# School-based targeted prevention compared to specialist mental health treatment for youth anxiety

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**Background:** The 'FRIENDS for life' program (FRIENDS) is a 10-session cognitive behavioral therapy (CBT) program used for prevention and treatment of youth anxiety. There is discussion about whether FRIENDS is best applied as prevention or as treatment. **Methods:** We compared FRIENDS delivered in schools as targeted prevention to a previous specialist mental health clinic trial. The targeted prevention sample ($N = 82$; $M_{age}$ = 11.6 years, $SD$ = 2.1; 75.0% girls) was identified and recruited by school nurses in collaboration with a community psychologist. The clinical sample ($N = 88$, $M_{age}$ = 11.7 years, $SD$ = 2.1; 54.5% girls) was recruited for a randomized controlled trial from community child- and adolescent psychiatric outpatient clinics and was diagnosed with anxiety disorders. **Results:** Both samples showed significantly reduced anxiety symptoms from baseline to postintervention, with medium mean effect sizes across raters (youths and parents) and timepoints (post; 12-months follow-up). Baseline youth-reported anxiety symptom levels were similar between the samples, whereas parent-reported youth anxiety was higher in the clinical sample. **Conclusions:** The study suggests that self-reported anxiety levels may not differ between youth recruited in schools and in clinic settings. The results indicate promising results of the FRIENDS program when delivered in schools by less specialized health personnel from the school health services, as well as when delivered in clinics by trained mental health professionals.

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**Key Practitioner Message**

*What is known?*
- The FRIENDS for life program is effective in reducing anxiety symptoms, but it is unclear whether the program works best as prevention or as clinical treatment

*What is new?*
- School nurses, assisted by a community psychologist, can identify youth with similar levels of anxiety problems as a clinical sample of youth with anxiety diagnoses
- School-based targeted prevention may increase access to evidence-based intervention for youth with anxiety problems

*What is significant for clinical practice?*
- The FRIENDS for life program showed similar and medium effect outcomes on anxiety, depression, and conduct problems both when delivered as targeted prevention in schools and as treatment in mental health clinics.

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## Introduction

Anxiety problems are prevalent among youth and may negatively affect quality of life, school attendance, as well as academic and social functioning (Cummings, Caporino, & Kendall, 2014). Youth with anxiety disorders show increased risk of later mood disorders, conduct problems, substance abuse, suicide ideation, and attempts, and of unemployment and higher use of medical services (Kendall et al., 2010; Rapee et al., 2005; Sareen, Houlahan, Cox, & Asmundson, 2005). For these reasons, it is important to prevent that youth with elevated anxiety symptoms move on to fully develop anxiety disorders and to provide effective treatment for youth who have developed anxiety disorders. Prevention can be universal (i.e., addressing total populations) or targeted

(i.e., addressing at-risk populations or persons with mild-to-moderate symptom levels; Gullotta, 2015). Meta-analyses have found group-based cognitive behavioral treatment (CBT) programs to be effective for both targeted prevention and treatment of anxiety in youth (James et al., 2013; Lawrence, Rooke, & Creswell, 2017; Neil & Christensen, 2009; Werner-Seidler, Perry, Calear, Newby, & Christensen, 2017). However, many youths with anxiety problems are not identified for targeted prevention or remain symptomatic following CBT (James et al., 2013). The field lacks knowledge about how to identify youth with anxiety symptoms to offer targeted prevention and to prevent youth from developing clinical anxiety diagnoses.

Several CBT programs for targeted prevention and treatment for anxiety in youth exist (James et al., 2013; Neil & Christensen, 2009). In the current study, we used the FRIENDS program, due to its' evidence as an effective anxiety reduction group-based program (Barrett, 2004, 2008). FRIENDS is usually delivered over a 10-week period with weekly sessions, where youth (aged 7–15 years) may learn strategies to manage and reduce their anxiety. Structured activities including role-play, group discussions, and homework are applied to assist youth to challenge their unhelpful cognitions and to perform exposure exercises. In a meta-analysis of anxiety prevention programs, Fisak, Richard, and Mann (2011) found FRIENDS to be more effective for anxiety reduction than other CBT programs. The initial evidence base for FRIENDS included several trials from Paula Barrett's group, documenting anxiety reduction following the program used as universal and targeted prevention, as well as clinical treatment (e.g., Barrett, Dadds, & Rapee, 1996; Barrett, Duffy, Dadds, & Rapee, 2001; Barrett, Shortt, Fox, & Wescombe, 2001; Lock & Barrett, 2003; Lowry-Webster, Barrett, & Lock, 2003). Briesch, Hagermoser Sanetti, and Briesch (2010) evaluated the evidence for FRIENDS across universal prevention studies ($n = 8$), targeted prevention ($n = 3$), and treatment studies ($n = 3$). Effect sizes (Cohen's $d$) ranged from 0.16 to 1.00 and were higher for clinical studies with anxiety disorders (ES = 0.84) than for targeted prevention studies (ES = 0.44) and universal prevention studies (ES = 0.24).

To the best of our knowledge, previous studies of the FRIENDS program are either designed as universal or targeted prevention, or as treatment studies, and no study to date has directly compared the two delivery forms. This is unfortunate, as there is uncertainty as to whether FRIENDS is more effective as a treatment program than as a targeted prevention program (Barrett, Cooper, Stallard, Zeggio, & Gallegos-Guajardo, 2017; Maggin & Johnson, 2014). Furthermore, anxiety studies using CBT protocols outside university settings and outside the country in which the protocol was developed have been criticized for failure to benchmark the CBT protocol across settings within the country the protocol is being implemented (Jonsson, Thastum, Arendt, & Juul-Sorensen, 2015). To address this gap, we compared FRIENDS delivered as a group-based targeted prevention program in schools and FRIENDS delivered to a clinical sample, that is, groups of youth diagnosed with anxiety disorders in community clinics, in the same geographical region of Norway. Our purpose was to benchmark both the baseline symptom levels of participants

as well as the outcomes (i.e., pre-post changes) between the two settings. Furthermore, such comparisons can help shed a light on several feasibility features when implementing FRIENDS; such as how to identify youth who need intervention and how setting and health care profession factors may influence outcomes.

We have three main aims. Our first aim is to compare baseline symptom levels (i.e., anxiety, depression, and conduct problems) between the targeted prevention school sample and the clinical sample. We added conduct problems as there is high comorbidity between internalizing and externalizing symptoms in children (e.g., Kendall et al., 2010). Furthermore, the symptom profiles, in terms of externalizing and internalizing symptoms, may be different in schools and clinical settings, that is, in terms of which children are identified as needing intervention. Examining whether there are significant differences in symptom severity between the samples will provide important information when benchmarking FRIENDS in Norway, and shed light on the extent to which health professionals in schools versus specialist clinics deliver CBT to youth with substantially different symptom levels. We expect the school sample recruited for targeted prevention to have lower symptom levels than the clinical sample, as the intake criteria for mental health clinics is moderate to severe symptoms (Norwegian Health Directorate, 2019).

Our second aim is to examine symptom changes from baseline to post-treatment, and 3-month and 12-month follow-up within the targeted prevention school sample, to provide initial evidence for FRIENDS as targeted prevention in Norway. We expect significant symptom reduction from baseline to follow-up, based on previous prevention trials (e.g., Barrett & Turner, 2001; Lowry-Webster, Barrett, & Lock, 2003). The main outcomes in the clinical sample were significant reductions in anxiety and depression both based on youth- and parent-report from baseline to post-treatment and have been described in detail elsewhere (Wergeland et al., 2014).

Our final aim is to benchmark the outcomes of the targeted prevention school sample against outcomes from the clinical sample. In addition to the different recruitment procedures, important differences between the settings are assumed to influence the outcomes of the program. For example, group leaders often differ between schools and clinics—with primarily health workers and school personnel without extensive CBT or mental health training in schools, and clinical psychologists with extensive therapy training in specialist mental health clinics. Furthermore, parent involvement is often more extensive in clinical settings. Whereas parents may be involved in separate parent meetings both in schools and in clinics, parents are most often also involved in joint parent–youth sessions in clinical settings. The effects of FRIENDS delivered to anxious youths in different setting within the same geographical area can bring important knowledge about changes in youth anxiety after targeted prevention compared to changes in youth anxiety due to specialized mental health treatment. Thus, we address the need for further examining the effects of targeted prevention in school settings, and the potential of reaching youth with anxiety problems at an earlier (i.e., pre-clinical) stage. Based on previous findings of larger effects of CBT anxiety programs when applied in clinical samples compared to school samples

(Briesch et al., 2010), we expect smaller effects of CBT in the school sample compared to the clinical sample.

## Methods

We compared the FRIENDS program delivered in two different studies. Following a clinical randomized controlled trial for youth with anxiety disorders (Wergeland et al., 2014), herein referred to as the specialist clinical sample, we conducted a targeted prevention open evaluation, herein called the targeted prevention sample.

### Sample and procedures

*Targeted prevention sample.* The targeted prevention school sample comprised 82 youth aged 8 to 16 years (*M* age = 11.6 years, *SD* = 2.1; 75.0% girls) who received the 10 session FRIENDS program during school hours. Each 90-min group-session was administered on a weekly basis. If impairment due to anxiety symptoms was identified during regular routine meetings with the school nurses and/or an intake meeting with a local community psychologist, caregivers were contacted and informed about FRIENDS and the ongoing study. Youths considered for inclusion were invited to a meeting with their caregivers, the school nurse, and the community psychologist. Information about the study was given, and a joint decision was made as to whether the intervention was appropriate for the individual youth, before informed consent was signed.

Youth were allocated into groups of maximum eight participants, with all groups led by two group leaders. Group leaders were one community psychologist, one family therapist, and six school nurses. Group leaders had on average 11 years of experience working with youth. All received two days of training in FRIENDS and had delivered the intervention to 2–7 groups using the same manual prior to participating in this study. All received between 6 and 10 hr of supervision over the course of each 10-session group, delivered by a psychologist experienced with FRIENDS. The groups were conducted in eight different public schools (four primary (<13 years) and four secondary (>13 years), and one group was conducted at a youth health center. All groups were planned and organized to avoid exam periods. Transport to the group sessions for participants was provided if needed. Breakfast was served at morning sessions. All schools were in the same medium-sized municipality close to Norway's second largest city. The sociodemographic data for the area are representative of Norway (Statistics Norway, 2019). There were no dropouts from the program.

*Specialist clinic sample.* The specialist clinic sample is the group CBT (GCBT) arm of a randomized controlled trial for youth anxiety disorders (Wergeland et al., 2014). The sample comprised 88 youth aged 8–16 years (*M*age = 11.7 years, *SD* = 2.1; 54.5% girls) who received FRIENDS delivered in community child and adolescent mental health clinics. The clinical sample was recruited among regular referrals to seven public mental health clinics. Inclusion criteria were a primary diagnosis of separation anxiety disorder (33.0%), social phobia (46.5%), or generalized anxiety disorder (20.5%), with a mean clinical severity rating of the primary anxiety disorder on a 0–8 scale of 6.9 (*SD* = 1.2) on the Anxiety Disorders Interview Schedule—Child and Parent versions (ADIS-C/P; Silverman & Albano, 1996). Youth were allocated into groups of maximum six participants, with all groups led by two group leaders. Group leaders were nine clinical psychologist, five clinical pedagogues (special educators with additional clinical training), and one social worker. Group leaders had on average 12 years of experience working with youth. All therapists attended a two-day workshop on CBT and childhood anxiety disorders, a two-day FRIENDS workshop, and treated two pilot cases approved by FRIENDS trainers before study start. For further details of the clinic sample, see Wergeland et al. (2014).

The procedures for both samples were approved by the Regional Board for Medical and Health Research Ethics. All parents and children above 12 years provided informed written consent.

Children aged 11 years or younger provided informed verbal assent.

### The FRIENDS manual

The FRIENDS for life manual (Barrett, 2004, 2008) was used as the intervention (4th edition, a translated version approved by the developer). The manual addresses cognitive, physiological, and behavioral components that interact in the development and maintenance of anxiety. The FRIENDS acronym describes the main features of the program: emotional awareness (Feelings), emotion regulation (Relax), cognitive restructuring (Inner helpful thoughts), exposure and problem solving (Explore solutions and coping step plans), rewards (Now you can reward yourself), and practice (Don't forget to practice), with a positive focus (Smile and stay calm). There are two separate versions of the program according to developmental level (child version: 7–12 years and adolescent version: 12–15 years). In both settings, parents were invited to two parent evenings in which psychoeducation about child anxiety and parental management strategies were presented.

### Measures

To evaluate the outcomes in the two settings, we included the same measures of anxiety symptoms, depressive symptoms, and conduct problem symptoms in both settings. Measures of depressive symptoms were included because (a) there is often high comorbidity between anxiety and depression; (b) interventions for anxiety potentially also are helpful in reducing depressive symptoms; and (c) anxiety often precedes comorbid depressive disorders (Bienvenu & Ginsburg, 2007; Flannery-Schroeder, 2006). Conduct problems were included to examine whether anxiety interventions also reduce symptoms beyond internalizing problems and whether this differed between the school and clinic setting.

*The Spence Children's Anxiety Scale* (SCAS; Spence, 1998) child and parent version was used to measure youth anxiety symptoms. The SCAS parent version comprises 38 items and the SCAS child version comprises 45 items (including 8 'filler' items with positive descriptions, e.g, 'I like myself'). All items are rated on a 4-point Likert scale from 0 (*never*) to 3 (*always*) with higher scores indicating more anxiety. SCAS has demonstrated test–retest reliability, concurrent validity, and excellent internal consistency (Spence, 1998; Spence, Barrett, & Turner, 2003). In the current study, inter-item reliabilities for the school and clinical samples, respectively, were $\alpha = .95$ and $\alpha = .88$ for youth-report, and $\alpha = .91$ and $\alpha = .86$ for parent-report.

*The Short Moods and Feelings Questionnaire* (SMFQ; Angold et al., 1995) child and parent version was used to measure youth depressive symptoms. SMFQ comprises 13 items rated on a 3-point Likert scale from 0 (*not true*) to 2 (*true*) with higher scores indicating more depressive symptoms. SMFQ has demonstrated test–retest reliability, concurrent validity, and excellent internal consistency (Angold et al., 1995; Kuo et al., 2005; Sharp, Goodyer, & Croudace, 2006). In the current study, inter-item reliabilities for the school and clinical samples, respectively, were $\alpha = .94$ and $\alpha = .89$ for youth-report, and $\alpha = .86$ and $\alpha = .88$ for parent-report.

*The Strengths and Difficulties Questionnaire* (SDQ; Goodman, 2001) child and parent version conduct problems subscale was used to measure youth conduct problems. The SDQ conduct subscale comprises five items rated from 0 (*not true*) to 2 (*certainly true*) with higher scores indicative of more significant problems. The SDQ has demonstrated adequate test–retest reliability, concurrent validity, and internal consistency (Goodman, 2001; Goodman & Scott, 1999). In the current study, inter-item reliabilities for the SDQ in the school and clinic samples, respectively, were $\alpha = .83$ and $\alpha = .75$ for youth-report, and $\alpha = .91$ and $\alpha = .82$ for parent-report.

### Data analytic plan

In the school sample, 40.2% of youth and 74.4% of parents were lost between post-treatment and 3-month follow-up. At 12-month follow-up, these numbers had increased to 59.8% of

youth and 80.5% of parents. In the clinic sample, 10.2% dropped out during treatment and did not complete post-treatment assessments, and a further 6.3% were lost to 12-month follow-up. In both samples, Little's missing completely at random test indicated data were missing completely at random. To retain as much data as possible, missing data were accommodated using full information maximum likelihood (FIML) missing data methodology in Mplus (Wothke, 2000).

Since participants were treated in groups, analyses were specified to account for the existence of possible clustering effects in outcome variables in Mplus due to the clustering of patients within groups (Muthén & Muthén, 2011). Latent growth curve modeling (LGM), a structural equation modeling technique, was used separately on the outcome measures to model treatment response in symptoms over time, at the group and individual level, with random intercepts and slope values. In a latent growth curve model, the results indicate the effect of the independent variable on the slope or rate of symptom change during the treatment and follow-up periods. At post-treatment, with two measurement points, this is considered a difference score model (Duncan, Duncan, & Strycker, 2006). There was no 3-month follow-up assessment in the clinical sample. We calculated effect sizes using Cohen's $d$ ($[M^1 - M^2 / SD^{pooled}]$) using the following criteria: 0.20 = small, 0.50 = medium, and 0.80 = large (Cohen, 1992).

## Results

### Preliminary analyses
Due to the high level of missing data in the school sample at follow-up, we first examined whether there were significant differences at baseline within the school sample between participants with complete pre-post data from both youth and parents, and participants with missing post-treatment data. We did this separately for each measure, and no significant differences in baseline symptoms were found (all $p > .387$).

Second, we examined differences between the school sample and the clinic sample in baseline background and symptom variables. There were significantly more girls in the school sample ($\chi^2 = 8.247$, $p < .05$). Within the school sample, there were no significant gender differences on any of the symptom variables. The same applied within the clinic sample, except for youth-reported depression, which was higher for girls ($t = 3.107$, $p < .05$). There were no age differences between the samples. Only three of the participants in the school sample (3.7%) reported to have received previous mental health treatment.

### Differences in baseline scores between the school sample and the clinical sample
See Table 1 for baseline scores and effect size differences between the school sample and the clinical sample. For youth-report, there were no significant differences between the school sample and the clinic sample on any symptom scale. For parent-report, there was a significant difference for anxiety symptoms, with the clinic sample scoring higher. There was no significant difference between the school and the clinic sample for depressive symptoms or conduct problems.

### Symptom change from pre-intervention to 12-month follow-up in the school sample
See Table 2 for overview of symptom changes from pre-treatment to 12-month follow-up. For anxiety symptoms, there was a significant reduction from pre- to post-treatment for youth- and parent-report. There was

no significant reduction from post-treatment to 3-month follow-up. However, there was a significant reduction in parent-report symptoms, but not youth-report ($p = .07$), from 3- to 12-month follow-up. The reduction from baseline to 12-month follow-up represents a small effect for youth-report and a medium effect for parent-report (see Figure 1).

For depressive symptoms, there was a significant reduction from pre- to post-treatment for youth- and parent-report. There was no significant reduction from post-treatment to 3-month follow-up, or from 3 to 12-month follow-up. The reduction from baseline to 12-month follow-up represents a small effect for youth-report and a medium effect for parent-report (see Figure 2).

For conduct problems (SDQ), there was no significant changes for youth-report, or for parent-report from post-treatment to 3-month follow-up. For parent-report, there was a significant reduction from pre- to post-treatment, and from 3-month to 12-month follow-up. The reduction from baseline to 12-month follow-up represents a small effect for youth-report and a large effect for parent-report (see Figure 3).

### Differences in effect
Effect sizes were calculated from pre-post and from pre-12-month follow-up for all measures and informants in both samples. Effect size differences ranged from small to large within both samples, across measures, raters, and timepoints (see Figures 1–3). Across informants and samples, the highest effects were evident for anxiety symptoms ($M$ $d = 0.70$), followed by depressive symptoms ($M$ $d = 0.53$) and conduct problems ($M$ $d = 0.45$). Effect sizes were on average higher from pre-12-months follow-up ($M$ $d = 0.56$) than from pre-post ($M$ $d = 0.44$), and higher for parent-report ($M d = 0.77$) than for youth-report ($M d = 0.35$). Finally, the average effect sizes were practically the same in the school sample ($M d = 0.57$) and in the clinic sample ($M d = 0.55$) and both were medium.

## Discussion

We compared the FRIENDS program delivered in schools as targeted prevention and in community clinics as treatment for youths with anxiety diagnoses. We found only partial support for our expectation that baseline symptoms would be higher in the clinical sample than the school sample. Only parent-reported anxiety symptoms (for youth) were significantly higher in the clinical sample. We found no difference between youths' self-reported symptoms on any symptom scale. This may reflect the fact that parents most often initiate referral in clinical samples, whereas youths in the school sample were targeted and recruited by school nurses. With a few exceptions, parents had not initiated clinical referral for youths in the school sample, which may help explain why they reported their child's level of anxiety less severe than parents in the clinical sample. However, the fact that youth reported comparable levels of symptoms in the two settings indicates that a substantial proportion of youths in the targeted prevention sample may experience clinical levels of anxiety. This was surprising, given that only three participants reported to have received previous mental health services. It is possible that the

**Table 1.** Symptom scores for 82 youth receiving CBT anxiety targeted prevention in schools compared to 88 youth receiving CBT anxiety treatment in community clinics

| Measure and time | Youth self-report | | | Parent report | | |
|---|---|---|---|---|---|---|
| | School | Clinical | d | School | Clinical | d |
| **SCAS** | | | | | | |
| Baseline | 32.1 (19.8) | 36.6 (17.2) | −0.23 | 22.9 (12.6) | 34.9 (11.0)** | −1.01 |
| Post | 25.8 (15.6) | 27.7 (14.2) | −0.13 | 19.5 (11.3) | 26.7 (11.7)** | −0.63 |
| 3-months f-up[a] | 28.1 (15.9) | – | – | 20.0 (7.8) | – | – |
| 12-months f-up[b] | 26.4 (14.5) | 24.0 (19.0) | 0.14 | 15.3 (6.1) | 22.6 (14.0) | −0.68 |
| **SMFQ** | | | | | | |
| Baseline | 8.7 (7.3) | 7.5 (5.6) | 0.18 | 6.7 (4.9) | 7.5 (5.3) | −0.16 |
| Post | 7.2 (6.4) | 5.8 (5.4) | 0.24 | 4.8 (4.2) | 5.1 (5.1) | 0.06 |
| 3-months f-up[a] | 6.7 (7.0) | – | – | 5.3 (4.1) | – | – |
| 12-months f-up[b] | 7.2 (6.9) | 5.2 (5.8) | 0.31 | 3.4 (3.3) | 4.1 (4.1) | 0.19 |
| **SDQ conduct** | | | | | | |
| Baseline | 6.3 (3.3) | 6.2 (2.7) | 0.03 | 6.0 (3.1) | 5.5 (2.9) | 0.17 |
| Post | 6.4 (3.4) | 5.6 (3.6) | 0.23 | 4.9 (3.0) | 4.9 (3.4) | 0.00 |
| 3-months f-up[a] | 6.0 (3.5) | – | – | 4.1 (2.7) | – | – |
| 12-months f-up[b] | 5.5 (2.7) | 5.5 (3.8) | 0.00 | 3.1 (2.4) | 4.6 (3.4)* | −0.51 |

*d*, effect size; f-up, follow-up; SCAS, Spence Children's Anxiety Scale; SDQ, Strengths and Difficulties Questionnaire; SMFQ, Short Moods and Feelings Questionnaire.
[a]No data from clinical sample.
[b]12-month follow-up data only available for *n* = 46 in school sample.
*Difference between school and clinical parent sample is significant at the *p* < .05 level.
**Difference between school and clinical parent sample is significant at the *p* < .001 level.

**Table 2.** Symptom change from pre- to post-treatment, 3- and 12-month follow-up for 82 youth receiving school-based targeted prevention for anxiety

| | Post-treatment | | | 3-month follow-up | | | 12-month follow-up | | |
|---|---|---|---|---|---|---|---|---|---|
| | Change[a] | 95% CI | p | Change[b] | 95% CI | p | Change[c] | 95% CI | p |
| **SCAS** | | | | | | | | | |
| Youth | −5.8 | [−8.5, −3.0] | <.001 | 1 | [−0.5, 2.6] | .190 | 1.6 | [−0.1, 3.3] | .070 |
| Parent | −2.7 | [−4.6, −0.8] | <.010 | −0.3 | [−3.2, 2.6] | .849 | −4.3 | [−6.5, −2.2] | <.001 |
| **SMFQ** | | | | | | | | | |
| Youth | −1.5 | [−2.5, −0.5] | .006 | −0.3 | [−2.1, 1.4] | .721 | 1.15 | [−0.5, 2.8] | .170 |
| Parent | −1.9 | [−2.9, −0.9] | <.001 | 0.4 | [−2.3, 3.1] | .781 | −1.6 | [−4.1, 1.0] | .228 |
| **SDQ-Con** | | | | | | | | | |
| Youth | 0.1 | [−0.5, 0.6] | .789 | −0.3 | [−1.3, 0.8] | .615 | 0.6 | [−0.7, 1.8] | .353 |
| Parent | −1.1 | [−1.8, −0.5] | <.001 | −0.4 | [−1.4, 0.5] | .347 | −1.2 | [−1.9, −0.5] | <.001 |

CI, confidence interval; SCAS, Spence Children's Anxiety Scale; SDQ-Con, Strengths and Difficulties Questionnaire Conduct problems subscale; SMFQ, Short Moods and Feelings Questionnaire.
[a]Compared to baseline.
[b]Compared to at post-treatment.
[c]Compared to at 3-month follow-up.

school-based intervention reached youths who experience anxiety symptoms, with parents less aware of the youths' symptom levels. Alternatively, parents may (mis) interpret youths' anxiety symptoms as conduct problems, as indicated by the observed reduction in conduct problems in the school sample. A review study identified that the time span from onset of anxiety disorders to the initiation of treatment ranges from 9 to 23 years (Jones, 2013). A more recent review study identified that limited access to mental health services for youth is a consistent problem and that mental health services should be reorganized to focus on earlier identification of problems and prevention (Fusar-Poli, 2019). In light of such calls, our findings point to schools as a potentially useful arena for such preventive interventions.

Alternatively, in the school sample, the anxiety problems may have affected the youth's functioning at home less than in school, making the parents less aware of the youth's anxiety symptoms. This indicates that interventions in clinical and in school settings may reach different groups of youth—but that these youths not necessarily differ with regard to level of distress caused by the anxiety symptoms. This could be examined in future studies by including assessment of functional impairment due to anxiety symptoms in school samples versus clinic samples of anxious youths.

Our expectation that symptoms of anxiety, depression, and conduct problems would be reduced after participating in FRIENDS in the school setting was largely supported, although improvements were not significant for all raters at all time points. Overall, however, the findings provide further support for FRIENDS as a promising intervention for targeted anxiety prevention in schools, which has also been shown previously (e.g., Barrett &
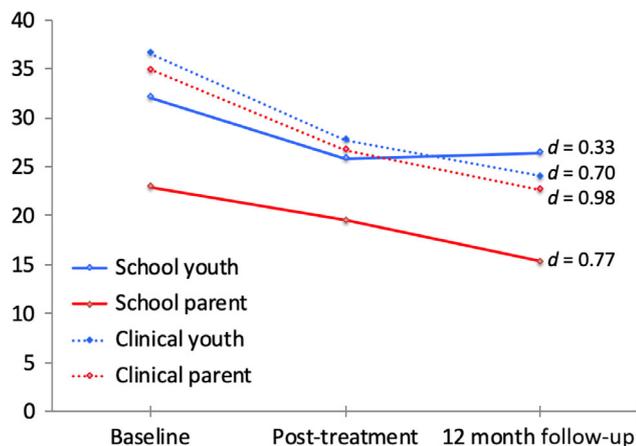
**Figure 1.** Changes in youth- and parent-reported anxiety symptoms (SCAS) from baseline to 12-month follow-up for the targeted prevention school sample and the clinical sample [Colour figure can be viewed at wileyonlinelibrary.com
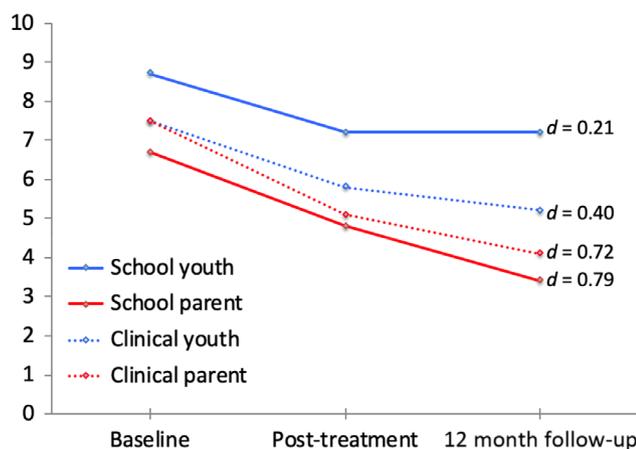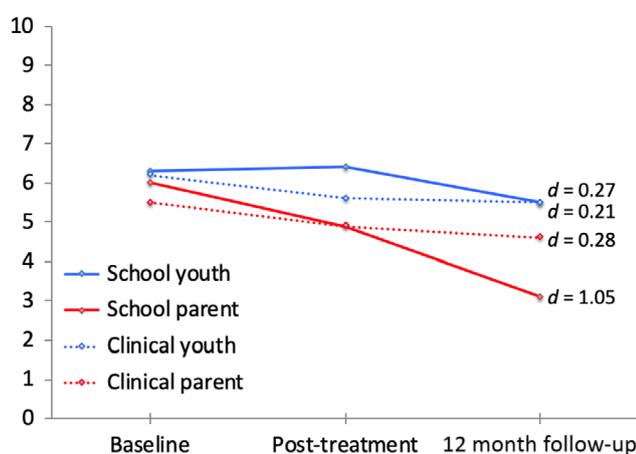


**Figure 2.** Changes in youth- and parent-reported depression symptoms (SMFQ) from baseline to 12-month follow-up for the targeted prevention school sample and the clinical sample [Colour figure can be viewed at wileyonlinelibrary.com



**Figure 3.** Changes in youth- and parent-reported conduct problems (SDQ) from baseline to 12-month follow-up for the targeted prevention school sample and the clinical sample [Colour figure can be viewed at wileyonlinelibrary.com

Turner, 2001; Lock & Barrett, 2003; Lowry-Webster et al., 2001, 2003; Stallard et al., 2014).

There was practically no difference in outcome effects between the two samples. Compared to the therapists at the mental health clinics, health nurses have limited training in mental health interventions in general and in delivering CBT programs in particular. Our results indicate that targeted prevention with FRIENDS, given supervision for group leaders, may be delivered by health personnel not having specialized therapeutic or previous CBT training.

The current study has several limitations. First, the inclusion criteria in the school sample were not standardized, but based on the judgment of school nurses in cooperation with a clinically trained community psychologist. Recruitment and inclusion were based on a shared decision between the youth, parents, and school nurses in collaboration with the community psychologist. Although this inclusion strategy may challenge generalizability of our results and prevents us from calculating a response rate, this pragmatic procedure reflects common practice in school health services and thus points to the ecological validity of our findings. Second, many participants were lost from postintervention to 12-month follow-up in the school sample. Although these data were missing completely at random and there were no baseline symptom differences between participants with and without follow-up data, the follow-up data should be considered with caution. Third, we examined several effects (i.e., two raters of three measures at two time points), which increases the chance of misinterpreting effects as nonrandom. However, the effect for youth-rated depression symptoms at post-treatment is the only reported effect that would not have passed a Bonferonni-corrected $p$-level (i.e., $.05/12 = .004$). Fourth, the two samples had different gender ratios. Although there were no gender differences in baseline symptoms within the school sample, the high ratio of girls in the school sample may have influenced the self-reported symptom levels toward higher scores for the school sample, and partly explain the similarity in symptom levels between the two samples. Finally, we had no control group for the school sample and cannot rule out the possibility of symptom changes caused by other factors than the intervention (e.g., maturation).

In terms of implications for future research, the outcomes from the school sample need to be examined in a randomized controlled design. Deciding on control groups in randomized trials is a thorny issue. Given the considerable documentation to date that CBT is better than waitlist, active control conditions may be most useful to the field. Comparing the FRIENDS manual to other programs and/or examining various forms of delivery (e.g., individual vs. group) could inform the optimal ways to deliver CBT as prevention in schools. Furthermore, studies are needed that more systematically register how nurses assess youth anxiety problems, and the extent to which nurses identify those youths who most need interventions. Designs that examine various parent involvement components in school settings are also indicated.

The main clinical implication from the current study is that the FRIENDS program shows promising outcomes when delivered as a group program by school nurses for youth with anxiety. Furthermore, school nurses seem able to identify youth who from their own perspective show levels of anxiety symptoms comparable to a clinic sample of youth diagnosed with anxiety disorders. In our study, the school nurses obtained almost just as good results when delivering the FRIENDS

program as therapists working in community child and adolescent mental health clinics. It is important to note that the school nurses received supervision during intervention delivery. A common criticism of prevention programs is that they are associated with small effect sizes compared to control groups (Teubert & Pinquart, 2011). However, it is important to keep in mind that in prevention (as compared to treatment), even small effect sizes are likely to be associated with meaningful improvements, particularly at a population level. Therefore, even a small effect size difference is likely to contribute to prevent the onset of these disorders in youth. In this study, both the school setting and the clinical setting showed medium average effect size within each sample across measures, raters, and timepoints, although parents in the clinical setting had more extensive parental-involvement. In conclusion, given appropriate training and adequate supervision, school nurses should continue to identify youth at risk for anxiety and offer group-based CBT interventions.

## Acknowledgements

## Ethical information

The procedures for both samples were approved by the Regional Board for Medical and Health Research Ethics. All parents and children above 12 years provided informed written consent. Children aged 11 years or younger provided informed verbal assent.

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