Prevention of Childhood Anxiety and Depression: Efficacy of an Additional Parent Training Program

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**Keywords**
Prevention · Anxiety disorders · Depressive disorder · Child · Parents

**Summary**

Background: Anxiety and depression are among the most common disorders in children and adolescents, and are associated with substantial psychosocial impairment. Cognitive behavioral prevention programs have been proven to be effective, but the benefit to children varies considerably. Parental behavior seems to be a promising moderator of a program’s success. Parent training programs are aimed at modifying such parental behaviors. The aim of our study is to explore the efficacy of an additional parent training program in the prevention of anxiety and depression in 8- to 12-year-old children. **Patients and Methods:** Applying a modified version of the FRIENDS program, adapted for the indicated prevention, 70 children were randomized to the groups ‘prevention’ or ‘prevention + parent training’. Using a MANOVA, dependent variables encompassing the Child Behavior Checklist, the Spence Children’s Anxiety Scale, and the Depression Inventory for Children and Adolescents were analyzed. **Results:** An additional parent training program yielded no incremental effects to the children’s preventive program at post-treatment. Children whose parents displayed higher rates of psychopathology responded better to the program – whether or not parents took part in the training program. In addition, the parents of all children reported greater competence in handling their child. **Discussion:** Positive parental evaluation of the training program and high attendance rates did not seem to correspond with short-term symptom reduction in the children. Possibly children’s participation in the prevention program may cause the parents to perceive greater competence. Long-term outcomes have to be investigated.

**Zusammenfassung**

Introduction

Anxiety and depressive disorders are among the most common disorders in children and adolescents [Ihle et al., 2006; Ravens-Sieberer et al., 2007]. Already by 8 years of age, some 10% of children suffer from an anxiety disorder [Federer et al., 2000]; some 10% of 16-year-olds have already had a depressive episode [Costello et al., 2003]. Both disorders substantially affect development and thus have a negative impact on children’s psychosocial level of functioning. Long-lasting limitations, especially in academic performance and social relationships, are the consequence [Lewinsohn et al., 2003; Raeb et al., 2009]. Moreover, there is an increased risk of comorbid emotional disorders or addictive disorders in adolescents and adults [Essau et al., 2000a, b; Kendall et al., 2004, Fergusson et al., 2005] as well as an increased risk of suicide among depressed adolescents [Ihle et al., 2006]. Anxiety and depressive disorders among >50% of children in Germany who need treatment, remain untreated [Essau et al., 2000a, b; Sieberer-Ravens et al., 2008] and tend to become chronic [Pine et al., 1998]. Both disorders have substantial associated social costs [World Health Organization (WHO), 2004]. Preventive measures are urgently needed to reduce the risk of these disorders, the personal suffering, and the social costs [WHO, 2004; National Research Council, 2009].

Cognitive-behavioral therapy programs have proven effective to varying degrees for prevention of anxiety and depressive disorders in children [Dadds et al., 1999; Horowitz and Garber, 2006; Gladstone and Beardslee, 2009; Neil and Christopher, 2009]. Perhaps the differing results achieved from preventive efforts are associated with parental behavior patterns. Evidence of this is found in various studies showing associations between introverted disorders in children, and parental behaviors such as (a) over-anxiousness, pronounced controlling behavior, and reinforcement of avoidance behavior by parents of anxious children [Barrett et al., 1996; Raeb, 1997; Barmish and Kendall, 2005]; (b) little parental support and a rejecting, controlling attitude by parents of depressed children [Raeb, 1997]; as well as (c) parental communication style and level of family functioning [Raeb, 1997; Barmish and Kendall, 2005; Garber et al., 2009, Khanna and Kendall, 2009]. The precise mediation mechanism between parental behaviors and childhood psychopathology is not clear, however [Van der Bruggen et al., 2008].

Because these parental issues are associated with the development of the disorder, the question arises whether – as in the treatment of children with externalizing disorders [Woolfenden et al., 2002] – intensive involvement of parents in preventive measures positively affects the method’s success, as well the duration of results. This question has not yet been investigated with regard to the prevention of anxiety and depressive disorders in childhood. Controlled studies to verify the efficacy of an additional parent training program or additional family sessions have been done for the treatment of anxiety disorders, but not their prevention. Findings are mixed respecting the efficacy of parent training programs or family sessions alongside a behavioral therapy intervention in children: while some studies have achieved further improvement of treatment effects in the post-test comparison [Barrett et al., 1996, Wood et al., 2006] and in the 1-year follow-up [Wood et al., 2009], other studies showed no or only slight effects [e.g., Nauta et al., 2003]. Bodden et al. [2008] actually demonstrated inferior results in the post-test after joint family sessions, compared to the child-centered method. However, at the 3-month follow-up, there was no longer any significant difference. Cobbham et al. [1998] showed that adding a parent training program yields superior results than child-centered treatment without parent training, if at least one parent is also suffering from an anxiety disorder. In-Albon and Schneider [2007] stress in their review, that parent training programs have no additional effect on cognitive-behavioral therapy for anxiety in children.

There has so far only been one controlled study of the prevention of depressive disorders that verified benefits from an additional parent training program; however, this was with adolescents: Shochet et al. [2001] found no significant difference between the effectiveness of the adolescent-centered approach with or without associated parental training. With children, child-centered [e.g., Jaycox et al., 1994] and family-oriented approaches [e.g., Beardslee et al., 2003] have been studied, but have not been compared in controlled investigations [Gladstone and Beardslee, 2009].

In sum, there have been no controlled studies in the area of prevention that examine the efficacy of an associated parent training program, for children with introverted symptoms. However, there is evidence that parental behavior patterns could influence the success and the duration of results of preventive measures. Against this background, we investigated in this study the effectiveness of an associated 8-hour parent training program for prevention of anxiety and depressive disorders in 8- to 12-year-old children, but without explicitly testing the influence of parental patterns of behavior as moderators or mediators. As the basis of our preventive method, we chose the FRIENDS program [Barrett et al., 2000], which is effective [Farrell and Barrett, 2007] and is the most widely used internationally [Pössel et al., 2006] for prevention of what are often co-morbid anxiety and depressive disorders [Essau et al., 2000a, b]. For the German-speaking world, FRIENDS was published under the name of FREUNDE for 7- to 12-year-olds [Essau and Conradt, 2003]; however, the German-language program has still not published any controlled efficacy studies.

In the present study, the following hypotheses are tested:

1. The 8- to 12-year-old children with introverted symptoms whose parents also participated in the associated parent training program, would display fewer introverted symptoms after the preventive course for children, than the children whose parents did not participate in the parent training program.
Patients and Methods

Study design: The testing of the efficacy of the associated parent training program was done as a randomized controlled trial. Participants in the preventive course for children and the associated 8 × 90 min comprehensive parent training program (PREV+PT; n = 33), formed the experimental group; those in the preventive course for children and the parents who had just one parents’ evening at the beginning and end of the course (PREV; n = 37), formed the control group. Group assignment was randomized. After initial diagnosis and inclusion in the study, new data collection was carried out, both at the start and end of the course (pre-post measurement), including a final evaluation.

Recruitment of the sample: Recruitment took place from May 2007 to December 2008. Parents were informed about the preventive program (a) by local media and advertising materials (flyers, posters), and (b) in a survey conducted at 11 Marburg schools, on children’s quality of life and mental health. Interested parents could enroll their child for the initial diagnosis, which was conducted after an explanation of the study and informed written consent received by parent and child. At case conferences of the project-approved child and adolescent psychotherapists, the decisions were made on families’ participation in the study, based on the initial diagnosis. Children were included in the preventive program, if (a) introverted symptoms were present (elevated CBCL internalization score [CBCL INT t value ≥ 60]) and/or increased DIKJ [Depression Inventory for Children and Adolescents] depression score [t value ≥ 60]); (b) internalized symptoms were more pronounced than externalized symptoms (CBCLINT > CBCLEXT); and (c) the psychosocial level of functioning for assessing psychological, social, and academic performance presented no significant limitations [Axis VI of the Multiaxial Classification Scheme, levels 1–3; Remschmidt et al., 2001].

In total, 115 families responded during the recruitment period. 32 children were excluded from the study because they exhibited pronounced clinical symptoms, with significant limitations in their daily life (N = 30), or had dominant externalizing symptoms (N = 2); 2 children displayed no subclinical introverted symptoms, so the preventive program was not indicated for them; 11 families were unable to participate in the preventive course for logistical reasons. Ultimately 70 children, ages 8–12, were enrolled in the study. The mean age of the 70 study participants was 9.7 years (range: 8–12); 34 girls and 36 boys participated.

Tools to identify the sample: For evaluation of intelligence, the Basic Intelligence Test [CFT-20-R; Weiß, 2006] was used. Internal consistency and factorial validity are considered reliable. The global assessment of psychosocial functionality was carried out according to Axis VI of the Multiaxial Classification of Child and Adolescent Psychiatric Disorders, according to ICD-10 [MAS; Remschmidt et al., 2001]. It is divided into 9 steps (0–8), of which steps 1–3 portray varying degrees of rather mild impairment. Axis VI is considered sufficiently reliable in clinical practice [Dyrborg et al., 2000]. To assess parental psychopathology, the Symptom Checklist was used [SCL-90-R; Franke, 2002]. The SCL-90-R is a self-evaluation questionnaire to identify physical and psychological symptoms (90 items, 5-point rating scale). The internal consistencies of each scale are rated overall as ‘good’ (Cronbach’s alpha between 0.74 and 0.97).

Instruments for measuring change: The German Child Behavior Checklist (CBCL/4–18; Achenbach, 1991; Döpfner et al., 1994] was used to record the child’s symptoms from the parents’ point of view. On the basis of the 118 problem items (in 3-step response format), alongside the generation of individual scale values, scores could be generated for internalized and externalized disorders, as well as for the total value. These 3 scores, according to Döpfner et al., 1994, have good to very good internal consistency (r > 0.85). T values of 60–63 identify a region of clinical transition; t values > 63 are considered clinically abnormal [Döpfner et al., 1994]. Self-evaluation questionnaires Spence Children’s Anxiety Scale

<table>
<thead>
<tr>
<th>Table 1. Demographic characteristics of treatment groups</th>
<th>PREV (n = 37)</th>
<th>PREV+PT (n = 33)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Children</strong></td>
<td></td>
<td></td>
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<tr>
<td>1Gender, n (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>19 (51.4%)</td>
<td>15 (45.5%)</td>
</tr>
<tr>
<td>Male</td>
<td>18 (48.6%)</td>
<td>18 (54.5%)</td>
</tr>
<tr>
<td>2 Age (years), M (SD)</td>
<td>10.08 (1.28)</td>
<td>9.67 (1.36)</td>
</tr>
<tr>
<td><strong>Parents / Family</strong></td>
<td></td>
<td></td>
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<tr>
<td>3Marital status, n (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Living together</td>
<td>27 (73.0%)</td>
<td>26 (78.8%)</td>
</tr>
<tr>
<td>Separated</td>
<td>10 (27.0%)</td>
<td>7 (21.2%)</td>
</tr>
<tr>
<td>4 Citizenship, n</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Father, German</td>
<td>34 (91.9%)</td>
<td>33 (100%)</td>
</tr>
<tr>
<td>Mother, German</td>
<td>35 (94.6%)</td>
<td>33 (100%)</td>
</tr>
<tr>
<td>5Mother’s age (years), M (SD)</td>
<td>42 (4.63)</td>
<td>42 (5.28)</td>
</tr>
<tr>
<td>6Net income (household), n (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;2,000 euro</td>
<td>5 (13.5%)</td>
<td>8 (24.2%)</td>
</tr>
<tr>
<td>2,000–3,000 euro</td>
<td>16 (43.2%)</td>
<td>13 (39.4%)</td>
</tr>
<tr>
<td>&gt;3,000 euro</td>
<td>10 (27.0%)</td>
<td>7 (21.2%)</td>
</tr>
<tr>
<td>Not available</td>
<td>6 (16.2%)</td>
<td>5 (15.2%)</td>
</tr>
</tbody>
</table>

M = mean; SD = standard deviation.
Calculations of possible group differences: 1: χ²t = 0.260, p = 0.878; 2: χ²t = 5.692, p = 0.068; 3: χ²t = 0.935, p = 0.920; 4: mother: χ²t = 2.795, p = 0.247 / father: χ²t = 0.930, p = 0.628; 5: t = –1.3, p = 0.806; 6: Mann-Whitney U = 371.000, p = 0.299.
Table 2. Clinical characteristics of treatment groups before intervention

<table>
<thead>
<tr>
<th></th>
<th>PREV (n = 37)</th>
<th>PREV+PT (n = 33)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mean (SD)</td>
<td>mean (SD)</td>
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<tr>
<td></td>
<td>[range]</td>
<td>[range]</td>
</tr>
<tr>
<td><strong>Children</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CBCL, t values</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internalization</td>
<td>66.08 (7.94);</td>
<td>67.29 (6.82);</td>
</tr>
<tr>
<td></td>
<td>[38–80]</td>
<td>[56–80]</td>
</tr>
<tr>
<td>Externalization</td>
<td>55.03 (8.05);</td>
<td>51.10 (8.32);</td>
</tr>
<tr>
<td></td>
<td>[35–75]</td>
<td>[37–70]</td>
</tr>
<tr>
<td>Total score</td>
<td>61.7 (6.98);</td>
<td>61.0 (7.69);</td>
</tr>
<tr>
<td></td>
<td>[51–75]</td>
<td>[51–76]</td>
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<tr>
<td>DIKIJ, t value</td>
<td>46.59 (9.18);</td>
<td>44.69 (8.46);</td>
</tr>
<tr>
<td></td>
<td>[33–70]</td>
<td>[33–69]</td>
</tr>
<tr>
<td>SCAS, total raw value</td>
<td>24.78 (12.91);</td>
<td>23.58 (12.43);</td>
</tr>
<tr>
<td></td>
<td>[30–60]</td>
<td>[5–58]</td>
</tr>
<tr>
<td>Psychosocial level of functioning</td>
<td>1.92 (0.83); 2.12 (0.82);</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[1–3]</td>
<td>[1–3]</td>
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<tr>
<td>IQ</td>
<td>102.2 (12.96);</td>
<td>104.3 (13.13);</td>
</tr>
<tr>
<td></td>
<td>[85–134]</td>
<td>[88–153]</td>
</tr>
<tr>
<td><strong>Psychopathology of the mother</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SCL, t values (SD)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total value of GSI</td>
<td>51.35 (8.71);</td>
<td>48.7 (8.67);</td>
</tr>
<tr>
<td></td>
<td>[32–71]</td>
<td>[28–71]</td>
</tr>
<tr>
<td>Insecurity with social contact</td>
<td>51.24 (1.53);</td>
<td>49.7 (1.59);</td>
</tr>
<tr>
<td></td>
<td>[38–76]</td>
<td>[38–78]</td>
</tr>
<tr>
<td>Depression</td>
<td>53.78 (1.63);</td>
<td>50.9 (1.52);</td>
</tr>
<tr>
<td></td>
<td>[36–76]</td>
<td>[36–73]</td>
</tr>
<tr>
<td>Anxiety</td>
<td>48.92 (1.31);</td>
<td>47.7 (1.30);</td>
</tr>
<tr>
<td></td>
<td>[39–68]</td>
<td>[38–63]</td>
</tr>
<tr>
<td>Phobic anxiety</td>
<td>47.38 (0.87);</td>
<td>47.12 (0.94);</td>
</tr>
<tr>
<td></td>
<td>[43–59]</td>
<td>[43–59]</td>
</tr>
</tbody>
</table>
| IQ = intelligence quotient (CFT-20-R); SD = standard deviation. Calculations of possible group differences: 1: t = –0.666, p = 0.508; 2: t = 1.974, p = 0.053; 3: t = 0.395, p = 0.694; 4: t = 0.701, p = 0.486; 5: t = 0.389, p = 0.698; 6: Mann-Whitney U = 517.500, p = 0.465; 7: t = –0.70, p = 0.485; 8: t = 1.19, p = 0.238; 9: t = 0.688, p = 0.494; 10: t = 1.266, p = 0.210; 11: Mann-Whitney-U = 567.000, p = 0.604; 12: Mann-Whitney U = 603.500, p = 0.932.

Table 3. Descriptive statistics of dependent variables in the treatment groups (PREV: n = 36; PREV+PT: n = 31)

<table>
<thead>
<tr>
<th></th>
<th>Mean (SD) before intervention</th>
<th>Mean (SD) after intervention</th>
<th>Effect size d pre-post¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBCL: Inter (RV)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PREV+PT</td>
<td>14.90 (7.096)</td>
<td>10.84 (6.919)</td>
<td>0.55</td>
</tr>
<tr>
<td>PREV</td>
<td>14.03 (6.914)</td>
<td>9.44 (5.971)</td>
<td>0.71</td>
</tr>
<tr>
<td>SCAS (RV)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PREV+PT</td>
<td>23.58 (12.428)</td>
<td>16.06 (8.706)</td>
<td>0.70</td>
</tr>
<tr>
<td>PREV</td>
<td>24.78 (12.906)</td>
<td>16.94 (11.710)</td>
<td>0.64</td>
</tr>
<tr>
<td>DIKIJ (RV)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PREV+PT</td>
<td>7.90 (5.647)</td>
<td>4.45 (4.538)</td>
<td>0.67</td>
</tr>
<tr>
<td>PREV</td>
<td>8.89 (6.172)</td>
<td>7.43 (5.898)</td>
<td>0.24</td>
</tr>
</tbody>
</table>
| SD = standard deviation; RV = raw value; Inter = internalization score. ¹Effect size for dependent samples (pre-post comparison within a group).

Table 4. Results of the MANOVA with repeated measures (based on the raw values)

<table>
<thead>
<tr>
<th></th>
<th>F(1, 63) = 54.964</th>
<th>p &lt; 0.001</th>
<th>p. eta² = 0.487</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effects on the internalization score (CBCL, parents’ view)</td>
<td>Group F(1, 63) = 0.300</td>
<td>p = 0.586</td>
<td>p. eta² = 0.005</td>
</tr>
<tr>
<td>Time × Group F(1, 63) = 0.330</td>
<td>p = 0.586</td>
<td>p. eta² = 0.006</td>
<td></td>
</tr>
<tr>
<td>Effects on anxiety symptoms (SCAS, child’s view)</td>
<td>F(1, 62) = 22.636</td>
<td>p &lt; 0.001</td>
<td>p. eta² = 0.281</td>
</tr>
<tr>
<td>Group F(1, 62) = 0.190</td>
<td>p = 0.664</td>
<td>p. eta² = 0.003</td>
<td></td>
</tr>
<tr>
<td>Time × Group F(1, 62) = 0.022</td>
<td>p = 0.883</td>
<td>p. eta² = 0.000</td>
<td></td>
</tr>
<tr>
<td>Effects on depressive symptoms (DIKIJ, child’s view)</td>
<td>F(1, 63) = 14.243</td>
<td>p &lt; 0.001</td>
<td>p. eta² = 0.197</td>
</tr>
<tr>
<td>Group F(1, 63) = 3.034</td>
<td>p = 0.087</td>
<td>p. eta² = 0.050</td>
<td></td>
</tr>
<tr>
<td>Time × Group F(1, 63) = 2.875</td>
<td>p = 0.095</td>
<td>p. eta² = 0.047</td>
<td></td>
</tr>
</tbody>
</table>
| p. eta² = Partial eta².
[SCAS; Spence, 1998; Essau et al., 2002] and Depression Inventory for Children and Adolescents [DIKJ; Stiensmeier-Pelster et al., 2000] were used to record the symptoms from the child's point of view. The internal consistency (SCAS: Cronbach’s α = 0.92; DIKJ: Cronbach’s α = 0.82 to 0.91) is described as good. Since there is no German t value normalized for the SCAS, raw values ≥ 37 are considered clinically relevant [corresponding to one standard deviation above the mean; cf. Essau et al., 2002]. In the DIKJ, a t value ≥ 60 is accorded clinical relevance.

**Evaluation questionnaires:** All parents received final questions to evaluate their own ability to cope with their child’s problems. Participants in the parent training program answered additional questions on their assessment of that course.

**Description of therapeutic interventions:** Components of parent training programs, according to the FREUNDE program [Essau and Conradt, 2003] are (a) psychoeducation about anxiety and depression in children, as well as (b) the relationship among thoughts, feelings, and behavior, (c) methods of cognitive restructuring, (d) problem-solving strategies for dealing with children’s (and parents’) anxieties, and (e) contingency management. Taken together, these measures should increase (f) the child’s self-control. The above-mentioned elements cover the aspects that are often mentioned in parent training programs [cf. Barmish and Kendall, 2005; Farrell and Barrett, 2007; Gladstone and Beardslee, 2009; Khanna and Kendall, 2009]. Due to the extensive points to be covered by the program within the 4 sessions originally allotted, we modified the parents’ program: we doubled the number of sessions to 8 of 90 min each and limited the number of parents to 12 per parent group, to facilitate intensive training. We made the exercises more comprehensive (problem-solving strategies, reinforcement of active/courageous behavior, cessation of avoidance behavior) to improve the application to everyday life.

The child-oriented preventive course was also based on the FRIENDS program. To meet the requirements of indicated prevention, we limited group size to 8 children of the respective age groups 8–9/10 and 10/11–12. The preventive courses were held between August 2007 and June 2009. The courses for children and parents were always led by two therapists, on a weekly basis. A total of 10 participating therapists varied across the control and experimental groups.

**Evaluation methods:** The efficacy of the parent training programs was examined using a multivariate analysis of variance (MANOVA) with a 2-factorial repeated measures design. The measurements of the dependent variables generated the repeated measures factor (CBCL, SCAS, DIKJ) before and after the preventive course. The experimental group (PREV+PT) and the clinical control group (PREV) constituted the group factor. The MANOVA was conducted with the raw data. To test the hypothesis that parents participating in parent training would be better able to cope with their child’s problems than non-participating parents, the rank data were analyzed using the non-parametric Mann-Whitney U test. The qualitative data from the evaluation questionnaires were analyzed according to Mayring’s Content Analysis [2003].

All statistical tests were 2-sided. The level of significance α was adjusted to the number of tests (MANOVA and comparison of parental perceived self-competence) (α = 0.05/2 = 0.025). All calculations were performed with SPSS Statistics 17.0.

**Ethical and legal requirements:** The study was approved by the Ethics Committee of the Philipps University Marburg (Department of Medicine, File Number: Study 04/07) and registered at www.clinicaltrials.gov, NCT00564239.

### Results

Table 1 shows the socio-demographic data for the control group and the experimental group at the beginning of the course; table 2 shows the clinical characteristics. Before the intervention began, the groups showed no significant differences in the characteristics of either the children, the parents, or the families.

During the course, 2 children from the PREV+PT group dropped out and were transferred to individual therapy; 1 child from the PREV group dropped out of the course from lack of interest. The remaining 67 children attended, on average, 11.2 of the 12 sessions (93.3%); the parents in the PREV+PT group (27 mothers, 4 fathers, 2 couples) took part in 7.6 out of 8 sessions (95%).

**Changes in symptoms:** Table 3 shows descriptive changes in the measurements of internalized symptoms. In all the measurements compiled, symptom reduction was shown in pre-post comparison. In contrast to the average values in the DIKJ and SCAS, the CBCL internalization score at the end of the preventive program is still barely at the boundary of clinically relevant symptom formation (pre-value: t = 66.81, SD = 7.44; post-value: t = 61.22, SD = 8.91). The intra-group effect sizes are in the small to medium range (d = 0.24 to 0.71). This is a purely descriptive indication of the possible effectiveness of parent training in the reduction of depressive symptoms. Table 4 shows the results of the hypothesis-testing MANOVA. The ‘time × group’ interaction effect shows possible effects of parent training programs on symptom change. There is no apparent, significant effect of parent training on the reduction of introverted symptoms, either from the viewpoint of the parent (CBCL internalization score) or of the child (SCAS, DIKJ). Also in terms of depressive symptoms, from the child’s viewpoint (DIKJ), with 4.7% explained variance, no significant effect of parent training was identified (partial eta² = 0.047, p = 0.095). The first hypothesis therefore cannot be confirmed.

There was further exploratory testing of whether the parent training program had any effect on parents with a higher degree of psychopathological stress. All the parents of the PREV and PREV+PT groups who had an SCL-GSI t value > 50 were assigned to the SCL+ group (PREV: n = 15; PREV+PT: n = 14); parents with an SCL-GSI t value ≤ 50 were assigned to the SCL group (PREV: n = 15; PREV+PT: n = 16). The testing of a possible effect of the psychopathology of the parents participating in the parent training program, on symptom change in the children, was analyzed using variance analysis (MANOVA; main factors: repeated measures, group, psychopathology). The interaction effect of ‘time × group × psychopathology’ was, however, not significant for any of the measurements; i.e., there was no interaction between participation in the parent training program and parental psychopathology, with regard to symptom change in the children.

There were, however, significant effects of parental psychopathology on symptom reduction in the DIKJ measures (interaction effect ‘time × psychopathology’: F = 12.470, p = 0.001) and SCAS measures (interaction effect ‘time × psychopathology’: F = 8.507, p = 0.005). The symptom reduction in...
participated in parent training. Therefore the second hy-
selves as equally competent, regardless of whether they had
both groups (PREV+PT and PREV) thus perceived them-
(Mann-Whitney U test, Z = –0.273, p = 0.785). Parents of
child’s problems; but the differences were not significant
they were ‘mostly/usually’ better able to deal with their
parents in both groups declared that after the course
the parents in comparison to the start of the course. The parents subjec-
ment of a strategy for managing the child’s behavior as help-
hypothesis concerned the increase in parental perceived self-
par of the parents’ participation in the training program, if the
psychopathological stress. This showed, however, that not only did children in
the PREV+PT group whose parents had greater psychopath-
benefit more, but that this effect was evident in all the children, using DIKJ and SCAS measurements. Fu-
exploratory testing was conducted into whether the chil-
the experimental group would benefit more from
their parents’ participation in the training program, if the
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ological stress benefit more, but that this effect was evident in all the children, using DIKJ and SCAS measurements. Fu-
ter future studies could examine whether this correlation could be

Evaluation of the parent training program by parents:
93% of parents experienced the parent training program as
helpful (‘mostly’: 57%; ‘always’: 36%), and 98% of parents
said they would recommend the course to others (‘mostly:’
39%; ‘always’: 59%). The parents rated the following com-
ponents as helpful: (a) problem-solving strategies (‘mostly helpful’: 29%;
‘always helpful’: 71%), (b) discussions with other parents (‘mostly’: 39%;
‘always’: 50%), (c) learning about the relationship among thoughts, feelings, and behav-
or (‘mostly’: 29%; ‘always’: 57%), and (d) contingency
management (‘mostly’: 71%; ‘always’: 21%). Group exer-
cises appeared less useful to the parents (‘mostly’: 39%;
‘always’: 18%) or were accompanied by social anxiety. Fur-
thermore, when the questions were not multiple-choice but
could be answered freely, 80% of the parents declared that
they were calmer in dealing with their child, or brought up
the fact that they had greater understanding of the child’s
behavior; 60% of the parents described themselves as defi-
nitely more competent in coping with the child’s problems,
in comparison to the start of the course. The parents subjec-
tively experienced their participation in parent training as
effective, even if there was no objectively measurable bene-
fit – neither symptom reduction in the children nor greater
perceived self-competence compared to the parents of the
PREV group.

Discussion

This study investigated the effect of an additional parent training program on the success of preventive measures in
8- to 12-year-old children with introversion symptoms. It was
shown that parent training had no significant effect on chang-
ing the introversion symptoms – neither in the parents’ judg-
ment nor in the children’s self-evaluation. The results of our
study are thus comparable, respecting anxiety symptoms, to
corresponding psychotherapeutic studies [Nauta et al., 2003;
In-Albon and Schneider, 2007], and, respecting depressive
symptoms, to the prevention study by Shochet et al. [2001], in
which, likewise, no additional benefit could be demonstrated
from an associated parent training program, in the treatment
of anxious children or in the prevention of depression in ado-
lescents. However, we found that participation in parent
training, specifically for depressive symptoms, could be useful
from the children’s viewpoint (DIKJ).

Exploratory testing was conducted into whether the chil-
dren in the experimental group would benefit more from
their parents’ participation in the training program, if the
parents exhibited a higher degree of psychopathological stress. This showed, however, that not only did children in
the PREV+PT group whose parents had greater psychopath-
ological stress benefit more, but that this effect was evident in all the children, using DIKJ and SCAS measurements. Fu-
ture studies could examine whether this correlation could be

Parents of both groups (PREV+PT and PREV) perceived
themselves subjectively, at the end of the children’s course on
prevention measures, as equally competent in coping with
their children’s problems. While the parents of the PREV+PT
group received 8 training sessions of 90 min each, the parents
of the PREV group only visited twice for parents’ evenings: at
the beginning of the course, the parents presented their chil-
dren’s problems, and thus their reason for attending, and re-
ceived a 30-min overview of the course content. The conclud-
ing parents’ evening was for therapist feedback on the course,
and occurred after the post measurement. Perhaps just the
child’s participation in the prevention course and the first par-
ents’ evening, combined with finding out that other families
share similar problems, relieved the parents to the extent that
they perceived themselves as more competent. It would also
be conceivable, however, that the reduction of the child’s
symptoms positively affected the interaction between parent
and child, so that the child’s changed behavior was the cause
of the parents’ increase in perceived self-competence. The rel-
ationship between the changed behaviors of parent and child
can thus be explained in very different ways, and needs fur-
ther studies.

In evaluating the parent training program, the parents of
the PREV+PT group rated the parent training and the acquisi-
tion of a strategy for managing the child’s behavior as help-
ful. This was also reflected in the parents high rate of partici-
pation – 95% of the sessions – and the corresponding positive feedback. Learning about specific problem-solving strategies, contingency management, etc., however, did not have a direct impact on the children’s introverted symptoms. It may require longer-term use in everyday life (beyond the 3-month duration of the course) to bring about significant symptom changes [cf. Barrett et al., 1996, who demonstrated the superiority of child-centered behavioral therapy + parent training, compared to only child-centered care, at 6- and 12-month follow-up]. Whether there is significantly greater long-term symptom reduction in the PREV+PT group compared to the control, should be investigated upon completion of the 1-year follow-up.

In addition to the study’s strengths, such as its randomized controlled trial design and use of well-validated survey instruments, including the perspective of both parent and child, there are also limitations: therapists’ adherence to the treatment protocol was not explicitly verified by video or audio recordings. The therapists, however, made a record of the content of each session and documented when program points that had not been covered were made up during available ‘buffer times’ at the next session, to ensure adherence to the treatment protocol.

An additional limitation is the sample size, which, in a design with two active intervention groups, was not large enough to show statistical significance for small to medium-sized effects. So while a descriptive indication is provided of the effectiveness of parent training programs with regard to reduction of depressive symptoms (DIKJ; partial eta² = 0.047), it would require a much larger sample (N = 128 in accordance with post-hoc test for MANOVA) to demonstrate a mean effect, by 2-sided testing, as statistically significant.

Finally, the SCL-90-R is only a screening tool for detection of parental psychopathology. A structured interview could certainly lead – albeit at higher cost – to more accurate detection of parental psychopathology.

Conflict of Interest

The authors declare that no conflict of interest exists.

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Cobham VE, Dadds MR, Spence SH: The role of parental influence – 95% of the sessions – and the corresponding positive feedback. Learning about specific problem-solving strategies, contingency management, etc., however, did not have a direct impact on the children’s introverted symptoms. It may require longer-term use in everyday life (beyond the 3-month duration of the course) to bring about significant symptom changes [cf. Barrett et al., 1996, who demonstrated the superiority of child-centered behavioral therapy + parent training, compared to only child-centered care, at 6- and 12-month follow-up]. Whether there is significantly greater long-term symptom reduction in the PREV+PT group compared to the control, should be investigated upon completion of the 1-year follow-up.

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