ranged from elementary school through university and college degrees, with most parents (74%) indicating a high school educational level.

Children in the control group were informed that they would be contacted at regular intervals to learn about how they were doing in school; these children were also invited to participate in the FRIENDS program 6 months later.

FRIENDS PROGRAM

The FRIENDS program is an Australian CBT-based early intervention and prevention program for childhood anxiety and depression (Barrett et al., 2000) in which children are taught strategies to cope with anxiety and challenging situations. This program was translated and adapted to German

(Essau & Conradt, 2003). Because the FRIENDS program was developed in Australia, which contains Australian animals and illustrations (e.g., kangaroo, koala), a pilot study (Essau, Conradt, & Ederer, 2004) was conducted to examine the social acceptability of the German version of the FRIENDS program before implementing it in this country. The result of the pilot study indicated that both the children and their parents reported being highly satisfied with the FRIENDS program (Essau et al., 2004). The use of "Australian-specific" animals was highly accepted. The only animal that was regarded as not useful was that of a snake, which was used in the relaxation games. For this reason, the snake was replaced with a bear.

FRIENDS is an acronym that helps children remember the strategies taught that can be used to effectively manage their anxiety: F=feeling worried? R=relax and feel good; I=inner thoughts; E=explore plans; N=nice work, reward yourself; D=don't forget to practice; S=stay calm. Children are taught specific strategies including recognizing somatic symptoms of anxiety, identifying and challenging anxious thoughts, using coping skills (e.g., relaxation, problem solving), and self-reward for trying hard and achieving goals. The training was conducted in a group format to enable children to learn positive strategies from each other, as well as to reinforce individual efforts and changes in behaviors. The format of the FRIENDS program included large- and small-group work, role plays, activities, exercise, games, and quizzes; at the end of each session, children were given homework that was discussed at the beginning of the next session.

The FRIENDS program consists of 10 weekly sessions and two booster sessions, with each session lasting about 60 minutes. These booster sessions, which were implemented 1 and 3 months following completion of the program, provide children with additional opportunities to practice the skills they have learned and to facilitate the use of these skills in coping with challenging situations in their daily life.

The FRIENDS program also includes four group sessions for parents, which are conducted at separate times from the child sessions. These sessions provided parents the opportunity to learn about the FRIENDS program and to discuss parenting and reinforcement strategies such as praise and tangible rewards for facing feared situations. Other topics covered in these sessions include coping with their own symptoms of anxiety, cognitive techniques to challenge unhelpful thoughts, and brief training in communication and problem-solving skills. It was strongly empha-

sized that the skills that were taught during each session had to be practiced as a family every day.

RECRUITMENT PROCEDURE

The participants were recruited from 14 schools in rural and urban areas in North Rhine-Westphalia, Germany. These schools were selected because of their location. They were located within 50 km of the University of Muenster and all have a direct bus and/or train connection from the city of Muenster. Initial consent to participate in the project was obtained from the head teacher of each school to invite students and their parents to take part in this research project.

Both parental and children written informed consent were obtained before participation in the study. All parents of students were sent information that described the research project together with an informed consent form to be completed and returned by their parents. Children's participation was voluntary. Students were informed that their responses to the questionnaires would be kept confidential and they could withdraw from the research at any time.

For children in the intervention and control groups, the assessments were administered about the same time. The children completed the questionnaires in a designated classroom and two research assistants were available to provide assistance if necessary and to ensure independent responding.

IMPLEMENTATION OF THE FRIENDS PROGRAM

The delivery of the FRIENDS program was conducted by six facilitators, all graduate students in clinical child psychology and who had at least 2 years of experience in working with children with anxiety and depressive disorders. Prior to implementing the FRIENDS program, all the facilitators received an intensive 3-day workshop by the first author (CAE), a clinical child psychologist. The main aim of this workshop was to ensure fidelity of implementation of the protocol and to overcome potential problems. The workshop also covered topics related to anxiety disorders and their risk factors, principles of prevention, organization, and ethical issues in running the program with a group of children and their parents, as well as group-leader and group-process skills. Each facilitator received a leader's manual that provides them a detailed outline of each session of the FRIENDS program. During this workshop, the first author reviewed each session of the FRIENDS program with the facilitators through dialogue, role plays, and exercises.

Two facilitators delivered the FRIENDS program to a group of an average of 10 children during an “after-school care” class (in German “Hort”). A weekly meeting was held by the first author with all the facilitators to discuss any problems in the delivery and understanding of exercises and concepts of the FRIENDS program. Adherence to the protocol was monitored by asking each facilitator to complete a program fidelity checklist at the end of each weekly session and to record whether they completed each activity within the session. All the facilitators implemented and returned the fidelity checklists. Adherence to the intervention content ranged from 78 to 97%.

MEASURES

Spence Children's Anxiety Scale

The Spence Children's Anxiety Scale (SCAS), German version, is a 38-item measure of anxiety symptoms in children and adolescents (Essau et al., 2002; Spence, 1998). The SCAS items reflect symptoms of the main DSM-IV anxiety disorders, including separation anxiety, social phobia, obsessive-compulsive disorder (OCD), panic/agoraphobia, physical injury fears, and generalized anxiety disorder (GAD). Each item is rated on a 4-point scale in terms of its frequency from 0 (*never*) to 3 (*always*). The 0 to 3 ratings of the items are summed to yield a total score, with higher scores reflecting higher levels of anxiety symptoms. Internal consistency and test-retest reliability of the SCAS have been reported as satisfactory, with alphas generally well above .70 and a test-retest correlation coefficient of .60 (Spence, 1997). The scale also demonstrated acceptable convergent validity as demonstrated by a significant correlation with the Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1985; $r = .71$). In the present study, the Cronbach alpha for the SCAS was .90 for children in both groups.

Revised Child Anxiety and Depression Scale

Depressive symptoms were measured using the depression subscale of the Revised Child Anxiety and Depression Scale (RCADS; Chorpita, Yim, Moffitt, Umemoto, & Francis, 2000). It consists of 11 items that correspond to the nine symptoms of Criterion A for major depressive episode (DSM-IV; American Psychiatric Association, 1994). These items also subsume the six symptoms of Criterion B for DSM-IV dysthymic disorder. Children rate how often each item applies to them, using a 4-point Likert scale that ranges from 0 (*never*) to 3 (*always*). The internal consistency of the major depressive disorder subscale among children in the general population is .76 (Chorpita et al., 2000) and,

among referred samples, .87 (Chorpita, Moffitt, & Gray, 2005). The Cronbach alpha for the RCADS in the present study was .78 for the intervention group and .77 for the control group.

Child and Adolescent Perfectionism Scale

The Child and Adolescent Perfectionism Scale (CAPS; Flett, Hewitt, Boucher, Davidson, & Munro, 1997) was used to measure perfectionism. It contains 22 items, which are rated on a 3-point Likert scale ranging from *not true* to *very true*. Ten of the items were used to measure socially prescribed perfectionism, and 12 to measure self-oriented perfectionism; three of the items required reverse scoring before calculation of the total and subscale scores. The ratings on the CAPS are summed for all the items to provide a total score of perfectionism, with higher scores reflecting greater perfectionism. In a study by Hewitt et al. (2002), the Cronbach's alpha levels were .85 and .86 for self-oriented perfectionism, and socially prescribed perfectionism, respectively. In the present study, the Cronbach alpha for the CAPS was .82 for the intervention group, and .80 for the control group.

Social Skill Questionnaire

The Social Skill Questionnaire (SSQ; Spence, 1995) was used to measure social competence in children. It consists of 30 items, which are rated on a 3-point Likert scale. The ratings on the SSQ are summed for all items to provide a total score, with higher scores reflecting greater social skills. The SSQ has been reported to have good psychometric properties in terms of reliability and validity; it is also sensitive to change in response to social skills training among children with social phobia (Spence, 1995; Spence, Donovan, & Brechman-Toussaint, 2000). The Cronbach alpha for the SSQ in the present study was .87 for the intervention group and .91 for the control group.

Child and Adolescent Social and Adaptive Functioning Scale

The Child and Adolescent Social and Adaptive Functioning Scale (CASAFS; Price, Spence, Sheffield, & Donovan, 2002) was used to measure social and adaptive functioning in the areas of school performance, peer relationship, family relationship, and home duties/self-care. The CASAFS consists of 24 items that are rated on a 4-point scale of 1 (*never*) to 4 (*always*), and are summed with higher scores indicating higher level of social functioning. Psychometric properties have been reported to be adequate (Price et al., 2002) with acceptable reliability (.81) in a test-retest analysis. Its validity was demonstrated by significant negative correlations ($r = -.34$) with the

Table 1
Means and Standard Deviations of Self-Report Measures for Children in the Prevention and Control Groups

Variables	Pretest Mean (SD)	Posttest Mean (SD)	6-Month Mean (SD)	12-Month Mean (SD)
<i>1) SCAS (Total anxiety scores)</i>				
Prevention	22.53 (12.3)	20.96 (11.7)	18.56 (12.2)	16.88 (10.7)
Control	23.92 (12.2)	23.31 (11.9)	24.44 (12.9)	25.39 (13.8)
Separation anxiety				
Prevention	3.59 (2.5)	3.25 (2.4)	2.87 (2.2)	2.54 (2.0)
Control	3.68 (2.5)	3.30 (2.5)	3.58 (2.5)	3.76 (2.5)
Social phobia				
Prevention	4.63 (3.0)	4.23 (2.9)	4.04 (2.9)	3.25 (2.3)
Control	4.83 (2.9)	5.01 (2.9)	5.02 (3.0)	5.05 (2.9)
Obsessive-compulsive				
Prevention	4.41 (2.9)	3.80 (2.8)	2.90 (2.7)	2.78 (2.4)
Control	4.68 (2.8)	4.25 (2.5)	4.45 (2.6)	4.54 (2.6)
Panic disorder				
Prevention	2.66 (2.5)	2.37 (2.5)	2.45 (2.9)	2.19 (2.6)
Control	3.00 (3.1)	2.89 (3.1)	3.13 (3.1)	3.54 (3.3)
Specific phobia				
Prevention	2.55 (2.2)	2.59 (2.1)	2.15 (1.9)	2.07 (1.9)
Control	2.77 (2.3)	2.73 (2.2)	2.90 (2.3)	3.05 (2.3)
Generalized anxiety				
Prevention	5.16 (2.7)	4.89 (2.4)	4.31 (2.6)	3.94 (2.5)
Control	5.40 (2.5)	5.28 (2.5)	5.47 (2.7)	5.51 (2.8)
<i>2) Depressive symptoms</i>				
Prevention	6.29 (4.1)	5.37 (3.7)	4.89 (3.8)	5.05 (3.5)
Control	6.57 (3.9)	6.85 (4.0)	6.79 (3.9)	7.79 (4.9)
<i>3) CASAFS (Total impairment scores)</i>				
Prevention	69.62 (8.4)	70.30 (8.5)	70.83 (9.1)	69.07 (10.9)
Control	68.74 (6.4)	69.09 (9.0)	68.45 (8.4)	67.59 (8.3)
School				
Prevention	16.41 (3.2)	17.12 (3.3)	17.04 (3.3)	16.55 (3.5)
Control	15.59 (2.7)	16.14 (2.9)	15.82 (3.1)	15.74 (3.1)
Peer				
Prevention	17.79 (2.9)	18.00 (2.8)	18.03 (3.3)	17.66 (3.5)
Control	17.69 (2.9)	17.47 (3.1)	17.48 (2.9)	17.31 (2.8)
Family				
Prevention	19.13 (2.9)	18.78 (3.3)	18.59 (3.5)	18.43 (3.4)
Control	19.05 (2.9)	19.04 (3.2)	18.88 (3.2)	18.46 (3.2)
Home				
Prevention	15.91 (2.8)	16.10 (3.2)	16.25 (3.4)	16.07 (3.7)
Control	15.98 (2.7)	16.53 (3.5)	16.16 (3.2)	15.93 (3.1)
<i>4) CAPS (Total Perfectionism scores)</i>				
Prevention	15.09 (6.5)	13.40 (7.2)	12.63 (7.0)	12.62 (6.4)
Control	14.02 (5.9)	13.77 (6.7)	14.37 (6.4)	14.90 (6.3)
Self-focused				
Prevention	9.98 (3.6)	8.88 (4.0)	8.03 (4.0)	7.96 (3.9)
Control	9.13 (3.5)	9.18 (4.0)	9.33 (3.9)	9.55 (3.5)
Social-focused				
Prevention	5.11 (3.7)	4.59 (3.8)	4.59 (3.8)	4.65 (3.4)
Control	4.83 (3.5)	4.67 (3.8)	5.07 (3.7)	5.34 (3.8)
<i>5) Social skills</i>				
Prevention	44.39 (8.0)	42.52 (11.2)	43.29 (11.9)	41.82 (13.1)
Control	41.46 (10.0)	40.76 (11.0)	41.14 (10.7)	40.32 (11.1)

(continued on next page)

Table 1 (continued)

Variables	Pretest Mean (SD)	Posttest Mean (SD)	6-Month Mean (SD)	12-Month Mean (SD)
<i>6) Coping skills</i>				
Assistance seeking				
Prevention	6.35 (2.6)	6.27 (2.7)	5.94 (3.1)	5.83 (3.1)
Control	6.11 (2.3)	6.47 (2.5)	6.06 (2.5)	5.83 (2.4)
Problem solving				
Prevention	10.23 (4.3)	10.49 (4.9)	9.61 (4.4)	10.24 (5.1)
Control	9.56 (4.3)	10.09 (4.7)	9.06 (4.1)	8.99 (4.3)
Behavioral avoidance				
Prevention	4.39 (2.9)	4.85 (3.2)	4.30 (2.9)	4.34 (2.7)
Control	4.59 (2.9)	5.29 (3.3)	5.39 (3.2)	5.39 (3.1)

Note. SCAS=Spence Children's Anxiety Scale; CASAFS=Child and Adolescent Social and Adaptive Functioning Scale; CAPS=Child and Adolescent Perfectionism Scale.

Beck Depression Inventory. The Cronbach alpha for the CASAFS was .80 for the intervention group and .67 for the control group.

Coping Scale for Children and Youth

The Coping Scale for Children and Youth (Brodzinsky et al., 1992) was used to measure coping style preference. It is comprised of two proactive (assistance seeking, cognitive-behavioral problem solving) and two avoidant coping strategies (behavioral avoidance, cognitive avoidance). The participants were asked to indicate the frequency with which they used the coping strategies in dealing with specific problems on a 4-point Likert scale, ranging from *never* to *very often*. The Coping Scale has demonstrated good test-retest reliability at 1 week ($r=.78$ to $.81$) and construct validity (Brodzinsky et al., 1992). Internal consistency indicated an acceptable to good level of reliability for each subscale, with alphas ranging from .72 to .81. The Cronbach alpha for this scale was .84 for children in both groups.

FRIENDS Child Social Acceptability Measure

The FRIENDS Child Social Acceptability Measure (Barrett, Lowry-Webster, Turner, & Johnson, 1998) was used to measure children's satisfaction with the program. Children were asked to rate how much they enjoyed the program, how much they learned about feelings and how to cope with them, and how often they used the skills taught during the program. The children were also asked to indicate the components of the program that they found to be the most helpful to them. All the questions were rated on a 4-point Likert scale. Although this scale has been used in two studies (Shortt, Barrett, & Fox, 2001), its psychometric properties have not been reported. In the present study, the Cronbach alpha for this scale was .88.

FRIENDS Parent Social Acceptability Measure

The FRIENDS Parent Social Acceptability Measure (Barrett et al., 1998) was used to assess the parent's report of how much they felt their child enjoyed and how much they learned during the program, and how helpful the program was in enhancing both the child's and own (the parents) coping skills. They were also asked how often they and their children used the skills taught in the program. The other questions were related to parent's rating of the usefulness of positive skills programs in general, and the importance of implementing the program into curriculum in schools. The items are answered on a 4-point Likert scale, ranging from *a lot* to *not at all*. The questionnaire also contained an open-ended question to enable the parent to provide additional comments about the program. Although this scale has been used in two studies (Shortt et al., 2001), its psychometric properties have not yet been reported. In the present study, the Cronbach alpha was .78.

With the exception of the FRIENDS Social Acceptability Measure, the children completed the set of questionnaires four times throughout the study period, specifically, at 1 week before and after the intervention, as well as at 6 months and 12 months following the program. The FRIENDS Social Acceptability Measure was administered to the children in the intervention group only once, that is, after the intervention. Children in the control group were assessed over the same interval as the children in the intervention group.

Results

PREINTERVENTION DIFFERENCES

Children in the intervention and control groups did not differ significantly on the majority of measures completed at preintervention. Specifically, they did

not differ significantly on the total SCAS anxiety scores, $F(1, 576)=1.85, p=.18$; or on any of the SCAS subscales: separation anxiety, $F(1, 618)=0.20, p=.66$, social $F(1, 629)=.64, p=.43$; specific phobia $F(1, 624)=1.48, p=.22$; OCD $F(1, 625)=1.48, p=.22$; panic disorder, $F(1, 626)=2.29, p=.13$; and GAD $F(1, 613)=1.37, p=.24$.

The two groups of children also did not differ significantly on depressive symptoms, $F(1, 594)=.69, p=.41$; social and adaptive functioning, $F(1, 466)=1.64, p=.20$; or on any of the coping strategies: assistance seeking, $F(1, 614)=1.45, p=.23$; problem solving, $F(1, 603)=3.60, p=.06$; cognitive $F(1, 567)=.40, p=.53$; and behavioral avoidance, $F(1, 582)=.69, p=.41$. The only significant group difference was found for social skills, $F(1, 597)=15.32, p=.0001$, and perfectionism, $F(1, 599)=4.40, p=.04$, with children in the intervention group reporting significantly higher scores on social skills and perfectionism than children in the control group.

CHANGES IN PSYCHOLOGICAL WELL-BEING AFTER THE IMPLEMENTATION OF THE FRIENDS PROGRAM

Table 1 shows the means and standard deviations of the study variables for children in the prevention and control groups. A series of ANOVA were conducted to determine the effect of FRIENDS program on anxiety (SCAS), depression, social and adaptive functioning (CASAFS), perfectionism (CAPS), social skills, and coping. Significant interactions between time (pre, post, 6 month, 12 month) and group (prevention, control) were found for total anxiety scores, $F(3, 648)=17.03, p<.001$, and all of the SCAS subscales: separation anxiety, $F(3, 762)=12.54, p<.001$; social phobia, $F(3, 786)=25.47, p<.001$; OCD, $F(3, 771)=19.43, p<.001$; panic disorder, $F(3, 780)=8.23, p<.001$; specific phobia, $F(3, 765)=8.71, p<.001$; GAD, $F(3, 747)=17.10, p<.001$; as well as for the total depression score, $F(3, 720)=17.61, p<.001$. Within the intervention group, no significant difference emerged in the anxiety scores among children whose parents participated in the FRIENDS program in comparison to those whose parents did not participate in this program, $F(1, 264)=.58, p=ns$.

Significant interactions between time and group were also found for the total social and adaptive functioning scores, $F(3, 513)=3.51, p<.05$, and its school performance subscale, $F(3, 630)=13.11, p<.001$; total perfectionism scores, $F(3, 681)=9.54, p<.001$; and its self-oriented perfectionism subscale, $F(3, 750)=14.58, p<.001$. As for coping strategies, significant interactions between time and group were found for both avoidant coping sub-

scales: cognitive avoidance, $F(3, 669)=6.42, p<.001$, and behavioral avoidance subscales, $F(3, 672)=8.21, p<.001$. For the social skills scale, $F(3, 729)=2.75, p<.05$, only the main effect of time was found.

Multiple comparisons using the Bonferroni method were used for all of the dependent variables that showed interaction effects (Group \times Time). As a result, significant group differences were found for the SCAS total scores and three of its subscales (separation anxiety, panic disorder, and GAD) at 12-month follow-up ($p<.01$). Specific phobia (6 month: $p<.05$; 12 month: $p<.01$) and OCD (6 month: $p<.001$; 12 month: $p<.001$) showed significant differences at both 6- and 12-month follow-ups.

For the total depression score, a significant difference between prevention and control groups was found at 6- ($p<.05$) and 12-month ($p<.001$) follow-ups. Our results demonstrated that the depression score for the intervention group continued to decrease during the follow-up period, whereas the score for the control group stayed in the same range. Thus, the FRIENDS program was also effective in decreasing depressive symptoms, as hypothesized.

Although no group differences were found for the total social and adaptive functioning scores (CASAFS) at 6- and 12-month follow-ups, a significant group difference was found for one of its subscales, that is, the school performance subscale. Specifically, at 6- and 12-month follow-ups the intervention group had significantly higher scores on school performance than those in the control group (6 month: $p<.05$; 12 month: $p<.01$). This result suggested that the FRIENDS program was effective in enhancing children's school performance as well.

A significant difference was found for total perfectionism score at 12-month follow-up ($p<.05$), indicating that perfectionism in the prevention group decreased at follow-up, whereas scores remained in the same range for the control group. With respect to coping ability, significant differences were found in 6- ($p<.01$) and 12-month ($p<.05$) follow-up scores of the cognitive avoidance subscale, indicating cognitive avoidance occurs less frequently in the prevention group.

MODERATORS FOR CHANGE OF ANXIETY SYMPTOMS

In order to determine which variables acted as moderators for change in pre- to postanxiety (i.e., total SCAS) scores, a series of ANOVAs were conducted for the intervention group data. There was a significant interaction between time and age, $F(3, 234)=2.90, p<.05$, as well as the main effect of

time, $F(3, 234)=12.96, p<.001$. No significant interaction was found between time and gender, $F(3, 234) = 1.25, p=ns$; only the main effect of time was significant, $F(3, 234)=13.12, p<.001$. Further analysis using the Bonferroni method showed that in the younger (i.e., 9- to 10-year-old) group, there was a significant reduction from pre- to postintervention ($p<.01$), but the reduction was not significant for 6- and 12-month follow-ups. In contrast, for the older (i.e., 11- to 12-year-old) group, the reduction from preintervention to 6- and 12-month follow-ups was significant, but not for postintervention. The results are shown in Figure 1. These results suggest that the effect of the program was immediately evident after the intervention for younger children, but took more time to be realized in the older children.

MEDIATORS FOR CHANGE OF ANXIETY SYMPTOMS

A program called PRODCLIN (MacKinnon, Fritz, Williams, & Lockwood, 2007) was used to determine whether depression, social and adaptive functioning (CASAFS), perfectionism (CAPS), social skills, and coping strategies at preintervention acted as mediators for change in postintervention SCAS score. This program uses the distribution of the product of two normally distributed variables to compute asymmetric confidence intervals for a mediated effect. In a conventional Sobel test (1982), the product of indirect effects is presumed to have a normal distribution. However, the product of two normally distributed random variables is known to be skewed. PRODCLIN is advantageous in that it calculates the 95% confidence interval for indirect effects, thereby providing a better index of significance. If the confidence interval does not include zero, one can conclude that the mediation effect is robust.

Ninety-five percent confidence intervals for the mediating effect of social and adaptive functioning

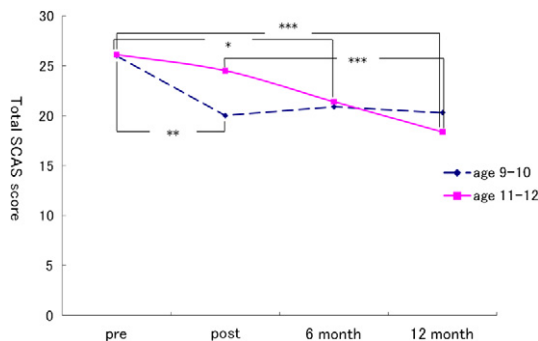


FIGURE 1 Moderating effect of age on treatment response. Note. * $p<.05$, ** $p<.01$, *** $p<.001$.

(CASAFS), perfectionism (CAPS), social skills, coping strategies, and parental satisfaction are shown in Table 2. The results show that perfectionism, cognitive avoidance coping, and behavioral avoidance coping serve as mediators of change in pre- to post-SCAS scores. On the other hand, parental satisfaction did not serve to mediate a decrease in children's anxiety scores.

INFLUENCE OF PARENTAL INVOLVEMENT ON OUTCOME VARIABLES

Out of all the parents who participated in the study, 75 agreed to complete self-report measures regarding the effectiveness of the FRIENDS program (i.e., the FRIENDS Parent Social Acceptability Measure). Seventeen parents participated once, 25 participated twice, 26 participated three times, and 7 participated in all four parental sessions. Parental satisfaction differed significantly depending on the number of parental sessions attended, $F(3, 71)=10.24, p<.001$. Subsequent multiple comparison analyses demonstrated that parents participating once and four times had higher levels of satisfaction than those who participated twice or three times ($p<.01$). With regard to child anxiety, pre- to postchanges in the children's SCAS scores differed significantly in relation to the number of sessions attended by the parents, $F(3, 71)=3.17, p<.05$. Multiple comparisons showed a marginal difference between parents participating once and four times ($p=.08$); children whose parents participated in all four sessions had a higher reduction rate of SCAS scores at postintervention compared to children whose parents participated only once.

Discussion

The main aims of this study were to examine the effectiveness of the German version of the FRIENDS program in reducing anxiety and depressive

Table 2
Results of Confidence Intervals for Mediating Effects

	Lower Limit	Higer Limit	Sobel's Test (Z)
Social and adaptive functioning (CASAFS)	-0.00	0.04	1.50
Social skills	-0.16	0.74	-0.43
Perfectionism	0.02	0.13	2.85
Coping strategies			
Assistance seeking	-0.05	0.17	0.99
Problem solving	-0.02	0.05	0.95
Cognitive avoidance	0.02	0.15	2.64
Behavioral avoidance	0.01	0.28	2.07
Parental satisfaction	-0.16	0.74	1.26

Note. CASAFS=Child and Adolescent Social and Adaptive Functioning Scale.

symptoms, and its impact on correlates of anxiety (i.e., perfectionism, social skills, coping skills, social and adaptive functioning) over a period of 12 months. Another aim was to determine the moderators and mediators that were predictive of the program's effectiveness.

The first aim of the study was to examine the effects of a universal preventive intervention on anxiety symptoms. The hypothesis that the intervention group would demonstrate greater reductions in anxiety symptoms than the control group was supported. Although a Bonferroni correction failed to detect differences between the two groups at postintervention, reductions in anxiety were significantly greater for participants in the intervention group at the 12-month follow-up. This is representative of the fact that the participants in the intervention group, presumably with more time to practice, continued to get better throughout the follow-up period, whereas the participants from the control group stayed at the same level or deteriorated in some cases. These results were similar to those reported by Lowry-Webster and colleagues (2003) and Barrett and Turner (2001), who found lower levels of anxiety in children in the intervention group compared to those in the control group at postintervention as well as at 6-month follow-up. Recently, Liber et al. (2008) compared the effectiveness of the FRIENDS program when delivered in a group or individual format in children with anxiety disorders. Children in both conditions showed improvement; however, no significant group differences were found in their clinical outcomes. More specifically, 48 and 41% of those in the individual and group treatment, respectively, no longer met the diagnosis of any anxiety disorders at posttreatment.

Because anxiety is a risk factor for depression (Cole, Peeke, Martin, Truglio, & Seroczynski, 1998), the second objective of this study was to examine the effects of the FRIENDS program on depression. In line with our hypothesis and consistent with findings of previous studies (Dadds et al., 1997; Jaycox, Reivich, Gillham, & Seligman, 1994), children in the intervention group had significantly lower depressive symptoms than children in the control group at 6- and 12-month follow-ups. This finding showed that depression was amenable to change through the FRIENDS program.

The third aim of the study was to examine the effects of the universal intervention in increasing coping ability by comparing the proactive strategies (assistance seeking, cognitive-behavioral problem solving) and avoidant strategies (cognitive avoidance, behavioral avoidance) children use to manage

difficult experiences. The hypothesis that the coping style of children in the intervention group would improve compared to students in the control group was partially supported. Participants in the intervention group reported using less cognitive avoidance problem solving than those in the control group at 6- and 12-month follow-up assessments; no improvement was found in the use of proactive coping strategies, however. This finding is similar to results reported by Lock and Barrett (2003) who found that the FRIENDS program is effective in decreasing the use of avoidant strategies.

The fourth aim was to examine gender and age differences in the effects of the universal intervention on anxiety. Results from moderator analysis showed that the group-gender interaction was not significant, suggesting that both girls and boys uniformly benefited from the intervention provided by the FRIENDS program. This was in line with the Lowry-Webster et al. (2003) study, which failed to find differences between boys and girls in the reduction of anxiety. Interestingly, age proved to be a moderating factor of change; younger children displayed benefits of the program earlier, whereas older children were delayed to show program gains. These results may reflect the fact that in older children, cognitive factors play an increasingly important role for anxiety reduction and in order for the treatment gains to unfold, postintervention practice in real-life settings is needed.

As for the mediating factors, perfectionism, cognitive avoidance coping, and behavior avoidance coping seemingly played a role in reducing postintervention anxiety levels. Less perfectionism and avoidant coping were predictive of more treatment gains. In order for the program to be effective, a certain level of willingness is desirable. Confrontation and less concern of one's performance are the keys to successful implementation, and motivating children toward these goals may enhance the effectiveness of the program altogether.

Parental satisfaction was not a significant mediator of change in children's anxiety scores. However, more participation in parent sessions was predictive of higher pre- to postanxiety reduction in children. Furthermore, parents participating in all four sessions scored higher in program satisfaction than those participating in two or three sessions. It is not clear at this time why parents participating only once also scored higher in parental satisfaction compared to parents participating two or three times, but overall, these results seem to partially support the hypothesis that parental involvement augments intervention effects.

It is important to acknowledge the limitations of this study. First, the findings were based largely on

child self-report. Although this method has been used previously, and represents the best methodology for assessing a large cohort of children in a relatively short time frame, the question of degree of accuracy of children's self-report measures is widely documented in the literature. Because self-report measures are not without limitations, future studies should consider including more objective methods (e.g., behavioral and psychophysiological measures) and additionally using information from multiple sources. For example, the use of a pictorial dot-probe task seemed to be effective in detecting changes in selective attention over the course of participating in the FRIENDS program (Legerstee et al., 2009, in press). The addition of diagnostic interviews would strengthen results; however, the use of collateral data from parents offset this to some extent. Second, although the parents were invited to participate in the parent group sessions, only about half of them did so. As such these parents may represent a selective group of parents who were sufficiently motivated to help their children learn about specific skills to cope with anxiety and challenging situations. Third, we have no information on the nonspecific effects of intervention such as participants seeking treatment, which could have contributed to the positive effects of the intervention. Thus, it is unknown whether the positive effects reported in the present study were solely due to the children's participation in the FRIENDS program. Fourth, parental and children written consent forms were required before they could participate in this study, which raises questions about the representativeness of the responding sample. Still, a clear majority of the children in the schools participated. Finally, schools that participated in the research may be schools that were more motivated toward prevention.

The major strength of the study was its large sample size and that children were recruited from 14 different schools. Other strengths include random assignment of schools to intervention conditions, the presence of a control group, implementation of an evidence-based protocol, and the use of highly reliable and valid measures of assessment. Unlike previous prevention studies, our study examined not only the effectiveness of the FRIENDS program in reducing anxiety and depressive symptoms but it also examined its impact in some specific risk factors of anxiety.

To date, the FRIENDS program has been limited to 10 weeks in duration. It should be determined in future studies whether extending the number of CBT sessions would be helpful. It would also be helpful to examine prevention effects over time to see the benefit of participating in the FRIENDS

program in relation to the issue of transition. Specifically, grade 4 (i.e., when most school children are 9 years old) marks the transition from primary to secondary school for German students; the transition from primary to secondary school may be a particularly stressful juncture for many children as they need to get adjusted to the new school and social environment (Greene & Ollendick, 1993).

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RECEIVED: April 21, 2010

ACCEPTED: August 21, 2011

Available online 27 August 2011