



Effectiveness of a parent training program in (pre)adolescence: Evidence from a randomized controlled trial

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A B S T R A C T

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The present randomized controlled trial examined the effectiveness of the parent training program Parents and Children Talking Together (PCTT) for parents with children in the preadolescent period who experience parenting difficulties. The program is focused on reducing child problem behavior by improving parents' communication and problem solving skills, and disciplining behavior. Largest effects were expected for families with higher SES, and with children in mid-adolescence. Multi-informant and multi-method data were used from 78 self-referred families with children aged 9–16 ($M = 13.09$, $SD = 1.75$). Intention-to-treat analysis (retention rate 95%; immediate posttest only) showed that participation in PCTT significantly improved parents' communication and problem solving skills ($F(1,70) = 11.77$, $p < 0.01$ and $F(1,70) = 12.87$, $p < 0.01$), and reduced their dysfunctional disciplining behavior in conflict situations ($F(1,70) = 5.25$, $p < .005$). The PCTT intervention was most effective for parents with higher SES and for parents with children between the ages of 14 and 16. No consistent gender effects were found.

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Externalizing behavior problems put children at risk for several developmental difficulties, such as academic failure, substance abuse, developing an antisocial personality, and delinquent behavior (Loeber & Hay, 1997; Moffitt, 1993). One of the most promising types of interventions aimed at reducing child problem behavior is parent training. Several meta-analyses have shown that parent training leads to more adequate parental disciplining practices and reduces child problem behavior – and is generally cost-effective in doing so (Dretzke et al., 2005; McCart, Priester, Davies, & Azen, 2006). However, not all parent training programs are equally effective. Behavioral parent training programs that teach parents disciplining skills to change their child's behavior are generally more effective in reducing child behavior problems than nonbehavioral parent training programs that alter parental attitudes towards childrearing (Lundahl, Risser, & Lovejoy, 2006). Although parent training programs are extensively studied, knowledge about the effectiveness of parent training programs for parents of (pre)adolescent children outside the USA is limited. In the present study, we therefore examined the effectiveness of a European parent training called Parents and Children Talking Together (PCTT).

Theoretical background of PCTT

PCTT was developed for parents with preadolescent and early adolescent children, who are characterized by starting or relatively mild behavior problems (Van As & Janssens, 1995). The content of PCTT is based on theoretical insights from Parent

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Effectiveness Training (PET; Gordon, 1980) and Parent-Management Training-Oregon Module (PMTO; Forgatch & DeGarmo, 1999). Just as with PET, the PCTT module works toward family relationships that are characterized by (1) acceptance, being non-judgmental toward other family members, and (2) genuineness, being honest in expressing one's feelings. In addition, just as with PMTO, the PCTT module is based on the view that the parent-child relationship is a hierarchical one, in which parents are responsible for guiding and disciplining their children (Patterson & Forgatch, 1987). These insights are reflected in the main goal of PCTT: to decrease child problem behavior by stimulating parents to pay attention to their child's (increasing) need for autonomy and involvement in arguments, but at the same time 'stay in control' and use adequate disciplining strategies when necessary.

The main goal of PCTT is specifically tailored to fit the parent-child dyad in transition. Early adolescence is known to be a period of change in both structure and content of parent-child interactions (Laursen, Coy, & Collins, 1998). Parental lack of skills in handling these changes might set the stage for coercive cycles in which children's problem behavior and parental disciplining practices negatively reinforce one another (Patterson & Forgatch, 1987). PCTT emphasizes the importance of paying attention to the growing needs and capabilities of preadolescent children to form their own opinions, norms, and values. Consequently, children should be allowed a certain degree of freedom and decisiveness in problem solving. Parents, however, should demand their children to be responsible and to keep agreements, and determine the degree of influence their children have in decision making (Van As & Janssens, 1995).

Over the past decades, several RCTs have examined the effectiveness of parent training programs in the USA, Australia, UK, and elsewhere (e.g., Scott et al., 2001). Most of these studies focused on the effectiveness of parent training programs for disruptive behavior in young children, such as the Incredible Years program (Webster-Stratton, 2001) focusing on children aged three to six or six to twelve, or focus on broad age ranges such as PMTO (Forgatch & DeGarmo, 1999). PCTT in contrast focuses exclusively on the (pre)adolescent period with children ranging ten to fifteen years of age. Parenting programs concerning (pre)adolescent problem behavior are less prevalent, although some programs have specifically targeted adolescent populations (e.g., Functional Family Therapy, Alexander & Parsons, 1973; Teen Triple-P, Sanders & Ralph, 2002). Outside the USA, however, knowledge on the effectiveness of these programs is still limited.

For whom does PCTT work?

One previous, though quasi-experimental, study found increased constructive and less negative communication between mothers and children of families participating in the PCTT program (Van As, 1999). In the previous study though, no evidence was found for an effect of PCTT on child problem behavior. This may be explained by the fact that statistical power was limited to find a possible secondary effect of PCTT on child problem behavior. Also, it is difficult to interpret the previous results, because the non-randomized design in which parents were allocated to either the intervention or the control group based on the city they lived in may have led to biased group comparisons. We therefore aim to replicate and extend the findings of Van As (1999) in a randomized controlled trial.

Apart from the question how PCTT works, it is crucial to examine which families benefit most from the intervention. Meta-analyses have shown that parent training programs are more effective for families with higher socioeconomic status (Lundahl et al., 2006). This may be due to the fact that the organizational setting of group interventions (e.g., sharing experiences with other parents and practicing skills in role plays) matches the needs and abilities of higher educated families better than those of families with lower educational levels, who may benefit more from individual therapy (Lundahl et al., 2006). We therefore expected larger effects of PCTT for families with higher educational levels. With regard to child characteristics, we expected influences of children's gender and age on the PCTT effect. These hypotheses are based on empirical findings that families with more severe problems at the start of an intervention benefit most (e.g., Hautmann et al., 2010). More specifically, we expected to find larger effects of PCTT for boys than for girls, and for older children than for younger children. PCTT's main focus is on improving family communication. Girls are known to be more skilled and interpersonally sensitive than boys when it comes to family communication (Fivush, Brotman, Buckner, & Goodman, 2004). Therefore, boys may benefit most from the PCTT intervention that focuses on improving their communication skills. When it comes to age, parent training programs are usually more effective for younger children, because their behavior is less persistent and therefore more malleable (e.g., Gardner, Hutchings, Bywater, & Whitaker, 2010). However, due to increased frequency as well as intensity of parent-child conflict in middle adolescence (Laursen et al., 1998) it may be that in our study especially families with children in middle adolescence (i.e., aged 15–16 years) benefit most from the intervention.

The present study

Based on observational and survey data from 78 families, we examined whether PCTT is effective in improving parental problem solving, communication skills, and disciplining behaviors, and in reducing child problem behavior. First, we hypothesized that participation in PCTT would improve parental communication and problem solving skills in conflict interactions, as well as reduce laxness and overreactiveness in parents' disciplining behavior. Second, we hypothesized that children's communication and problem solving skills would improve and that their problem behavior would decrease. Third, we expected that families with higher educational level would benefit more from PCTT, as well as families with children in middle adolescence, and families with boys.

Method

Procedure

Families were recruited in the South-East of the Netherlands through local newspapers, information bulletins on primary and secondary schools, and via flyers in supermarkets, community centers, and public libraries. The articles and flyers announced a seven-week parent training program for parents of (pre)adolescent children who experience parenting difficulties. This way, we aimed to acquire a community sample of parents that experienced parenting difficulties due to starting or mild behavior problems in their child(ren) - but not receiving any professional help. Families receiving professional mental health care ($N = 1$, see Figure 1) were excluded from the study, because the effects of this professional care could interfere with our study.

In a one-hour visit at their home, the participating parent and (pre)adolescent child completed a questionnaire and were videotaped during a 5 min discussion task, for which they gave their written consent. Parent and child were first invited to have a warm-up discussion in which they discussed a neutral subject such as “How to spend a million euro’s together”. After this warm-up, parent and child were asked to each write down three issues they had recently argued about. The research assistant compared the three issues written down by the parent and those written down by the child and picked the issue written down by both parent and child (in case there were multiple common issues, the issue highest on both lists was chosen; in case no common issue was written down, the first issue of the parent’s list was chosen, because a main focus of PCTT is on parental introduction and discussion of a problem). Parent and child were then asked to discuss the issue for 5 min. They were not encouraged to find a solution for the problem, but were asked to discuss it the way they usually discuss these kinds of issues at home. The research assistant picked a spare issue and asked parent and child to discuss this issue when they were finished discussing their first issue before the 5 min were over. The spare issue was the second highest common issue on both lists or in case there was no (other) common issue, the next issue on the parent’s list.

Within four weeks after the pretest measurement, the experimental group participated in PCTT, while the control group was invited to an information meeting on general parenting issues. This was done partly to increase retention in the study, but also to meet urgent needs for help or information from control group families who did not want to wait 12 weeks before they received any help or information. Since it is highly plausible that most parents who experience parenting difficulties will search for information on parenting and problematic parent–child situations, we decided to provide them with a general information meeting to meet this desire. Approximately 50% of all parents in the waiting list control condition attended this meeting. Within four weeks after the final PCTT meeting, all families were visited for a posttest measurement. The study procedure was approved of by the social faculty’s ethical committee.

Participants

Participants were 78 community-sample parents and their preadolescent and early adolescent children. Of the parents, 63 (81.8%) were mothers. Children ranged 9–16 years ($M = 13.09$, $SD = 1.75$). Of these, 44.9% were boys and 55.1% were girls. Parents were predominantly middle class (83% completed higher educational tracks) and most families were Caucasian (94.9%). The majority of the children (76.9%) lived in two-parent families. Per family only one parent participated in the intervention; allowing both parents to participate in the program would have resulted in a maximum of twice as much PCTT groups needed due to the PCTT requirement of a maximum group size of fifteen parents. All families were randomly assigned by an independent party, who was unfamiliar with our research hypotheses, to either the experimental ($N = 39$) or a waiting list control ($N = 39$) condition by using a random AB-allocation in which every new applicant was given either an A (i.e., experimental) or a B (i.e., control) code. Allocation codes were unknown to the researcher.

The PCTT intervention

PCTT consists of seven weekly 2 h meetings, in which a maximum of 15 parents participate. During the meetings, a four-step problem solving model guides parents through their efforts to improve their communication and problem solving skills. The first step concerns discussing the problem and focuses on attentive and active listening, combined with giving opinions in ways that are most efficient and least intrusive for the child. In the second step, parents are encouraged to think of possible solutions for arguments they have with their child. Emphasis is placed upon brainstorming and giving all family members the opportunity to come up with solutions without judging or criticizing each other’s ideas. The third and fourth step, respectively, concern the decision on a solution to the particular argument and evaluating the chosen solution. Here, PCTT emphasizes agreement between parents and children about identifiable rules and consequences – to increase the likelihood of a successful resolving process for all members.

Each meeting starts with the trainer and parents reflecting on homework assignments of the previous meeting, after which the trainer introduces the next topic (i.e., the next step of the problem solving model). Parents are encouraged to brainstorm on how to apply this next step of the model. After the brainstorm, parents are instructed by the trainer on skills (e.g., active listening) they can use in the specific step of the model and practice these skills in role plays with small groups of parents. The trainer coaches parents during the role plays and provides them with feedback afterwards. At the end of each

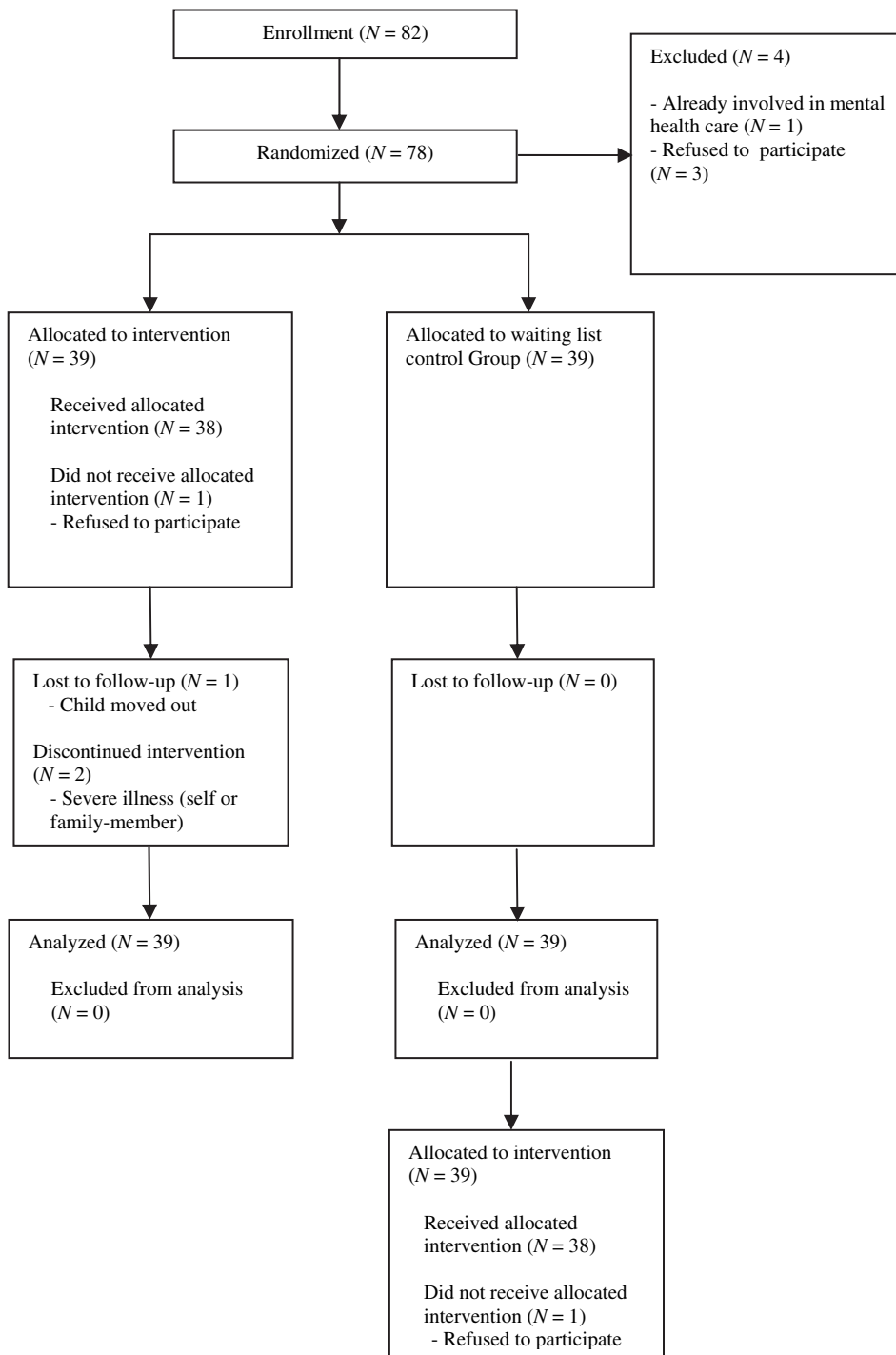


Fig. 1. Flow diagram of the progress through the phases of the randomized trial.

meeting, parents reflect on the meeting and the skills they learned and discuss on how to apply these skills in their home situation.

PCTT focuses on the changing parent–child relationship in (pre)adolescence where children strive for increasing autonomy. Instead of focusing on specific topics that may be very age dependent (e.g., substance use), the program aims at teaching parents effective communication skills to cope with the changing parent–child relationship. Parents can use these communication skills for discussing any topic with their children.

Both trainers of the program (educational psychologists) were trained (2 hour sessions, once a week for 6 months) by one of the developers of the program. During all PCTT parenting groups, both trainers met weekly with each other and with the developer of the program. Together, they evaluated each session based on the program's standardized protocol. For all elements of each session, trainers and developer checked whether the element was addressed during the session. If a certain element was not addressed during the session (which occurred in 6% of all sessions), the element was integrated in the next session. The program's developer was present as an observer at 20% of all sessions and provided trainers with extensive feedback afterwards.

On average, parents attended 5.92 sessions (out of 7). If parents were absent during a meeting, they were phoned by the trainer and informed on the discussed topics and next week's homework assignments. Also, parents were encouraged to contact each other in case of a missed meeting to stay informed.

Measures

Child problem behavior

Children's problem behavior – both as perceived by the child and his or her parent – was assessed with the Dutch version of the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997; Van Widenfelt, Goedhart, Treffers, & Goodman, 2003). The SDQ consists of 25 items divided over four problem scales (conduct problems, emotional problems, hyperactivity/inattention, & peer problems) and one prosocial scale with three answering categories (0 = not true, 1 = true, 2 = very true). Example items are “My child often fights with other children or bullies them” and “My child often loses temper”. A total difficulties score was computed from the mean scores on all four problem scales. Prior research indicated good internal consistency and concurrent validity of the SDQ in children in the range of 9–15 years (Van Widenfelt et al., 2003). Alpha's were 0.79 (pretest) and 0.86 (posttest) for parent report and 0.73 (pretest) and 0.84 (posttest) for adolescent self-report.

Dysfunctional disciplining behavior

The Parenting Scale (PS; Arnold, O'Leary, Wolff, & Acker, 1993) was used as a measure of dysfunctional disciplining behavior. The PS consists of 30 items using a 7-point scale response format with two opposite statements in which one reflects an effective strategy and the other an ineffective strategy (e.g., “When my child misbehaves... I keep my talks short and to the point vs. I give my child a long lecture” and “I threaten to do things that... I know I won't actually do vs. I know I will do”). The adolescent scoring structure of the PS was used, distinguishing two dysfunctional discipline styles for parents of adolescent children (Irvine, Biglan, Smolkowski, & Ary, 1999): (1) Laxness, reflecting permissive discipline and (2) Over-reactivity, reflecting authoritarian discipline with displays of anger, irritability and meanness. Mean scores for both the subscales as well as for the total dysfunctional parenting style scale were calculated. Parental self-report reliabilities ranged 0.69–0.85 (mean $\alpha = 0.78$).

To be able to use multi-informant information on parental behavior in disciplining situations, we constructed an adjusted child version of the PS. We reformulated all items into the child's experience. For example: “When my child misbehaves... I raise my voice or yell vs. I speak to my child calmly” was changed into “Why I misbehave, my mother... raises her voice and yells vs. speaks to me calmly”. This adjusted child version showed sufficient internal consistency with alpha's ranging 0.65–0.84 (mean $\alpha = 0.75$).

Conflict behavior

Conflict behavior of parent and child were observed during a 5 min discussion task. The videotaped task was coded using a reworked version of the Interactional Dimensions Coding System (Julien, Markman, & Van Widenfelt, 1986). A sub sample of five dimensions was selected that fitted the PCTT program objectives on communication skills, problem solving skills, and developing a positive parent-child relationship: (1) positive affect, which refers to the positivity of facial expressions, body positioning and emotional tone, (2) negative affect, which refers to the negativity of facial expressions, body positioning and emotional tone, (3) dominance, which reflects the actual achievement of control or influence over one's interaction partner, (4) problem solving skills, which reflects the ability to define a problem and work toward a mutually satisfactory solution, and (5) communication skills, which describes an individual's ability to convey thoughts and feelings in a clear, constructive manner. All five dimensions were separately coded on a five point Likert scale for the complete 5 min sequence, for both the parent's and the child's behavior. Twenty percent of the tapes was coded by all three observers with intraclass correlations ranging from 0.74 to 0.91 ($M(r) = 0.85$).

Analyses

A recent meta-analysis showed that parent training programs reach on average effect sizes of 0.60 (McCart et al., 2006). Power analysis showed that with an alpha of 0.05 and a power of 0.80, we needed a sample of 72 participants to detect effect sizes of 0.60 and higher. With our sample of 78 participants, we were able to detect effect sizes of 0.57 and higher (Faul, Erdfelder, Lang, & Buchner, 2007).

We tested the main intervention effects of PCTT with repeated measures MANOVAs, in which we conducted Bonferroni corrections of alpha levels to account for Type 1 errors. We conducted two MANOVA: one for the effects on parental behavior (i.e., observational measures and PS), and one for the effects on children's behavior (i.e., observational measures and SDQ). All *F*-values for intervention outcomes reported in this paper reflect the condition (experimental or control) by time interaction

effect. All analyses were conducted according to the intention to treat principle, with the last observation carried forward (LOCF) procedure used for missing posttest data. Simulation studies show that the LOCF procedure is more appropriate than other procedures in studies like ours with two waves of measurement and random drop-out (e.g., Shao & Zhong, 2003).

To examine for whom PCTT works best, we examined several moderators based on our literature review of child and family characteristics that were likely associated with intervention outcome (e.g., educational level of parents, children's age). These moderator effects were tested using three-way interactions in our repeated measures MANOVA. *F*-values reported in the moderator analyses thus reflect the three-way interaction term composed by condition, time, and the relevant moderator variable.

Results

Retention and base rates

Retention rates for the experimental and control groups were measured at each phase during the study (see Fig. 1). Four families dropped out after the pretest measurement, due to family illnesses or unwillingness to participate. *T*-tests were used to evaluate the equivalence of the groups. No differences were found between the experimental and control groups on descriptive characteristics or baseline measures (Table 1). Base rates of both parent and child reported dysfunctional disciplining behavior were in the clinical range (Arnold et al., 1993). Child problem behavior scores remained below clinical cut off scores (Goodman, 1997). These base rates indicate that our sample consists of parents who experience serious difficulties parenting their (pre)adolescent children and who may feel the need of preventing their children from developing behavior problems. Parent and child reports of dysfunctional disciplining behavior and child problem behavior correlated moderately, $r = 0.36$ and $r = 0.37$ respectively, which is in accordance with other multi-informant parenting and SDQ studies (e.g., Bögels & Van Melick, 2004; Goodman, 2001).

Main effects of PCTT

Our primary outcome concerned the improvement of parenting behavior. The repeated measures MANOVA of parental behavior showed that as expected, mean scores of the intervention and control group changed differently over time ($F(7,62) = 4.61, p < 0.01$). Table 2 show that participation in PCTT was associated with improved observed parental problem solving ($F(1,70) = 12.87, p < 0.01$) and communication skills ($F(1,70) = 11.77, p < 0.01$). Parents who received PCTT also showed more signs of positive affect ($F(1,70) = 8.18, p < 0.01$) and less dominance towards their children ($F(1,70) = 7.29, p < 0.05$) than parents in the control condition. In addition to these observational results, the experimental group was characterized by a significant larger decrease in parent-reported dysfunctional disciplining behavior ($F(1,70) = 5.25, p < 0.05$). This effect

Table 1
Demographic and baseline sample characteristics.

	Experimental group (<i>N</i> = 39)		Control group (<i>N</i> = 39)		<i>t</i> (<i>df</i>)	<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
<i>Demographics</i>						
Age parent	44.91	4.44	46.23	4.45	−1.31 (76)	0.19
Age child	13.05	1.83	13.12	1.74	−0.16 (76)	0.87
Educational level parent	4.31	1.32	4.38	1.18	−0.27 (76)	0.79
Gender parent (% male)	17.8		20.5		0.28 (76)	0.77
Gender child (% male)	41.0		48.7		0.68 (76)	0.50
<i>Parental behavior</i>						
Positive affect	3.31	0.66	3.39	0.68	−0.57 (76)	0.57
Negative affect	1.62	0.75	1.61	0.79	0.06 (76)	0.95
Dominance	2.69	0.80	2.61	0.76	0.49 (76)	0.63
Problem solving skills	2.67	0.93	2.55	0.89	0.55 (76)	0.58
Communication skills	3.28	0.65	3.32	0.57	−0.24 (76)	0.81
Dysfunctional parenting (PS; PR)	3.37	0.55	3.28	0.58	0.75 (76)	0.46
Dysfunctional parenting (PS; CR)	3.58	0.48	3.70	0.51	−1.05 (76)	0.30
<i>Child behavior</i>						
Positive affect	2.54	0.82	2.58	0.83	−0.22 (76)	0.83
Negative affect	2.28	0.79	2.47	1.17	−0.78 (76)	0.44
Dominance	1.87	0.89	2.18	1.06	−1.40 (76)	0.17
Problem solving skills	1.92	0.87	1.82	0.78	0.29 (76)	0.77
Communication skills	2.15	0.67	2.34	0.63	−1.27 (76)	0.21
Problem behavior (SDQ; PR)	0.50	0.23	0.51	0.25	−0.12 (76)	0.91
Problem behavior (SDQ; CR)	0.49	0.30	0.50	0.28	−0.25 (76)	0.80

Note. Educational level ranged 1–6 with 1 = Primary school, 2 = Secondary school: vocational track education, 3 = Secondary school: pre-university, 4 = Intermediate vocational education, 5 = Higher vocational education, 6 = University; PS = Parenting Scale; PR = Parent report; CR = Child report; SDQ = Strengths and Difficulties Questionnaire.

Table 2
Effects of PCTT of parent's behavior.

	Experimental group (N = 39)				Control group (N = 39)				Cohen's <i>d</i>
	Pretest		Posttest		Pretest		Posttest		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
<i>Observation</i>									
Positive affect	3.31	0.66	3.71	0.68	3.39	0.68	3.26	0.75	0.77
Negative affect	1.62	0.75	1.15	0.44	1.61	0.79	1.41	0.82	0.39
Dominance	2.69	0.80	1.88	0.59	2.61	0.76	2.46	0.79	0.90
Problem solving skills	2.67	0.93	3.44	0.86	2.55	0.89	2.38	0.78	1.09
Communication skills	3.28	0.65	4.03	0.72	3.32	0.57	3.41	0.75	0.98
<i>Questionnaire</i>									
Total score (PS-PR)	3.37	0.55	3.02	0.49	3.28	0.58	3.14	0.65	0.37
Laxness (PS-PR)	2.88	0.83	2.63	0.58	2.70	0.72	2.73	0.82	0.38
Overreactiveness (PS-PR)	3.99	0.92	3.28	0.85	3.80	1.02	3.69	0.91	0.65
Total score (PS-CR)	3.58	0.48	3.55	0.58	3.70	0.51	3.77	0.63	0.09
Laxness (PS-CR)	3.08	0.80	3.29	1.02	3.33	0.89	3.50	0.99	0.04
Overreactiveness (PS-CR)	3.83	0.96	3.64	1.03	3.93	1.16	4.05	1.19	0.29

Note. PS = Parenting Scale; PR = Parent report; CR = Child report.

was reflected in both subscales of the Parenting Scale, which implies that both parental laxness ($F(1,70) = 5.18, p < 0.05$) and overreactiveness ($F(1,70) = 12.07, p < 0.01$) decreased after participation in PCTT. Mean scores of parents in the experimental group were no longer in the clinical range on both subscales as well as the total scale (Arnold et al., 1993). No effect was found on children's report of parental disciplining behavior.

Our secondary outcome measure concerned children's problem behavior. The repeated measures MANOVA with all outcomes on children's problem behavior showed that children in the intervention and control group did not change differently over time ($F(7,62) = 1.27, n.s.$, see Table 3). Also on the subscales of problem behavior, we found no significant changes in children in the intervention group compared to children in the control group.

Moderation of PCTT effects

An effect of parental educational level was found on the relation between PCTT and parental communication skills ($F(1,62) = 2.84, p < 0.05$), such that parents with higher educational levels improved more. For children's age, we differentiated three developmental stages: preadolescence (9–11), early adolescence (12–13) and middle adolescence (14–16). Parents of children in the age of 14–16 showed the largest decrease in dominance ($F(1,65) = 3.42, p < 0.05$). Mixed effects were found for children's gender. Whereas parents participating for their daughters showed larger improvement in their problem solving skills ($F(1,68) = 4.29, p < 0.05$), they showed less improvement in their communication skills than parents participating for their sons ($F(1,68) = 4.81, p < 0.05$). This means that children's gender did not affect the behavior of children themselves, but their parents' behavior. More specific, parents of girls especially improved their problem solving skills, whereas parents of boys especially improved their communication skills.

Discussion

The present study examined the effectiveness of PCTT in a randomized controlled trial. In contrast to most other parent training programs, PCTT emphasizes mutuality in parent-child conflict negotiations in (pre)adolescence. Analyses of

Table 3
Effects of PCTT on children's behavior.

	Experimental group (N = 39)				Control group (N = 39)				Cohen's <i>d</i>
	Pretest		Posttest		Pretest		Posttest		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
<i>Observation</i>									
Positive affect	2.54	0.82	2.56	0.89	2.58	0.83	2.37	0.84	0.27
Negative affect	2.28	1.17	2.06	1.01	2.47	0.98	2.56	1.17	0.29
Dominance	1.87	0.89	1.68	1.07	2.18	1.06	2.08	1.19	0.09
Problem solving skills	1.92	0.87	2.47	0.96	1.87	0.78	1.95	0.86	0.54
Communication skills	2.15	0.67	2.32	0.73	2.34	0.63	2.26	0.64	0.37
<i>Questionnaire</i>									
Problem behavior (SDQ; CR)	0.50	0.23	0.55	0.29	0.51	0.25	0.53	0.30	0.11
Problem behavior (SDQ; PR)	0.49	0.30	0.43	0.27	0.50	0.28	0.48	0.30	0.14

Note. SDQ = Strengths and Difficulties Questionnaire; CR = Child report; PR = Parent report.

observational material showed that PCTT led to significantly improved parental communication and problem solving skills in conflict situations. Parents in the experimental condition also increased their display of positive affect and were less dominant towards their children. While most previous studies concerned the effectiveness of parent training programs focusing on adequate disciplining strategies, our results show that PCTT proves useful when aimed at improving parental communication and problem solving skills in conflict situations with (pre)adolescent children.

In addition to the observational results, we found that PCTT significantly reduced self-reported overreactiveness and laxness in parents. This finding is in accordance with other findings of decreased overreactiveness and laxness as an effect of parent training (e.g., Sanders, Markie-Dadds, Tully, & Bor, 2000). For the experimental group, scores of overreactiveness and laxness decreased below clinical norm scores, while scores of the control group stayed above clinical norms. Thus, after parents participated in the PCTT intervention, parental disciplining behavior was no longer dysfunctional or typical for families with child behavior problems (Arnold et al., 1993). Caution is warranted in drawing this conclusion as these norm scores were determined in the USA and have not yet been validated in the Netherlands. Reliable and clinical significance analysis (cf. Jacobson & Truax, 1991) revealed that 40% of the parents in the intervention condition showed reliable and clinically significant improvement.

No effects were found on children's report of parental overreactiveness and laxness. This implies that while parents experience a difference in the way they act in conflict situations towards their children, children do not report this same difference. This discrepancy between child and parent report of parenting is not uncommon (e.g., Taber, 2010) and may be explained by the urge parents may feel to see improvement, after significant investment of their time and energy in the intervention. Children, in contrast, may not feel this same urge as they did not participate themselves. Another explanation is that it takes more time before children notice changes in parental behavior; changes that we were not able to detect with short-term measurement only.

On children's behavior, we did not find significant effects of the PCTT intervention. No effect of PCTT was found on either observation data or questionnaire-based problem behavior. Explanations for the absence of this effect may be the lower base rates of child problem behavior in our sample (i.e., scores were below clinical norms at the start of the intervention) or that we focused exclusively on short-term effects of PCTT. The absence of short-term effects on child behavior is not uncommon (e.g., Niccols, 2009). More time may be needed for effects of PCTT to generalize to children's problem behavior.

We aimed to indicate which specific groups of parents in the experimental group benefited most from the intervention. Our final evaluation of PCTT therefore concerned the influence of family and child characteristics. First, larger effects were found for families with higher educational levels, which is in accordance with previous studies (e.g., Lundahl et al., 2006). One explanation for this effect may be that the organizational setting of group interventions like PCTT (e.g., sharing experiences with other parents and practicing skills in role plays) matches the needs and abilities of higher educated families better than those of families with lower educational levels. Another explanation may be found in the family stress model, which states that families with lower SES have less potential for change, due to financial, psychological, or social stressor accompanying their lower socioeconomic status (Conger et al., 1992, 2002). Second, effects of PCTT were largest for older children, age 14–16, which is inconsistent with most previous findings that interventions are more effective for younger children (e.g., Gardner et al., 2010). That PCTT is especially effective for older children may be explained by the relatively high levels of parent-child conflict in middle adolescence as compared to earlier developmental periods (Laursen et al., 1998). Finally, mixed results were found for the effect of children's gender, with parents of girls showing stronger improvements of their problem solving skills and parents of boys showing stronger improvements of their communication skills. These findings are in accordance with earlier findings that parent training programs are most effective when they target the family's deficits (e.g., Hautmann et al., 2010).

Strengths and limitations

The present study is one of the first outside the USA to test the effectiveness of parent training focusing on (pre) adolescents by using an RCT design. Other strengths of the present study are its multi-informant, multi-method design, and the integrated focus of the PCTT intervention on parents' disciplinary, and communication and problem solving techniques. In addition, although we cannot directly generalize our findings to the population at large, we were able to enroll a characteristic group of families in our current intervention (i.e., a group of parents that would be expected to make use of this specific service). Specifically, enrolled families had children who had not yet developed clinical-level problem behavior, but parents who already reported clinically dysfunctional parenting behaviors.

Several limitations, however, should be noted. First, the sample size was limited. Even though the present study had enough statistical power to detect moderate and strong intervention effects, a larger sample size would have increased possibilities to further differentiate between the effects of PCTT for different types of families, such as families with various ethnic backgrounds or different types of child problem behavior. A second limitation is the absence of double blind conditions in the study. Parents and researchers were – at least part of the time – aware of the experimental condition the parents were in. Parents in the experimental group, for example, knew they participated in a study on the effectiveness of the intervention they received, and for the research assistants visiting the parents for posttest assessment, conversations about the intervention program or the information meeting parents had attended were inevitable. Because conditions were not blind, no test for blinding was conducted.

Notably, only short-term effects were measured in the present study. In the future, conducting follow-up assessments will shed light on the stability of the effects, and will allow us to examine to what extent PCTT effects generalize to child problem behavior over time. However, before being able to develop any hypotheses concerning follow-up effects it was imperative that we first examined possible direct intervention effects (cf. Edwards, C elleachair, Bywater, Hughes, & Hutchings, 2007; Scott et al., 2010). The results indicated that directly at pretest, only significant effects on parents' behavior were present. However, although not significant, we did observe several trend-effects for PCTT in observed child communication skills ($p = 0.05$) and problem solving skills ($p = 0.06$). One should be careful in interpreting these outcomes, but given the fact that sleeper effects are not uncommon with regard to child behavior outcomes in parent-management trainings (e.g., Niccols, 2008; 2009) one might expect to find more pronounced positive effects on children's behaviors at a follow-up.

Implications for research and practice

Future research that incorporates follow-up measurements of PCTT effects is needed to add to the short-term effects we found in this study. This is particularly important given the fact that some of the PCTT effects may need more time to become manifest. Specifically, although changes in parental communication, problem solving, and disciplining skills may immediately be altered as a consequence of taking part in a parent training, it may take some time before children adjust their habitual patterns of behavior to an altered family state.

Nowadays, increasing emphasis is being placed on the use of evidence based programs in child and family care. The present study showed that the PCTT intervention is an effective means to improve parents' communication and problem solving skills, and to reduce dysfunctional parenting behavior in a subclinical community population. Although a thorough analysis of follow-up effects would be needed to examine long-term effects, the present findings do indicate that PCTT is promising for families with (pre)adolescent children who have starting or mild behavior problems.

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