

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

Sylvia Eimecke Jan Pauschardt Fritz Matthejat

Department for Child and Adolescent Psychiatry and Psychotherapy, Philipps University Marburg, Germany

### 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.

### Schlüsselwörter

Prävention · Angststörungen · Depressive Störung · Kind · Eltern

### Zusammenfassung

**Hintergrund:** Angst- und depressive Störungen gehören zu den häufigsten Störungen des Kindes- und Jugendalters und beeinträchtigen die kindliche Entwicklung erheblich. Zur Prävention von Angststörungen und depressiven Erkrankungen haben sich kognitiv-verhaltenstherapeutische Programme als wirksam erwiesen, wobei die Kinder in unterschiedlichem Ausmaß profitieren. Ein möglicher Einflussfaktor des Präventionserfolgs wird im elterlichen Verhalten gesehen. Elterntrainings sollen Eltern helfen, ihren Umgang mit Problemen des Kindes zu modifizieren. Ziel unserer Studie ist es, die Wirksamkeit eines begleitenden Elterntrainings in der indizierten Prävention von Angst- und depressiven Störungen bei 8- bis 12-jährigen Kindern zu prüfen. **Patienten und Methoden:** 70 Kinder wurden randomisiert den Gruppen «Präventionskurs» oder «Präventionskurs + Elternt raining» zugeteilt. Grundlage des Präventionskurses war eine modifizierte Version des FREUNDE-Programms. Hauptkriterien zur Überprüfung der Wirksamkeit waren die Child Behavior Checklist, die Spence Children's Anxiety Scale und das Depressionsinventar für Kinder und Jugendliche. Die Auswertung der Daten erfolgte varianz-analytisch (MANOVA). **Ergebnisse:** Das Elternt raining hatte keinen signifikanten Effekt auf die Veränderung introvertierter Symptome. Bei stärkerer psychopathologischer Belastung der Eltern zeigte sich eine deutlichere Symptomreduktion der Kinder – unabhängig von der Teilnahme am Elternt raining. Alle Eltern erlebten sich mit Abschluss des Präventionsprogramms kompetenter im Umgang mit ihrem Kind. **Diskussion:** Die Teilnahme am Elternt raining korrespondiert trotz positiver Bewertung durch die Eltern nicht mit einer höheren Symptomreduktion der Kinder im Posttest. Möglicherweise führt allein die Teilnahme des Kindes an der Präventionsmaßnahme zu höherem Kompetenzerleben bei allen Eltern. Die Überprüfung der langfristigen Wirksamkeit steht noch aus.

## 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; Rapee 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 Christensen, 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 introversive 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; Rapee, 1997; Barmish and Kendall, 2005]; (b) little parental support and a rejecting, controlling attitude by parents of depressed children [Rapee, 1997]; as well as (c) parental communication style and level of family functioning [Rapee, 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 pre-post 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. Cobham 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 introversive 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 introversive symptoms whose parents also participated in the associated parent training program, would display fewer introversive symptoms after the preventive course for children, than the children whose parents did not participate in the parent training program.

2. Parents who participated in the parent training program would, in their own estimation, be able to cope better with their child at the end of the course, than parents who did not participate.

## 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) introversive symptoms were present (elevated CBCL internalization score [CBCL<sub>INT</sub> t value ≥ 60] and/or elevated SCAS anxiety score [raw value ≥ 37] and/or increased DIKJ [Depression Inventory for Children and Adolescents] depression score [t value ≥ 60]); (b) internalized symptoms were more pronounced than externalized symptoms (CBCL<sub>INT</sub> > CBCL<sub>EXT</sub>); and (c) the psychosocial level of functioning for assessing psy-

chological, 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 introversive 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 ( $r_{tt} > 0.85$ ). 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 1.** Demographic characteristics of treatment groups

	PREV (n = 37)	PREV+PT (n = 33)
<i>Children</i>		
<sup>1</sup> Gender, n (%)		
Female	19 (51.4%)	15 (45.5%)
Male	18 (48.6%)	18 (54.5%)
<sup>2</sup> Age (years), M (SD)	10.08 (1.28)	9.67 (1.36)
<i>Parents / Family</i>		
<sup>3</sup> Marital status, n (%)		
Living together	27 (73.0%)	26 (78.8%)
Separated	10 (27.0%)	7 (21.2%)
<sup>4</sup> Citizenship, n		
Father, German	34 (91.9%)	33 (100%)
Mother, German	35 (94.6%)	33 (100%)
<sup>5</sup> Mother's age (years), M (SD)	42 (4.63)	42 (5.28)
<sup>6</sup> Net income (household), n (%)		
<2,000 euro	5 (13.5%)	8 (24.2%)
2,000–3,000 euro	16 (43.2%)	13 (39.4%)
>3,000 euro	10 (27.0%)	7 (21.2%)
Not available	6 (16.2%)	5 (15.2%)
M = mean; SD = standard deviation.		
Calculations of possible group differences: 1: $\chi^2 = 0.260$ , p = 0.878; 2: $\chi^2 = 5.692$ , p = 0.682; 3: $\chi^2 = 0.935$ , p = 0.920; 4: mother: $\chi^2 = 2.795$ , p = 0.247 / father: $\chi^2 = 0.930$ , p = 0.628; 5: t = -1.3, p = 0.896; 6: Mann-Whitney U = 371.000, p = 0.299.		

**Table 2.** Clinical characteristics of treatment groups before intervention

	PREV (n = 37) mean (SD) [range]	PREV+PT (n = 33) mean (SD) [range]
<i>Children</i>		
CBCL, t values		
<sup>1</sup> Internalization	66.08 (7.94); [38–80]	67.29 (6.82); [56–80]
<sup>2</sup> Externalization	55.03 (8.05); [35–75]	51.10 (8.32); [37–70]
<sup>3</sup> Total score	61.7 (6.98); [51–75]	61.0 (7.69); [51–76]
<sup>4</sup> DIKJ, t value	46.59 (9.18); [33–70]	44.69 (8.46); [33–69]
<sup>5</sup> SCAS, total raw value	24.78 (12.91); [30–60]	23.58 (12.43); [5–58]
<sup>6</sup> Psychosocial level of functioning	1.92 (0.83); [1–3]	2.12 (0.82); [1–3]
<sup>7</sup> IQ	102.2 (12.96); [85–134]	104.3 (13.13); [88–153]
<i>Psychopathology of the mother</i>		
SCL, t values (SD)		
<sup>8</sup> Total value of GSI	51.35 (8.71); [32–71]	48.7 (8.67); [28–71]
<sup>9</sup> Insecurity with social contact	51.24 (1.53); [38–76]	49.7 (1.59); [38–78]
<sup>10</sup> Depression	53.78 (1.63); [36–76]	50.9 (1.52); [36–73]
<sup>11</sup> Anxiety	48.92 (1.31); [39–68]	47.7 (1.30); [38–63]
<sup>12</sup> Phobic anxiety	47.38 (0.87); [43–59]	47.12 (0.94); [43–59]
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 = 0.668, 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)

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

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

Effects on the internalization score (CBCL, parents' view)			
Time	F(1.63) = 54.964	p < 0.001	p. eta <sup>2</sup> = 0.487
Group	F(1.63) = 0.300	p = 0.586	p. eta <sup>2</sup> = 0.005
Time × Group	F(1.63) = 0.330	p = 0.586	p. eta <sup>2</sup> = 0.006
Effects on anxiety symptoms (SCAS, child's view)			
Time	F(1.62) = 22.636	p < 0.001	p. eta <sup>2</sup> = 0.281
Group	F(1.62) = 0.190	p = 0.664	p. eta <sup>2</sup> = 0.003
Time × Group	F(1.62) = 0.022	p = 0.883	p. eta <sup>2</sup> = 0.000
Effects on depressive symptoms (DIKJ, child's view)			
Time	F(1.63) = 14.243	p < 0.001	p. eta <sup>2</sup> = 0.197
Group	F(1, 63) = 3.034	p = 0.087	p. eta <sup>2</sup> = 0.050
Time × Group	F(1.63) = 2.875	p = 0.095	p. eta <sup>2</sup> = 0.047
p. eta <sup>2</sup> = Partial eta <sup>2</sup> .			



[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  $\alpha = 0.92$ ; DIKJ: Cronbach's  $\alpha = 0.82$  to  $0.91$ ) is described as good. Since there is no German  $t$  value normalization available for the SCAS, raw values  $\geq 37$  are considered clinically relevant [corresponding to one standard deviation above the mean; cf. Essau et al., 2002]. In the DIKJ, a  $t$  value  $\geq 60$  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  $\alpha$  was adjusted to the number of tests (MANOVA and comparison of parental perceived self-competence) ( $\alpha = 0.05/2 = 0.025$ ). 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](http://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  $\times$  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 introversive 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  $\eta^2 = 0.047$ ,  $p = 0.095$ ). 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  $\leq 50$  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  $\times$  group  $\times$  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  $\times$  psychopathology':  $F = 12.470$ ,  $p = 0.001$ ) and SCAS measures (interaction effect 'time  $\times$  psychopathology':  $F = 8.507$ ,  $p = 0.005$ ). The symptom reduction in

children was greater when parental psychopathology was more pronounced, regardless of whether the parents attended the parent training program or not. No influence of parental psychopathology was found in the CBCL internalization score. No significant correlation existed between parental psychopathology and the severity of the children's symptoms (CBCL, DIKJ, SCAS). Thus it may be assumed that the result is not based only on higher starting values in DIKJ and SCAS that facilitated greater symptom reduction.

*Perceived self-competence of the parents:* The second hypothesis concerned the increase in parental perceived self-competence in coping with the child's problems. We proceeded from the assumption that the parents who had training would, at the end of the course, be better able to cope with their child's problems than the parents who had not participated. To test this hypothesis, we analyzed the answers to this evaluation questionnaire item: 'Compared to the registration period, I can cope better today with my child's problems that led to participation in the preventive course, ... [0 = not at all, 1 = barely/rarely, 2 = partially/sometimes, 3 = mostly/usually, 4 = very well/always]. On average, the parents in both groups declared that after the course they were 'mostly/usually' better able to deal with their child's problems; but the differences were not significant (Mann-Whitney U test,  $Z = -0.273$ ,  $p = 0.785$ ). Parents of both groups (PREV+PT and PREV) thus perceived themselves as equally competent, regardless of whether they had participated in parent training. Therefore the second hypothesis must also be rejected.

*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 components 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 behavior ('mostly': 29%; 'always': 57%), and (d) contingency management ('mostly': 71%; 'always': 21%). Group exercises appeared less useful to the parents ('mostly': 39%; 'always': 18%) or were accompanied by social anxiety. Furthermore, 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 definitely more competent in coping with the child's problems, in comparison to the start of the course. The parents subjectively experienced their participation in parent training as effective, even if there was no objectively measurable benefit – 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 introversive symptoms. It was shown that parent training had no significant effect on changing the introversive symptoms – neither in the parents' judgment 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 adolescents. 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 children 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 psychopathological stress benefit more, but that this effect was evident in all the children, using DIKJ and SCAS measurements. Future studies could examine whether this correlation could be confirmed.

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 children's problems, and thus their reason for attending, and received a 30-min overview of the course content. The concluding 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 parents' 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 relationship between the changed behaviors of parent and child can thus be explained in very different ways, and needs further studies.

In evaluating the parent training program, the parents of the PREV+PT group rated the parent training and the acquisition of a strategy for managing the child's behavior as helpful. 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 introversive 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  $\eta^2 = 0.047$ ), 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.

### References

- Achenbach TM: Manual for the Child Behavior Checklist/4-18 and 1991 Profile. Burlington, VT, Department of Psychiatry, University of Vermont, 1991.
- Barmish AJ, Kendall PC: Should parents be co-clients in cognitive-behavioral therapy for anxious youth? *J Clin Child Adolesc Psychol* 2005;34(3):569–81.
- Barrett PM, Dadds MR, Rapee RM: Family treatment of childhood anxiety: A controlled trial. *J Consult Clin Psychol* 2004;72(2):276–287.
- Barrett PM, Lowry-Webster H, Turner C: Friends Program for Children. Brisbane, Australian Academic Press, 2000.
- Beardslee WR, Gladstone TR, Wright EJ, Cooper AB: A family-based approach to the prevention of depressive symptoms in children at risk: Evidence of parental and child change. *Pediatrics* 2003;112(2):e119–31.
- Bodden DHM, Bögels SM, Nauta MH, DeHaan A, Ringrose J, Appelboom C, Brinkman AG, Appelboom-Geerts KCMJ: Child versus family cognitive-behavioral therapy in clinically anxious youth: an efficacy and partial effectiveness study. *J Am Acad Child Adolesc Psychiatry* 2008;47(12):1384–1394.
- Cobham VE, Dadds MR, Spence SH: The role of parental anxiety in the treatment of childhood anxiety. *J Consult Clin Psychol* 1998;66(6):893–905.
- Costello EJ, Mustillo S, Erkanli A, Keeler G, Angold A: Prevalence and development of psychiatric disorders in childhood and adolescence. *Arch Gen Psychiatry* 2003;60(8):837–44.
- Dadds MR, Holland DE, Laurens KR, Mullins M, Barrett PM, Spence SH: Early intervention and prevention of anxiety disorders in children: Results at 2-year follow-up. *J Consult Clin Psychol* 1999; 67(1):145–50.
- Döpfner M, Schmeck K, Berner W: Elternfragebogen über das Verhalten von Kindern und Jugendlichen. Forschungsergebnisse zur deutschen Fassung der Child Behavior Checklist (CBCL). Köln, Arbeitsgruppe Kinder-, Jugend- und Familiendiagnostik (KJFD), 1994.
- Dyrborg J, Larsen F, Nielsen S, Byman J, Buhl Nielsen B, Gautre-Delay F: The children's global assessment scale (cgas) and global assessment of psychosocial disability (gapd) in clinical practice – substance and reliability as judged by intraclass correlations. *Eur Child Adolesc Psychiatry* 2000;9:195–201.
- Essau CA, Conradt J: Freunde-Programm für Kinder. München, Reinhardt, 2003.
- Essau CA, Conradt J, Petermann F: Frequency, comorbidity, and psychosocial impairment of depressive disorders in adolescents. *J Adolesc Res* 2000a; 15(4):470–481.
- Essau CA, Conradt J, Petermann F, Essau CA, Conradt J, Petermann F: Frequency, comorbidity, and psychosocial impairment of anxiety disorders in German adolescents. *J Anxiety Disord* 2000b;14(3): 263–279.
- Essau CA, Muris P, Ederer EM: Reliability and validity of the Spence children's anxiety scale and the screen for child anxiety related emotional disorders in German children. *J Behav Ther Exp Psychiatry* 2002;33(1):1–18.
- Farrell LJ, Barrett PM: Prevention of childhood emotional disorders: Reducing the burden of suffering associated with anxiety and depression. *Child Adolesc Ment Health* 2007;12(2):58–65.
- Federer M, Margraf J, Schneider S: Leiden schon Achtjährige an Panik? Prävalenzuntersuchung mit Schwerpunkt Panikstörung und Agoraphobie. *Z Kinder Jugendpsychiatr Psychother* 2000;28(3):205–14.
- Fergusson DM, Horwood LJ, Ridder EM, Beautrais AL: Subthreshold depression in adolescence and mental health outcomes in adulthood. *Arch Gen Psychiatry* 2005;62(1):66–72.
- Franke GH: Symptom-Checkliste von L.R. Derogatis – Deutsche Version, ed 2. Göttingen, Beltz Test, 2002.
- Garber J, Clarke GN, Weersing V, et al: Prevention of depression in at-risk adolescents: A randomized controlled trial. *JAMA* 2009;301(21):2215–2224.
- Gladstone TR, Beardslee WR: The prevention of depression in children and adolescents: A review. *Can J Psychiatry* 2009;54(4):212–221.
- Horowitz JL, Garber J: The prevention of depressive symptoms in children and adolescents: A meta-analytic review. *J Consult Clin Psychol* 2006;74:401–415.
- Ihle W, Jahnke D, Ahle ME: Depressive Störungen; in Matthejat F (Hrsg): Verhaltenstherapie mit Kindern, Jugendlichen und ihren Familien. Lehrbuch der Psychotherapie, vol 4. München, CIP-Medien, 2006, pp 649–663.
- In-Albon T, Schneider S: Psychotherapy of childhood anxiety disorders: a meta-analysis. *Psychother Psychosom* 2007;76:15–24.
- Jaycox LH, Reivich KJ, Gillham J, Seligman ME: Prevention of depressive symptoms in schoolchildren: Two-year follow-up. *Behav Res Ther* 1994;32(8): 801–16.
- Kendall PC, Safford S, Flannery-Schroeder E, Webb A: Child anxiety treatment: Outcomes in adolescence and impact on substance use and depression at 7.4-year follow-up. *J Consult Clin Psychol* 2004; 72(2):276–287.
- Khanna MS, Kendall PC: Exploring the role of parent training in the treatment of childhood anxiety. *J Consult Clin Psychol* 2009;77(5):981–986.
- Lewinsohn PM, Rohde P, Seeley JR, Klein DN, Gotlib IH: Psychosocial functioning of young adults who have experienced and recovered from major depressive disorder during adolescence. *J Abnorm Psychol* 2003;112(3):353–363.
- Mayring P: Qualitative Inhaltsanalyse. Grundlagen und Techniken, ed 8. Weinheim, Beltz, 2003.
- National Research Council; O'Connell ME, Boat T, Warner KE (Eds): Preventing mental, emotional, and behavioral disorders among young people: progress and possibilities. 2009. [www.nap.edu/catalog/12480.html](http://www.nap.edu/catalog/12480.html).

- Nauta MH, Scholing A, Emmelkamp PM, Minderaa RB: Cognitive-behavioral therapy for children with anxiety disorders in a clinical setting: No additional effect of a cognitive parent training. *J Am Acad Child Adolesc Psychiatry* 2003;42(11):1270–1278.
- Neil AL, Christensen H: Efficacy and effectiveness of school-based prevention and early intervention programs for anxiety. *Clin Psychol Rev* 2009;29:208–215.
- Pine DS, Cohen P, Gurley D, Brook J, Ma Y: The risk for early-adulthood anxiety and depressive disorders in adolescents with anxiety and depressive disorders. *Arch Gen Psychiatry* 1998;55(1):56–64.
- Pössel P, Schneider S, Seemann S: Effekte und Kosten universaler Prävention von Internalisierungsstörungen bei Kindern und Jugendlichen. *Verhaltenstherapie* 2006;16:201–210.
- Rapee RM: Potential role of childrearing practices in the development of anxiety and depression. *Clin Psychol Rev* 1997;17(1):47–67.
- Rapee RM, Schniering CA, Hudson JL: Anxiety disorders during childhood and adolescence: Origins and treatment. *Annu Rev Clin Psychol* 2009;5:311–341.
- Ravens-Sieberer U, Wille N, Bettge S, Erhart M: Psychische Gesundheit von Kindern und Jugendlichen in Deutschland. Ergebnisse aus der BELLA-Studie im Kinder- und Jugendgesundheitssurvey (KiGGS). *Bundesgesundheitsbl Gesundheitsforsch Gesundheitsschutz* 2007;50:871–878.
- Ravens-Sieberer U, Wille N, Erhart M, Bettge S, Wittchen HU, Rothenberger A, Herpertz-Dahlmann B, Resch F, Hoelling H, Bullinger M, Barkmann C, Döpfner M: Prevalence of mental health problems among children and adolescents in Germany: Results of the bella study within the national health interview and examination survey. *Eur Child Adolesc Psychiatry* 2008;17:22–33.
- Remschmidt H, Schmidt MH, Poustka F: Multiaxiales Klassifikationsschema für psychische Störungen des Kindes und Jugendalters nach ICD-10 der WHO. Bern, Huber, 2001.
- Schmeck K, Poustka F, Doepfner M, et al: Discriminant validity of the Child Behavior Checklist CBCL-4/18 in German samples. *Eur Child Adolesc Psychiatry* 2001;10:240–247.
- Shochet IM, Dadds MR, Holland D, Whitefield K, Harnett PH, Osgarby SM: The efficacy of a universal school-based program to prevent adolescent depression. *J Clin Child Psychol* 2001;30(3):303–315.
- Spence SH: A measure of anxiety symptoms among children. *Behav Res Ther* 1998;36(5):545–566.
- Stiensmeier-Pelster J, Schuermann M, Duda K: DIKJ: Depressions-Inventar für Kinder und Jugendliche, ed 2. Göttingen, Hogrefe, 2000.
- Van der Bruggen CO, Stams GJJM, Bögels SM: Research review: the relation between child and parent anxiety and parental control: a meta-analytic review. *J Child Psychol Psychiatry* 2008;49(12):1257–1269.
- Weiß RH: CFT 20-R. Grundintelligenztest Skala 2 – Revision. Göttingen, Hogrefe, 2006.
- WHO (ed): Prevention of mental disorders: effective interventions and policy options: summary report. Geneva, WHO, 2004.
- Wood JJ, Piacentini JC, Southam-Gerow M, Chu BC, Sigman M: Family cognitive behavioral therapy for child anxiety disorders. *J Am Acad Child Adolesc Psychiatry* 2006;45(3):314–321.
- Wood JJ, McLeod BD, Piacentini JC, Sigman M: One-year follow-up of family versus child CBT for anxiety disorders: Exploring the roles of child age and parental intrusiveness. *Child Psychiatry Hum Dev* 2009;40(2):301–316.
- Woolfenden SR, Williams K, Peat JK: Family and parenting interventions for conduct disorder and delinquency: A meta-analysis of randomised controlled trials. *Arch Dis Child* 2002;86(4):251–256.