Anxiety and depression are common mental health problems in children. Since these problems do not only affect children’s current wellbeing, but may also negatively affect their further life, prevention of anxiety and depression during childhood is important. Unfortunately, many children receive either no help or it is not offered in time. Prevention in the school setting could be a valuable strategy to reach children in need of such help. Accessibility to an intervention when organized in schools is greater than in a regular mental health setting (e.g., large groups of children can be easily reached, parents do not have to take their children elsewhere). This dissertation reports on a number of studies addressing the effectiveness and implementation of a school-based preventive intervention for anxiety and depression in children, FRIENDS for Life.

FRIENDS FOR LIFE

FRIENDS for Life is a school-based preventive intervention targeting childhood anxiety and depression based on cognitive behavior therapy (CBT). The program includes 10 weekly sessions, as well as booster and parent sessions. In Amsterdam, the program has been implemented since 2007 as an indicated prevention program for children who already show symptoms of anxiety or depression, but do not have a clinical disorder. The program is implemented in grades 6, 7 and 8 at Amsterdam elementary schools by mental health prevention workers during the regular school day. In contrast to the original protocol, fewer booster and parent sessions were implemented in the current setting.

STUDY DESIGN

Although the effects of FRIENDS for Life have been evaluated previously, no studies have been conducted into the effects of the program when implemented for several years in daily school practice, nor have studies investigated FRIENDS for Life as a preventive intervention in the Netherlands. Therefore, we conducted a quasi-experimental trial with one pre-intervention (screening) and three post-intervention measurements (directly after execution of the program, and 6 and 12 months after the end of the program). Data on anxiety and depression symptoms in the intervention and control schools were collected through self-report, teacher report, and peer nomination. As anxiety and depression have a strong experiential component, we considered children’s self-report as our most important outcome measure. Intervention and control schools were included during the school years 2010-2011 and 2011-2012. We not only investigated the effectiveness of FRIENDS for Life, but also the quality of its implementation in practice. When a prevention program is executed in a naturalistic setting, deviations from protocol occur regularly, which may influence the program’s effectiveness. Hence, we conducted a process evaluation to investigate
program integrity (implementation quality) and participants’ appraisal. We examined four aspects of program integrity: adherence to protocol; quality of delivery; participant responsiveness; and exposure to the program, and investigated whether program integrity was related to the program's effectiveness. At post-intervention, children were asked to rate the usefulness and enjoyableness of the program, and whether they would recommend the program to other children. In addition, we evaluated children’s and parents’ opinions about FRIENDS for Life using online focus groups (OFGs) and structured interviews. Before reporting on program effectiveness and implementation, we will review results from two additional studies that addressed the assessment and prevalence of childhood anxiety and depression symptoms.

SCREENING FOR ANXIETY AND DEPRESSION SYMPTOMS IN CHILDREN

When screening for children with anxiety and depression symptoms, a reliable and valid instrument is necessary. The Revised Child Anxiety and Depression Scale (RCADS) is a self-report questionnaire that measures anxiety as well as depression symptoms in children. We investigated the measurement properties of the RCADS in the baseline sample of the trial (N=3636). The original 6-factor structure was replicated in the present multi-ethnic sample. Internal consistency and short-term stability were good. The RCADS showed itself to be a reliable and valid instrument for measuring symptoms of anxiety and depression in school-aged children. We showed that the RCADS can yield reliable data on a diversity of anxiety disorders and depression in urban children aged 8-13 from diverse ethnic backgrounds. Analyses in the sample of children that participated in FRIENDS for Life showed that the RCADS is able to detect change in anxiety and depression symptoms up to 12 months after participation in the program, which indicates sensitivity to change. The fact that we found low agreement between teacher and self-reported internalizing problems, even for children scoring above the 90th percentile of the RCADS, indicating a high level of problems, emphasizes the need to also take child reports into account when screening for anxiety and depression in children.

ETHNIC DIFFERENCES IN CHILDHOOD ANXIETY AND DEPRESSION

As in many European cities, children from ethnic minorities form a substantial part of the population in Amsterdam. An ethnic minority background is associated with a higher risk for anxiety and depression. We investigated symptoms of five DSM-IV-classified anxiety disorders and depression in school-aged children using the RCADS. We took socioeconomic status (SES) and peer rejection into account, as these are thought to be explanatory factors for ethnic differences in child mental health. We found that non-Western ethnic children reported significantly more symptoms of
anxiety than Dutch children. Ethnic differences were only partly explained by SES and peer rejection. Although ethnic differences were small, these may increase in later life as the prevalence of anxiety disorders increases with age. We hardly found significant differences between ethnic groups for symptoms of depression, which may be due to the relatively young age of the sample, as the incidence of depression increases steeply during puberty.

**Effectiveness of Friends for Life**

We included 339 children who participated in FRIENDS for Life and 157 children who received no intervention, aged 8-13 in the evaluation study. In addition, we collected data in a general population comprising 890 children. We found that FRIENDS for Life had a significant beneficial effect on self-reported symptoms of anxiety and depression immediately post-intervention. Over time, intervention group children reported a continuing and significant decrease in anxiety and depression scores compared to the control group. Twelve months after the intervention, participants’ anxiety and depression levels were comparable to those in the general population. These findings were not confirmed by teacher- and classmates reports. Teacher reports demonstrated no significant intervention effects. As the psychometric properties of the RCADS are good, the divergence between child- and teacher reports could not be attributed to non-reliability of the RCADS. Classmate reports demonstrated an increase of internalizing problems in intervention group children immediately post-intervention, but these effects disappeared over time. This may be caused by the fact that classmates saw participants leaving class 10 times during a 10 week period to join the FRIENDS for Life sessions, which may have led to more focus on internalizing problems in participants between the pre- and post-intervention measurement. The decrease in symptoms after the post-intervention measurement could be explained by fading attention to participants' behavior after the program was completed.

**Implementation of Friends for Life in Daily School Practice**

The process evaluation addressing the implementation of FRIENDS for Life showed that children responded very favorably to the program and that they attended on average 9 out of 10 sessions. Children appraised the program positively: they found the program useful, enjoyable, and indicated they would recommend it to other children. It should be noted that the prevention workers did not adhere completely to the program protocol. Interestingly, children appraised the program more positively when the prevention workers adhered less to the protocol. Most likely, the prevention workers adapted the program to the groups' needs. We found few associations between program integrity measures and program outcomes.
The program was also evaluated using qualitative methods. Forty-four participants of FRIENDS for Life participated in OFGs, and 38 parents were interviewed on opinions about the program, perceived program effectiveness and group atmosphere, and suggestions for program improvement. Most children and parents evaluated the program positively, and the majority thought it had been useful in changing the child's behavior. Children's negative opinions about the program mainly concerned missing other school activities because of their participation in the program or finding the program boring because in their opinion topics were repeated too often. Prevention workers indicated that the attendance at parent sessions was low. During the interviews, parents indicated that they had other obligations or were too busy to attend the parent session, or that they had not been informed about the date of the sessions. The parents who did attend the sessions evaluated these positively.

IMPLICATIONS FOR PRACTICE AND RESEARCH

FRIENDS for Life targets childhood anxiety and depression effectively. Although prevention workers tend to adapt the program when implementing it in daily practice, this does not appear to have negative effects on program outcomes. Presumably, the experienced prevention workers were capable of delivering the program's message without adhering completely to the protocol. These results indicate that FRIENDS for Life can be successfully transferred into practice. Future research should look into the effectiveness of the various CBT components, as well as into the ideal balance between adherence and adaptation.

Regarding the assessment of childhood anxiety and depression, the study results show it is essential to include children's own reports. Further, additional research into ethnic differences in childhood anxiety is necessary.

CONCLUSION

FRIENDS for Life as an indicated prevention program yields long-lasting and continuing reduction of anxiety and depression problems in children at elevated risk for these problems, when implemented in daily school practice. Our findings warrant a wider dissemination of FRIENDS for Life as an indicated school-based program throughout the Netherlands.