



# A pilot study on the effectiveness of a school-based cognitive-behavioral anxiety intervention for 8- and 9-year-old children: A controlled trial in Japan



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## ABSTRACT

**Introduction:** Many universal school-based preventative intervention trials for anxiety have been conducted in Western countries. This pilot study examined the efficacy and acceptability of a school-based, universal preventative program for anxiety among children aged 8–9 years in Japan. The program was based on cognitive-behavioral therapy (CBT) and was informed by similar universal programs (i.e., the Fun FRIENDS program; Barrett, 2007a, 2007b).

**Methods:** Seventy-four children from a single school were allocated to an intervention or control group. The intervention comprised 10 CBT sessions, and assessments were conducted before and after the program. The primary outcome measure was the Spence Children's Anxiety Scale (SCAS) as children's self-report. Secondary outcome measures were the Depression Self-Rating Scale for Children (DSRS-C), Children's Hope Scale (Hope), Spence Children's Anxiety Scale-Parent Version (SCAS-P), and Strengths and Difficulties Questionnaire-Parent Version (SDQ-P).

**Results:** The SCAS as the primary outcome showed no significant differences between the two groups. In addition, DSRS-C, Hope and SDQ-P also showed no significant differences. SCAS-P in the intervention group showed significant decrease compared to those in the control group.

**Conclusion:** The results of this trial study suggest that a school-based universal preventative program for anxiety may have no significant effects on 8–9-year-old children.

**Trial registration:** UMIN-CTR Identifier UMIN000008798.

## 1. Introduction

Anxiety is the most common psychological health issue during childhood and adolescence (Cartwright-Hatton, McNicol, & Doubleday, 2006). Anxiety that is left untreated during childhood could lead to serious mental health issues in adulthood. However, a review of the prevention literature suggests that early prevention can reduce the overall anxiety disorder burden (Bienvenu & Ginsburg, 2007).

Several universal anxiety prevention strategies based on cognitive-behavior therapy (CBT) have been conducted in schools. According to one systematic review, CBT is effective for older children and adolescents; however, evidence suggesting similar efficacy for younger children is limited (Cartwright-Hatton, Roberts, Chitsabesan, Fothergill, & Harrington, 2004). Stallard et al. (2005) evaluated the

efficacy and acceptability of a CBT-based program, referred to as "FRIENDS." Their school-based study, conducted with 197 9–10-year-old children, included a 10-session CBT program. Results revealed significantly lower rates of anxiety and improved self-esteem at post-test; however, the study did not include a control group. Miller et al. (2011) examined the effectiveness of a CBT-based intervention program, FRIENDS, for children from grades 4 to 6, using random assignment and an attention-control design. The results showed no intervention effect. On the other hand, Stallard et al. (2014) provided classroom-based CBT program, FRIENDS, carried out by health staffs and school staffs, and regular school provision. Training the teachers to deliver a mental health program was not as effective as delivery by health professionals. The same program can have diverse effects depending on who delivers it.

**Abbreviation:** ANOVA, Analysis of variance; CBT, Cognitive behavior therapy; CG, control group; DSRS-C, Depression Self-Rating Scale for Children; Hope, Children's Hope Scale; ITT, intention-to-treat analyses; IG, intervention group; SCAS, Spence Children's Anxiety Scale; SCAS-P, Spence Children's Anxiety Scale-Parent Version; SDQ-P, Strengths and Difficulties Questionnaire-Parent Version; SDQ-T, Strengths and Difficulties Questionnaire-Teacher Version

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For anxious younger children, CBT for parents has also been useful (Waters, Ford, Wharton, & Cobham, 2009). According to Rapee and Jacobs (2002), it is vital to offer contingency management for children to reinforce newly acquired functional skills; Rapee and Jacobs' pilot study of a CBT-based program with parents revealed decreases in children's anxiety at a 12-month follow-up. This may suggest that parents' consistent encouragement and praise for their children's behavior could help lower anxiety. Moreover, parents who participate in programs with their children are better able to facilitate and reinforce their children's CBT skills (Mendlowitz et al., 1999). However, it is difficult for some parents to learn CBT and follow through with the program at home (Cartwright-Hatton et al., 2011). Therefore, if CBT programs are offered at school, more children may have the opportunity to learn functional ways of thinking and can practice adaptive behaviors, regardless of parental involvement.

Programs at school can also serve as preventative strategies for children who do not show anxiety symptoms. Parents and teachers tend to overlook signs of anxiety among early elementary-school children, interpreting moods and behaviors as just part of a general developmental issue (Ishikawa et al., 2014). A universal program at school could offer all children—including those who might develop anxiety later—an opportunity to acquire coping skills.

Friend for Life, a universal preventative intervention program (Barrett & Turner, 2001), is often used for primary school children. In addition, the Fun FRIENDS program (Barrett, 2007a, 2007b), a revised version of the Friend for Life program, is used for preschool children (Pahl & Barrett, 2010). This program teaches children CBT strategies through play. While the program has promise, its effectiveness must be carefully evaluated.

Previous studies that have used the FRIENDS program mainly targeted children aged older than 9 years (Barrett & Turner, 2001; Stallard et al., 2005). Since CBT for parents has been useful for younger children and school-based CBT does not require parental training, it is interesting to examine the efficacy and acceptability of a school-based, universal preventative program for anxiety among children aged younger than 9 years. In this pilot study, the preventative interventions for 8–9-year-old pupils were tested with the modified FRIENDS program, which will be applicable to Japanese children aged 8–9-years-old.

This study implemented a school-based CBT program based on the revised FRIENDS program (Fun FRIENDS) on children aged 8–9 years, in two classes, which also included a control group. This pilot study was one of the first cases conducted in non-Western countries. We attempted to verify the efficacy of the CBT program by examining whether children who participated in the program experienced reduced anxiety and depression, as well as increased enduring goal-directed thinking and social-emotional strength, following the intervention.

Fun FRIENDS is primarily based on pictures and experiences, instead of words. Compared to the FRIENDS program, it is easier to understand Fun FRIENDS by not only preschool children, but also 8–9-year old children who are not good at abstract thinking based on words. Using universally understandable illustrations, we could remove the barrier of words for Japanese children who were not good at self-disclosure, by using fun, play-based group activities. The Fun FRIENDS program is targeted for children aged 4–6 years. In this study, for children aged 8–9 years, we modified the Fun FRIENDS program to 10 lessons, with 45 min allocated to each lesson at an elementary school in Japan. We did not take the time to explain this to parents. We used the illustrations of Fun Friends at the beginning, held discussions of their experiences in the group, shared their experiences in the class, and every week the children performed CBT homework. Data were obtained through reports from children and parents. Moreover, the program's feasibility was assessed.

## 2. Methods

### 2.1. Participants

Participants were 74 primary-school children attending two Grade 3 classes (42 boys and 32 girls, aged 8–9 years), in a public primary school in Tokyo, where one of the authors worked as a school psychologist. The school is in a quiet residential area, has high academic standards, and parents have elevated expectations for their children. Each class had 37 students: Class 1 was the intervention group (IG) and Class 2 was the control group (CG).

### 2.2. Intervention: the revised FRIENDS program

A program was developed based on the Fun FRIENDS program, which is the modified version of the FRIENDS program, a school-based intervention for the prevention of anxiety symptoms among primary and middle school children. A previous study of 489 children aged 10–12 years, receiving 12, 75-min sessions of CBT (Barrett & Turner, 2001), observed that the universal FRIENDS program reduced anxiety symptoms during a post-intervention follow-up.

Fun FRIENDS used the FRIENDS program content in a format appropriate for younger children. For the current study, the program was consistent with the Fun FRIENDS program; however, it was modified for the target age group (8–9 years) and Japanese school system. The Fun FRIENDS program was developed for children to understand CBT's strategy through illustrations and experiences except through words; however, the content was the same as the FRIENDS program. In this study, the program was modified according to Japanese school system and one session was 45 min long. Table 1 presents the content of each session.

#### 2.2.1. Intervention protocol and materials

A researcher (a school psychologist), one of the authors, conducted sessions for Class 1 between September and November 2012. Each session consisted of a lecture, group discussion among pupils, games, and worksheets. During the sessions, the classroom teacher who was not a mental health professional observed the class and provided support. To ensure smooth execution, two volunteers (who were not mental health professionals nor teachers) provided support. Class 2 received a standard classroom curriculum, such as Japanese, arithmetic, and so on by the classroom teacher alone. Strictly speaking, two classes condition was not the same. There were four adult people and three were strangers for the pupils in Class 1 even though there was only one teacher who was familiar with pupils in Class 2. There is some possibility that the presence of three strangers might affect the pupils' reports other than the CBT program. It would be difficult to separate

**Table 1**  
Outline of goals and content for each session.

Session	Goal
1	Accepting similarities and differences between people
2	Understanding feelings
3	Understanding non-verbal signals
4	Becoming aware of and paying attention to inner thoughts or self-talk
5	Understanding two different kinds of thoughts and generating alternative helpful thoughts
6	Creating step-by-step coping plans (graded exposure hierarchies)
7	Learning about one's role models
8	Learning about one's support systems
9	Learning how to solve problems with a review of all skills
10	Learning to be happy with efforts and celebrating the end of the program

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