

# The efficacy of the Triple P-Positive Parenting Program in improving parenting and child behavior: A comparison with two other treatment conditions

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## Abstract

The aim of this randomized controlled trial was to evaluate the efficacy of an evidence-based parenting program (the Triple P-Positive Parenting Program), intending to improve parenting skills and children's well-being. Parents participating in a Group Triple P program ( $n = 50$  couples) were compared with parents of a non-treated control group ( $n = 50$  couples) and parents participating in a marital distress prevention program (couples coping enhancement training (CCET)) ( $n = 50$  couples). The two major goals of this study were (a) to evaluate the efficacy of Triple P compared with the two other treatment conditions over a time-span of 1 year and (b) to answer the question whether this program that was developed in Australia is culturally accepted by Swiss parents. Results revealed that Triple P was effective with Swiss families. Mothers of the Triple P group showed significant improvements in parenting, parenting self-esteem, and a decrease in stressors related to parenting. Women trained in Triple P also reported significantly lower rates of child's misbehavior than women of the two other conditions. However, in men only a few significant results were found. Positive effects of the relationship training (CCET) were somewhat lower than those for the Triple P. These findings are further discussed.

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*Keywords:* Positive Parenting Program (Triple P); Couples coping enhancement training (CCET); Efficacy; Parenting; Intervention

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## Introduction

Studies in Germany and Switzerland as well as in other countries indicate that the prevalence of clinically significant child disorders and conduct problems is between 18% and 22% (e.g., Anderson & Werry, 1994; Lehmkuhl et al., 1998; Steinhausen & Winkler Metzke, 1997; Verhulst, 1995). Even more children (28%) are labeled as difficult by their parents (Sanders et al., 1999). These findings represent an important and disquieting phenomenon of modern societies. Spence (1998) argued that multiple factors contribute to the development of a child's dysfunctions and that risk factors may interact in a multiplicative and not only

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additive manner. Thus, several studies reveal that apart from child factors (e.g., temperament of the child), environmental factors (e.g., low income, crowded or dangerous neighborhoods, the influence of peers, media, inadequate social support networks), and family variables (e.g., poor parenting, marital distress of the parents, parental psychopathology) figure among the most powerful predictors of negative child outcomes (e.g., Aviezer, Sagi-Schwartz, & Koren-Karie, 2003; Erel & Burman, 1995; Grych & Fincham, 1990; Loeber & Farrington, 1998; Rapee, 1997; Spence, 1998). In this study, we focus on two well-known risk factors: (a) *poor parenting* (characterized by a lack of a supporting and warm relationship between parents and the child, a lack of maternal responsiveness, as well as inconsistent or rigid and punishing rearing practices) and (b) frequent exposure of the child to *marital conflicts* (characterized by high negativity in dyadic interaction, escalation or withdrawal). The reasons justifying these two targets are threefold. First, empirical evidence shows that both risk factors are among the most powerful predictors of child disorders. Secondly, both risk factors might be positively influenced by preventive interventions (which is not so evident regarding other risk factors such as parental psychopathology and/or poverty). Lastly, evidence-based prevention programs exist to intervene in families. Along similar lines, Sanders, Markie-Dadds, and Nicholson (1997) argued that prevention efforts should focus on strengthening both the parenting and marital relationship in order to promote healthy family functioning and child well-being. As effective prevention programs to strengthen parenting competencies (e.g., Sanders, Markie-Dadds, Tully, & Bor, 2000) and enhance marital quality (e.g., Jakubowski, Milne, Brunner, & Miller, 2004) exist, our interest was in comparing both ways of strengthening family functioning. We did so by offering couples either an evidence-based parenting-oriented program (Triple P) or an evidence-based marriage-oriented prevention program (couples coping enhancement training (CCET)). It was hypothesized that enhanced parenting as well as a more harmonious marriage promote a more supportive family atmosphere which then creates a healthier family environment to raise children (e.g., Cowan & Cowan, 2000; Feinberg, 2002; Sanders et al., 1997).

### *Aims of this study*

While a number of previous studies have evaluated the efficacy of Triple P, to date there are no studies that have compared the effects of interventions focusing on either marriage or parenting on child and parenting outcomes in a single study. This question is intriguing for several reasons. Firstly, several studies have shown that marital relationships and parenting are related to each other (see Krishnakumar & Buehler, 2000) and that parenting programs can also enhance marital quality (Dadds, Schwartz, & Sanders, 1987). Additionally, marital distress prevention programs not only have shown positive effects on marital quality (e.g., Halford, Markman, Kline, & Stanley, 2003; Shadish & Baldwin, 2003), but also on parenting (e.g., Cowan & Cowan, 2000; Sanders et al., 1997). Although an improvement of marital quality is associated with better child outcomes (e.g., Kanoy, Ulku-Steiner, Cox, & Burchinal, 2003; Wilson & Gottman, 1995), we hypothesize that an improvement of parenting has a more proximal effect on child well-being and as a result should produce a stronger effect. This study is aimed at addressing this question by comparing an evidence-based parenting program (the Triple P-Positive Parenting Program) with an evidence-based marital distress prevention program (CCET) and a non-treated control group. The design of this study controls for the effects of positive expectancies (by use of the control condition) and of marital improvement (by use of the marriage-oriented approach), thus allowing us to contribute a genuine improvement due to an enhancement of parenting. A second aim of this study is to evaluate the efficacy of Triple P in a European, predominantly non-English-speaking country (Switzerland); previously most of the studies regarding the efficacy of Triple P have been conducted in English-speaking countries. As one of the first studies to evaluate the efficacy of Triple P with a European sample, we hope to address whether this program works in another cultural context.

The following hypotheses were tested: (1) Couples learning particular parenting strategies in a Triple P program would benefit more in terms of changes in parenting and the up-bringing of children than control couples (without any specific intervention); (2) parents participating in Triple P would show better effects than parents in the CCET condition, as Triple P focuses more precisely on the improvement of parenting (one key-dependent variable); (3) both intervention programs (Triple P and CCET) would show similar effects

on child out-comes and (4) mothers would benefit more from Triple P than fathers due to the fact that the former are more likely to be involved in child rearing, specifically seen in Switzerland.

## Method

### Participants

In this study, 150 couples with children aged between 2 and 12 years (mean age 6.6 years) were randomly assigned to one of three programs (the Triple P, CCET or an untreated control group). The mean age of the target child to whom parents completed a set of questionnaires was  $M = 6.6$  years ( $SD = 2.83$ ). The target child was in 63% of the cases the first-born child, in 33% the second-born child, and in the remaining 4%, the third or fourth child. Couples participating in one of the two treatment conditions (Triple P or CCET) were compensated \$85.00 (US) to go towards the inscription fee. Demographics of the three samples are presented in Table 1.

The overall dropout rate of the 150 couples was 10.7% among women and 13.3% among men. Forty-eight women of the Triple P couples (dropout rate 4%), 46 women of the CCET couples (drop-out rate 8%), and 40 women of the control group (dropout rate 20%) completed all questionnaires at all four times of measurement. With respect to male participants, 47 of the Triple P group (dropout rate 6%), 46 of the CCET group (dropout rate 8%), and 37 of the control group (dropout rate 26%) yielded complete data. The dropout rates were somewhat higher among men than women and in the control group than in the treatment groups. A potential explanation for the difference in dropout rates between females and males is that women who complete a parenting program may also be easier to attract and engage in parenting research than men. Reasons for dropouts were heterogeneous (moving away, accidents, separation, no longer interested in participation). One reason for attrition in controls was also the exclusion of couples that had engaged in a treatment outside of the study condition. The comparison between subjects with complete vs. incomplete data yielded no significant differences on any demographic variables, except for Swiss citizenship. Foreigners (as defined as non-Swiss) were more often in the group with incomplete data than Swiss subjects,  $\chi^2(1) = 7.25$ ,  $p < .01$ . Furthermore, no significant differences were found for the target variables at pre-test.

Table 1  
Socio-demographic characteristics of the three samples

	Triple P		CCET		Control group	
	Women	Men	Women	Men	Women	Men
Age	37.8 (4.3)	39.4 (4.9)	37.0 (4.5)	39.9 (4.5)	37.6 (3.7)	39.7 (4.5)
Swiss citizenship (%)	94.0	91.8	96.0	92.0	89.6	88.0
<i>Education</i>						
Elementary school (%)	0.0	0.0	0.0	2.0	2.0	2.0
Associate degree (%)	49.0	30.6	42.0	40.0	49.0	40.0
High school (%)	20.4	20.4	40.0	12.0	18.4	6.0
College/university (%)	30.6	49.0	18.0	48.0	30.6	52.0
<i>Income (family income)</i>						
\$0–39,999 (%)	8.0	12.0	10.0			
\$40,000–79,999 (%)	78.0	80.0	58.0			
\$80,000 and more (%)	14.0	8.0	32.0			
Married (%)	90.0	95.0	95.0			
Duration of relationship	13.3 (4.8)	12.9 (5.4)	13.7 (5.3)			
Number of children	2.2 (0.8)	2.2 (0.8)	2.2 (0.7)	2.2 (0.8)	2.5 (1.1)	2.5 (1.1)
Age of target child	6.4 (2.9)	6.3 (2.9)	6.5 (2.8)	6.9 (3.2)	6.7 (2.4)	6.9 (2.8)
Target child is male (%)	53.1	56.0	58.0	58.0	51.0	54.0

Note. Standard deviations are presented in brackets.

## Measures

Each of the outcome measures below were selected as they have been widely used in previous studies evaluating the impact of parent training interventions including Triple P (Sanders et al., 2000). Furthermore, they have been shown to be reliable with parents of children in the targeted age group in this study.

### *Parenting Scale (PS; Arnold, O’Leary, Wolff, & Acker, 1993)*

In this study, a shortened version with 13 items was used for measuring parents’ dysfunctional discipline styles on two subscales: *laxness* (permissive discipline) and *over-reactivity* (authoritarian discipline, displays of anger, meanness, and irritability). These two scales constitute the total score and both were rated on a 7-point scale. In the present study, the reliabilities of the scales were  $\alpha = .81$  (PS laxness),  $\alpha = .77$  (PS over-reactivity), and  $\alpha = .74$  (PS total).

### *Parenting Sense of Competence (PSOC, Johnston & Mash, 1989)*

The PSOC is a 16-item scale assessing two dimensions of parenting self-esteem on a 6-point scale that spans from strongly agree (1) to strongly disagree (6). The first scale encompasses “skills/knowledge or parental efficacy” measuring the perception of degree to which a parent believes s/he has acquired the skills and understanding to be a good parent (e.g., having adequate skills in problem solving) ( $\alpha = .73$ ). The second scale assesses “valuing/comfort or satisfaction with parenting” evaluating the degree to which a parent is comfortable in the parenting role and the value s/he places upon that role. This scale reflects parenting frustration, anxiety and motivation ( $\alpha = .65$ ). The two scales can be combined to form a total score of *parental self-esteem* ( $\alpha = .76$ ).

### *Parent Problem Checklist (PPC; Dadds & Powell, 1991)*

The PPC is a 16-item questionnaire that measures inter-parental conflict with regard to child rearing. It rates parents’ ability to cooperate and to work together facing child up-bringing concerns. For each item, mothers and fathers have to indicate whether there is concern over the issue. If the answer on a particular item is “yes,” then parents can indicate the extent of the problem on a 7-point scale. In this study, the reliabilities of the pre-measures were  $\alpha = .89$  (PPC frequencies) and  $\alpha = .74$  (PPC burden).

### *Eyberg Child Behavior Inventory (ECBI)*

The ECBI by Eyberg and Pincus (1999) is a 36-item multidimensional questionnaire measuring parental perception of disruptive behavior in specific contexts in children aged 2–16 years. The child’s disruptive behavior is rated on a 7-point scale (intensity score: Cronbach’s  $\alpha = .90$ ) and the amount of disruptive behaviors that are perceived as a problem by the parents (problem score:  $\alpha = .90$ ). The ECBI discriminates reliably between children with and without behavior conduct problems.

### *Dyadic Adjustment Scale (DAS; Spanier, 1976)*

This questionnaire was designed to assess the quality of the relationship as perceived by both partners. It yields a general measure of satisfaction in the intimate relationship by using total scores and permits the evaluation of four independent aspects of the close relationship: dyadic satisfaction, dyadic cohesion, dyadic consensus, and expression of affects. Three different types of rating scales are used with the DAS. The total score represents the sum of all items, ranging from 0 to 151 ( $\alpha = .90$ ), where higher scores reflect a better relationship. This measure was used as a control variable in this study.

## Procedure

The efficacy of Triple P was tested by means of a randomized controlled trial (examining three groups) using a 1-year follow-up design. Participants were recruited via public advertisements published in several newspapers in Switzerland. These advertisements invited interested parents to participate in a study where the effects of two different treatments were examined: those being (a) a child rearing-oriented treatment and (b) a marriage-oriented treatment. Although no particular parenting or marital problems were required for

participation in the study, perhaps couples were attracted by the fact that they would learn how to effectively deal with problems with raising children. The interventions were described to help parents to better manage everyday family life. Thus, it is likely that parents experiencing some kind of stress related to raising children were more likely to participate in the programs.

Participants were asked to complete questionnaires at four times: at pre-test (time 1, 2 weeks prior to the intervention); post-test (time 2, 2 weeks after the completion of the training), 6-month follow-up (time 3), and a 1-year follow-up (time 4). The control group completed the questionnaires at the same time points as the Triple P group. Questionnaires were mailed to the couples at home with a prepaid return envelope. Mothers and fathers were asked to complete them independently from one another.

### *Intervention conditions*

#### *Triple P-Positive Parenting Program (Triple P)*

One widely used parenting program is the Triple P-Positive Parenting Program (e.g., Sanders, 1999). Triple P is a multilevel, parenting and family support program that aims to prevent severe behavioral, emotional and developmental problems in children by enhancing the knowledge, skills, and confidence of parents. Triple P incorporates five levels of intervention of increasing strength for parents of children from birth to age 12. Level 1 provides all parents with access to information about parenting using print and electronic media. This level of intervention aims to increase community awareness of parenting resources, to encourage parents to participate in programs. Level 2 is a brief, one or two session primary health care intervention providing anticipatory developmental guidance to parents of children with mild behavior difficulties, with the aid of tip sheets and videotapes that demonstrate specific parenting strategies. Level 3 targets children with mild to moderate behavior problems and include active skills training for parents with a four-session intervention format. Level 4 is an intensive eight-session individual, group, or self-help parenting program for parents of children with more severe behavioral difficulties (four workshop sessions and four telephone sessions). Finally, level 5 interventions represent enhanced behavioral family interventions in more severe cases (e.g., relationship conflict, parental depression, or high levels of stress). This tiered multilevel strategy recognizes that parents have differing needs and desires regarding the type, intensity and mode of assistance they may require.

In this study, both parents, mothers and fathers, participated in the level 4 group version of Triple P which is offered as universal prevention (in a group format) in Switzerland, addressing parenting issues for all parents, independently of current problems or child disruptive behaviors. Level 4 group format is not conceived as an intervention for parents with severe child problems (like in Australia) but rather as a program for all parents willing to learn more about positive parenting. In Switzerland, this kind of format is commonly used in the context of universal prevention also by other programs. The efficacy of the level 4 group program has been successfully documented in previous studies (see Sanders, Markie-Dadds, & Turner, 2003). The group format Triple P is used as a moderate intensity but cost effective universal prevention program in Switzerland.

Parents received four group sessions of parent training (each session lasting two and a half hours). Upon completion of the group sessions, parents participated in four individual telephone consultations (15–30 min duration each). Parents also received a copy of the “Every Parent’s Group Workbook” (Sanders et al., 2003) containing the key learning principles of the program and exercises to be completed in-session and between sessions. The program involved teaching parents 17 core child management strategies. Ten of the strategies were designed to promote children’s competence and development (e.g., praise, engaging activities, and incidental teaching) and seven strategies were designed to help parents manage misbehavior (e.g., setting rules, logical consequences, quiet-time, and time-out). In addition, parents were taught how to create a planned activities routine in order to enhance the generalization and maintenance of parenting skills. Consequently, parents were taught to apply parenting skills to a broad range of target behaviors in both home and community settings with the target child and relevant siblings. Parents learned to set and monitor goals for behavior change and to enhance their skills in observing their child’s and their own behavior. Active training methods such as modeling, rehearsal, practice, feedback, and goal setting were used to teach specific parenting skills throughout the program within a self-regulatory framework as described by Sanders (1999). Group

Triple P typically takes 8 weeks to complete (4 weeks of group sessions and another 4 weeks of personal telephone contact).

### *The CCET*

The CCET was designed to improve marital competencies and it is an evidence-based distress prevention program that is described in more detail elsewhere (Bodenmann, 1997; Bodenmann & Shantinath, 2004). The CCET is used in the context of universal, indicated and selective prevention. It is based both upon stress and coping theory and social learning theories (Bodenmann, 2005). In addition to traditional elements of couples programs (e.g., communication and problem-solving skills), CCET also addresses individual and dyadic coping in promoting marital satisfaction and in reducing marital distress. The CCET pursues goals on the individual as well as on the dyadic level, such as (a) improving one's own stress management, (b) enhancing the ability to cope as a couple (dyadic coping), (c) sensitizing the couple to issues of mutual fairness, equity, and respect, (d) improving marital communication, and (e) improving the couple's problem-solving skills.

Several didactic elements are used such as short lectures with video examples, diagnostic assessments (e.g., evaluation of one's own stress levels), communication styles, problem-solving abilities and coping skills, quizzes for determining the couple's mastery of the training material, demonstrations of effective and ineffective approaches to problem analysis, video and live demonstrations by the course leader that model effective communication skills and dyadic coping, and supervision and feedback on the couple's behaviors in role plays. These role plays are exercises that are supervised according to a ratio of one trainer per two couples. A high degree of standardization of the program is ensured through the use of a detailed and highly structured manual for trainers.

While Triple P is offered in this study as a level 4 interventions, encompassing four group sessions (enrolling 8–10 parents in each workshop), over 4 weeks, for two and a half hours per session, with four subsequent telephone contacts, the CCET is offered as a weekend workshop in a group format (of 4–8 couples per workshop). Both types of interventions are skill oriented and have a cognitive-behavioral orientation and did not differ in their duration (Triple P 15 h: 12 h workshop, 2 h telephone contact, 1 h autodidactic reading vs. CCET: 15 h of workshop). Both formats further required homework after the session is completed.

Each practitioner delivering the Triple P intervention was an accredited Triple P service provider having completed a Triple P professional training course (encompassing 3 days of theoretical and practical training with a final exam). CCET providers were accredited CCET providers (advanced level graduate students in clinical psychology) who had successfully passed a written exam and an evaluation of videotaped coaching of couples. Each provider received 30 h of training over a 4-day period and 20 h of group supervision before delivering the program. Both program providers (Triple P and CCET) were equally trained and we believe that no differences with regard to the quality of delivering the programs existed that might have influenced the findings.

Standardization among group facilitators was promoted through the use of a detailed and structured manuals and close supervision in both Triple P as well as CCET. Treatment adherence was ensured by regular supervision during the study and by means of session checklists where providers had to record which specific elements of the intervention they had used. The control group couples did not receive any intervention (untreated control group).

## **Results**

### *Preliminary analyses*

A series of statistical tests were conducted for examining whether there were any differences between the three groups on the various demographic variables, the aforementioned PSs, and marital quality as measured by the DAS prior to participation in the study. Results suggested that there were no significant differences between the three groups with respect to the demographic variables as shown in Table 1. Similarly, no significant differences were found for the parental measures. However, a significant group difference was found for marital quality (DAS total score) in both women and men. Women of the CCET group reported a significant lower marital quality than women of the Triple P group,  $F(1, 251.5) = 5.88, p < .05$ , and women of

the control group,  $F(1, 251.9) = 7.68, p < .01$ . Likewise, men of the CCET group reported a significant lower marital quality than men of the Triple P group,  $F(1, 251.5) = 6.74, p < .05$ , and men of the control group,  $F(1, 251.8) = 9.87, p < .01$ . These unexpected group differences emerged even though couples were randomly assigned to the three groups.

### *Statistical analyses*

As recommended by Petkova and Teresi (2002) mixed model analyses were conducted with sex and group as fixed effects for evaluating the overall efficacy of Triple P. For the time factor, an unstructured covariance matrix was used to model the dependency between repeated factors. The unstructured matrix specifies no pattern and is completely general. Thus, all variances and covariances will be freely estimated. Intercept and time were additionally treated as random effects with an identity covariance matrix having uncorrelated elements and unity variance. The identity covariance matrix presumes that there is no correlation between the elements. All mixed models analyses with the parental scales as dependent variables were conducted by including marital quality (DAS total score) measured prior to intervention, as a covariate in order to control for the group differences that occurred at pre-test intervention in marital quality.

For the analysis of dyadic data measured over time, mixed model analyses have two advantages over conventional repeated measures analysis of variance (ANOVA), with time and gender as within factors (because of the non-independence of dyadic data) and groups (three treatment conditions) as between factors. First, using an unstructured covariance matrix, the assumption of homogenous variances across time and sex is not required. Second, through the use of the restricted maximum likelihood method for estimating the statistical parameters, all observed data could be included in the analyses. The restricted maximum likelihood technique is superior to and has more statistical power than case deletion methods if there are missing data (see, e.g., Allison, 2002; Velicer & Colby, 2005). Following the reflections made by Gross and Fogg (2004), we did not use intent-to-treat method, as this approach may be less promising in the context of prevention studies.

### *Effects of Triple P intervention on parenting*

Means and standard deviations (SD) of the PSs and the inference statistical results of the mixed model analyses (controlling for marital quality) are presented in Table 2. As can be seen there was a significant main effect for time in all three groups for all measured variables, indicating that there are considerable changes over time across the three groups. A significant main effect for the factor group was found for the PS (total score), the subscales “over-reactivity” and “burden” on the PPC and marital quality (DAS total score).

Interaction effects between time and group were observed for the total score of the PS, the subscale over-reactivity on the PS, as well as the total score of marital quality (DAS). These results support the prediction that changes over time were related to the intervention conditions. A comparison of the mean scores on the parental variables reveal that the strongest decrease in dysfunctional parenting was observed in the Triple P group followed by the CCET group, while there were only minimal changes found in the control group. It is worth noting that the use of a balanced three group design including two treatment groups compared with a non-treated control group results in a reduction of the likelihood for detecting significant interaction effects between time and group compared with control designs, including only one treatment group that is compared with a non-treated control group.

The significant interaction effects between sex and group for parenting over-reactivity and PPC burden suggests that female participants benefit more from the trainings than male participants. Gender differences were only found for three of the 11 scales, indicating that spouses differ across time and group. However, no significant effects were found for the interaction between sex and group, between sex and time, and between sex, time, and group (see Table 2).

Results of pairwise comparisons between Triple P and CCET, and Triple P and the control group, as well as between CCET and the control group across post-measurement and follow-up one and two are presented in Table 3. Results show that women of the Triple P group reported significantly better scores 1 year after the treatment than women of the control group in eight scales (out of 11). Specifically, significant or marginal improvements in mothers in the Triple P group (compared with the control group) were found dysfunctional

Table 2  
Means and standard deviations for pre-, post-, FU1, and FU2-intervention measures of the parenting scales

	Triple P							
	$t_1$		$t_2$		$t_3$		$t_4$	
	<i>w</i>	<i>M</i>	<i>W</i>	<i>m</i>	<i>w</i>	<i>m</i>	<i>w</i>	<i>m</i>
<i>Parenting Scale (PS)</i>								
PS total score	40.3 (8.5)	39.9 (9.5)	34.2 (7.9)	36.3 (10.0)	34.4 (8.2)	38.3 (11.0)	35.5 (8.7)	38.6 (10.8)
PS laxness	13.5 (4.0)	15.6 (4.7)	13.2 (4.5)	14.2 (5.1)	12.1 (3.7)	14.8 (5.5)	12.3 (3.7)	15.5 (5.4)
PS over reactivity	24.7 (6.8)	21.3 (6.2)	18.7 (4.7)	19.2 (5.7)	20.2 (6.3)	20.5 (6.5)	21.0 (6.3)	20.3 (6.4)
<i>Parenting Sense of Competence (PSOC)</i>								
PSOC total score	65.4 (8.0)	65.6 (10.4)	69.6 (8.0)	68.0 (8.8)	69.7 (8.7)	67.3 (9.8)	70.2 (9.2)	67.3 (10.5)
PSOC satisfaction	38.5 (5.8)	39.5 (7.2)	40.9 (5.7)	40.7 (5.9)	41.0 (6.1)	40.6 (6.7)	41.4 (6.1)	40.3 (7.1)
PSOC self-efficacy	26.9 (4.0)	25.9 (4.4)	28.7 (4.0)	27.5 (4.0)	28.7 (4.5)	26.6 (4.4)	28.8 (4.5)	26.9 (4.4)
<i>Parent Problem Checklist (PPC)</i>								
PPC frequencies	40.4 (13.4)	43.5 (18.0)	37.8 (17.0)	38.8 (15.2)	37.4 (18.0)	37.0 (14.4)	36.0 (17.2)	37.2 (15.3)
PPC burden	40.4 (13.4)	43.5 (18.0)	37.8 (17.0)	38.8 (15.2)	37.4 (18.0)	37.0 (14.4)	36.0 (17.2)	37.2 (15.3)
<i>Eyberg Child Behavior Inventory (ECBI)</i>								
ECBI problems	117.7 (23.4)	118.9 (27.5)	104.7 (23.9)	110.1 (25.2)	105.8 (27.8)	107.7 (27.6)	99.9 (28.0)	101.1 (31.2)
ECBI intensity	10.9 (6.0)	10.1 (7.9)	7.9 (5.1)	8.1 (6.8)	7.3 (5.9)	7.2 (6.7)	6.7 (6.5)	7.2 (6.6)
<i>Dyadic Adjustment Scale (DAS)</i>								
DAS total score	106.2 (12.8)	107.1 (13.7)	110.0 (13.6)	108.3 (15.8)	109.1 (14.3)	110.7 (13.6)	109.6 (14.5)	109.4 (13.8)
<b>CCET</b>								
	$t_1$		$t_2$		$t_3$		$t_4$	
	<i>w</i>	<i>m</i>	<i>w</i>	<i>m</i>	<i>w</i>	<i>m</i>	<i>w</i>	<i>m</i>
<i>Parenting Scale (PS)</i>								
PS total score	40.0 (8.1)	42.6 (10.2)	37.4 (7.2)	41.1 (9.6)	37.6 (9.4)	39.0 (9.6)	37.2 (7.6)	40.2 (10.3)
PS laxness	13.5 (4.5)	15.5 (5.6)	13.0 (4.0)	15.7 (5.0)	13.4 (4.7)	14.9 (5.1)	12.9 (4.1)	15.2 (5.2)
PS over reactivity	24.2 (5.5)	24.2 (6.8)	22.0 (5.1)	22.4 (6.2)	21.9 (5.5)	21.5 (6.1)	22.3 (5.6)	22.4 (6.3)
<i>Parenting Sense of Competence (PSOC)</i>								
PSOC total score	63.2 (8.8)	63.5 (9.4)	65.7 (10.0)	65.4 (10.4)	65.7 (9.7)	65.9 (9.9)	66.3 (9.6)	65.8 (9.7)
PSOC satisfaction	37.9 (5.9)	38.4 (5.9)	39.6 (6.7)	38.5 (6.3)	38.9 (6.4)	39.1 (6.7)	39.5 (6.4)	39.3 (6.2)
PSOC self-efficacy	25.2 (5.1)	25.1 (4.8)	26.1 (4.9)	26.8 (4.8)	26.8 (5.1)	26.9 (4.3)	26.8 (5.0)	26.5 (4.5)
<i>Parent Problem Checklist (PPC)</i>								
PPC frequencies	47.5 (17.7)	47.6 (15.7)	38.9 (13.4)	41.8 (13.8)	39.3 (14.4)	42.9 (15.0)	41.2 (16.7)	41.7 (13.1)
PPC burden	47.5 (17.7)	47.6 (15.7)	38.9 (13.4)	41.8 (13.8)	39.3 (14.4)	42.9 (15.0)	41.2 (16.7)	41.7 (13.1)

		<i>t</i> <sub>1</sub>		<i>t</i> <sub>2</sub>		<i>t</i> <sub>3</sub>		<i>t</i> <sub>4</sub>														
		<i>w</i>	<i>m</i>	<i>w</i>	<i>m</i>	<i>w</i>	<i>m</i>	<i>w</i>	<i>m</i>													
<i>Eyberg Child Behavior Inventory (ECBI)</i>																						
ECBI problems		123.8 (23.8)	124.1 (24.5)	110.2 (23.7)	117.2 (27.2)	110.7 (24.8)	111.7 (29.2)	107.5 (25.9)	111.9 (26.6)													
ECBI intensity		12.9 (8.1)	11.2 (7.3)	9.4 (7.0)	9.1 (6.7)	9.9 (7.7)	9.3 (7.5)	9.2 (7.0)	9.0 (7.0)													
<i>Dyadic Adjustment Scale (DAS)</i>																						
DAS total score		99.4 (15.0)	99.8 (16.0)	105.6 (13.9)	104.7 (11.9)	103.0 (14.9)	102.7 (15.3)	103.7 (13.3)	103.4 (15.9)													
Control group																						
<i>Parenting Scale (PS)</i>																						
PS total score		41.7 (10.2)	41.8 (8.7)	40.6 (9.3)	42.7 (9.8)	40.1 (10.4)	40.1 (11.2)	39.5 (10.0)	39.4 (9.8)													
PS laxness		14.4 (5.3)	15.8 (4.6)	14.7 (5.0)	16.4 (5.1)	13.8 (5.3)	15.2 (5.6)	13.4 (4.4)	15.6 (4.7)													
PS over reactivity		24.9 (7.3)	23.1 (6.0)	23.5 (7.2)	23.2 (6.2)	23.7 (6.9)	22.1 (6.7)	23.8 (7.2)	20.9 (6.3)													
<i>Parenting Sense of Competence (PSOC)</i>																						
PSOC total score		64.7 (8.4)	64.4 (7.3)	66.0 (8.9)	64.9 (8.5)	66.3 (8.9)	66.0 (7.9)	65.1 (10.2)	66.4 (6.8)													
PSOC satisfaction		38.2 (5.9)	39.4 (5.6)	38.2 (6.4)	40.0 (6.8)	38.2 (6.6)	40.0 (4.9)	37.5 (6.7)	39.6 (4.7)													
PSOC self-efficacy		26.4 (4.2)	24.9 (4.4)	27.8 (4.6)	25.4 (4.5)	28.0 (4.7)	26.0 (4.2)	27.5 (4.7)	26.8 (3.6)													
<i>Parent Problem Checklist (PPC)</i>																						
PPC frequencies		39.2 (16.9)	43.3 (16.8)	41.8 (19.2)	40.9 (15.4)	37.9 (17.2)	36.6 (14.3)	39.5 (18.9)	38.4 (15)													
PPC burden		39.2 (16.9)	43.3 (16.8)	41.8 (19.2)	40.9 (15.4)	37.9 (17.2)	36.6 (14.3)	39.5 (18.9)	38.4 (15)													
<i>Eyberg Child Behavior Inventory (ECBI)</i>																						
ECBI problems		118.4 (25.4)	116.4 (22.1)	115.4 (22.6)	109.2 (18.5)	115.8 (23.5)	105.7 (20.2)	112.4 (28.3)	101.8 (24.5)													
ECBI intensity		12.6 (6.9)	10.3 (7.9)	12.2 (5.5)	8.8 (5.8)	10.6 (6.1)	8.6 (6.1)	10.8 (7.9)	7.9 (6.3)													
<i>Dyadic Adjustment Scale (DAS)</i>																						
DAS total score		107.4 (15.2)	108.8 (13.5)	105.2 (17.5)	109.4 (12.9)	107.4 (14.7)	112.4 (12.5)	108.4 (17.2)	110.4 (13.2)													
		Sex			Time			Group			Sex × time			Sex × group			Time × group			Sex × time × group		
		df <sub>1</sub>	df <sub>2</sub>	<i>F</i>	df <sub>1</sub>	df <sub>2</sub>	<i>F</i>	df <sub>1</sub>	df <sub>2</sub>	<i>F</i>	df <sub>1</sub>	df <sub>2</sub>	<i>F</i>	df <sub>1</sub>	df <sub>2</sub>	<i>F</i>	df <sub>1</sub>	df <sub>2</sub>	<i>F</i>	df <sub>1</sub>	df <sub>2</sub>	<i>F</i>
PS total		1	146.7	3.17	3	219.2	19.93***	2	151.8	3.59*	3	192.7	1.73	2	146.7	0.51	6	218.5	3.72**	6	192.0	1.66
PS laxness		1	148.7	15.77***	3	215.5	3.88**	2	146.5	1.25	3	191.0	0.77	2	148.7	0.26	6	215.2	0.87	6	190.9	1.48
PS over reactivity		1	141.2	2.23	3	214.3	22.65***	2	149.5	4.09*	3	184.3	4.20**	2	141.1	0.67	6	213.7	4.67***	6	183.8	2.00
PSOC total score		1	150.8	0.56	3	223.1	16.36***	2	146.5	2.05	3	175.7	0.73	2	150.7	0.50	6	223.0	0.46	6	200.0	1.76
PSOC satisfaction		1	147.6	0.94	3	215.2	7.31***	2	140.8	1.29	3	182.6	0.53	2	147.5	1.66	6	215.6	0.88	6	182.3	1.87
PSOC self-efficacy		1	143.0	7.15**	3	226.4	15.55***	2	144.3	2.15	3	181.4	0.53	2	142.9	2.28	6	224.6	0.33	6	180.8	1.27
PPC frequencies		1	146.7	1.43	3	234.3	8.47***	2	144.5	1.37	3	169.4	0.54	2	146.5	0.08	6	234.9	1.31	6	169.1	0.68
PPC burden		1	142.5	2.17	3	233.9	9.96***	2	148.3	3.75*	3	175.1	3.61*	2	142.3	1.69	6	233.3	1.64	6	192.1	1.84
ECBI problems		1	138.9	0.03	3	242.9	46.33***	2	150.9	1.17	3	166.8	1.08	2	138.8	2.63	6	243.6	1.12	6	166.8	1.29
ECBI intensity		1	135.9	5.28*	3	239.5	25.65***	2	148.3	1.79	3	164.8	0.89	2	135.8	2.42	6	239	0.86	6	164.3	0.87
DAS total		1	146.3	1.75	3	247	6.76***	2	146.8	4.68*	3	146.5	0.89	2	146.1	1.52	6	246.8	2.26*	6	146.4	0.86

Note. Female's and male's marital quality at pre-intervention was included in the analyses as covariables, except for the results of the DAS total score. Standard deviations are presented in brackets.  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

Table 3  
Differences between Triple P and CCET and Triple P and control group at post-intervention measurement, follow-up 1 and 2

	Women				Men					
	<i>M</i> diff.	df	<i>F</i>	<i>d</i>	<i>M</i> diff.	df	<i>F</i>	<i>d</i>		
<i>Parenting Scale (PS)</i>										
PS total										
Triple P-CCET	-2.52	279.4	2.11		-0.17	-2.46	279.4	2.02		-0.17
Triple P-CG	-5.52	285.8	9.85	**	-0.37	-2.87	287.0	2.55		-0.19
CCET-CG	-2.99	287.1	2.86	+	-0.20	-0.41	286.1	0.05		-0.03
PS laxness										
Triple P-CCET	-0.62	280.1	0.50		-0.08	-0.53	280.3	0.38		-0.07
Triple P-CG	-1.66	287.1	3.50	+	-0.22	-0.83	288.0	0.85		-0.11
CCET-CG	-1.03	288.3	1.35		-0.14	-0.30	287.1	0.11		-0.04
PS over reaction										
Triple P-CCET	-1.88	277.5	2.87	+	-0.20	-2.03	277.5	3.37	+	-0.22
Triple P-CG	-3.70	284.5	10.79	**	-0.39	-1.93	286.3	2.81	+	-0.20
CCET-CG	-1.81	286.1	2.56		-0.19	0.10	285.3	0.01		0.01
<i>Parenting Sense of Competence (PSOC)</i>										
PSOC total										
Triple P-CCET	3.54	260.0	4.35	*	0.26	1.57	260.7	0.86		0.11
Triple P-CG	3.74	265.8	4.74	*	0.27	1.27	269.9	0.52		0.09
CCET-CG	0.20	266.5	0.01		0.01	-0.30	268.5	0.03		-0.02
PSOC satisfaction										
Triple P-CCET	1.59	255.8	1.95		0.17	1.42	255.5	1.56		0.16
Triple P-CG	2.75	262.5	5.67	*	0.29	-0.12	265.7	0.01		-0.01
CCET-CG	1.16	263.3	1.00		0.12	-1.54	265.1	1.72		-0.16
PSOC self-efficacy										
Triple P-CCET	1.96	265.6	6.17	*	0.30	0.32	267.3	0.16		0.05
Triple P-CG	0.96	274.2	1.44		0.14	1.12	278.1	1.86		0.16
CCET-CG	-1.00	274.7	1.54		-0.15	0.80	276.0	0.96		0.12
<i>Parent Problem Checklist (PPC)</i>										
PPC frequencies										
Triple P-CCET	-3.14	211.0	1.21		-0.15	-4.17	213.1	2.12		-0.20
Triple P-CG	-1.97	217.1	0.47		-0.09	-0.46	225.8	0.02		-0.02
CCET-CG	1.17	218.1	0.16		0.05	3.71	221.7	1.61		0.17
PPC burden										
Triple P-CCET	-1.38	234.8	5.94	*	-0.32	-1.19	236.0	4.42	*	-0.27
Triple P-CG	-1.74	241.5	9.15	**	-0.39	-0.56	249.5	0.91		-0.12
CCET-CG	-0.36	243.1	0.39		-0.08	0.63	246.8	1.16		0.14
<i>Eyberg Child Behavior Inventory (ECBI)</i>										
ECBI problems										
Triple P-CCET	-5.89	230.8	1.59		-0.17	-6.34	230.5	1.85		-0.18
Triple P-CG	-9.71	236.4	4.19	*	-0.27	2.50	242.7	0.27		0.07
CCET-CG	-3.81	237.7	0.64		-0.10	8.84	242.1	3.35	+	0.24
ECBI intensity										
Triple P-CCET	-2.23	226.9	3.39	+	-0.24	-1.22	227.7	1.02		-0.13
Triple P-CG	-3.69	232.1	9.06	**	-0.40	-0.49	239.0	0.15		-0.05
CCET-CG	-1.47	232.6	1.42		-0.16	0.73	237.0	0.34		0.08
<i>Dyadic Adjustment Scale (DAS)</i>										
DAS total										
Triple P-CCET	6.18	188.2	5.11	*	0.33	5.20	187.7	3.63	+	0.28
Triple P-CG	2.17	191.5	0.61		0.11	-2.52	197.8	0.80		-0.13
CCET-CG	-4.01	193.2	2.08		-0.21	-7.72	197.0	7.56	**	-0.39

Note: Female's and male's respective pre-intervention scores were included in the analyses as covariables. *M* diff. = mean difference between groups across all three time measurements (post, follow-up 1 and 2). Triple P = Positive Parenting Program, CCET = couples coping enhancement training, CG = control group. +  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

parenting (PS total score), laxness (marginal effect), over-reactivity, parenting sense of competence (PSOC total score), satisfaction with parenting, the subscale “burden” on the parenting problem checklist, ECBI problems, and ECBI intensity (see Table 3). Comparing women of the Triple P group with women of the CCET group, Triple P produced better improvements for the total score on the PSOC, the subscale “self-efficacy”, and the subscale “burden” on the PPC as well as for the DAS total with score. Furthermore, marginal effects were found for the subscale “over-reactivity” on the PS and ECBI intensity (see Table 3). In total, six out of 11 scales showed more improvement in women who had completed a Triple P workshop compared with women who had participated in CCET. However, the comparison of women of the CCET group with women of the control group showed that female participants of the CCET also reported significantly lower scores in terms of dysfunctional parenting (PS total score).

In men, however, no such pattern could be observed. Apart from the difference between Triple p and CCET on the subscale “burden” of the PPC (with better scores for Triple P in men) no significant effects were found between Triple P and control group or CCET. Male groups only marginally differed in the subscale “over-reactivity” where men of the Triple P group reported slightly better scores than the two other conditions and the DAS total score with higher scores for men of the Triple P men than for the CCET (see Table 3). Men who participated in CCET rated child behavior problems slightly higher and showed significantly lower scores on marital quality compared with men of the control group.

These results support the hypotheses that Triple P leads to a significant reduction of dysfunctional parenting, self-perceived burden caused by parental conflicts, and to an increase in parent’s sense of competence. Triple P also showed enhanced effects than the non-parenting-oriented marital distress

Table 4  
Effect sizes (Cohen’s *d*) for differences within the groups

	Women			Men		
	Pre-post	Pre-FU1	Pre-FU2	Pre-post	Pre-FU1	Pre-FU2
PS total						
Triple P	−0.89	−0.78	−0.70	−0.51	−0.22	−0.25
CCET	−0.36	−0.32	−0.38	−0.22	−0.48	−0.38
CG	−0.19	−0.19	−0.36	0.05	−0.29	−0.49
PSOC total						
Triple P	0.57	0.61	0.70	0.26	0.22	0.28
CCET	0.33	0.34	0.53	0.28	0.33	0.37
CG	0.26	0.30	0.10	0.16	0.29	0.46
PPC burden						
Triple P	−0.56	−0.50	−0.61	−0.06	−0.24	−0.42
CCET	−0.60	−0.44	−0.50	−0.17	−0.03	−0.25
CG	−0.08	0.09	−0.19	0.04	−0.22	<b>−0.08</b>
ECBI problems						
Triple P	−0.64	−0.60	−0.88	−0.43	−0.49	−0.89
CCET	−0.69	−0.69	−0.83	−0.35	−0.66	−0.65
CG	−0.25	−0.23	−0.39	−0.46	−0.52	−0.78
ECBI intensity						
Triple P	−0.54	−0.64	−0.76	−0.38	−0.37	−0.54
CCET	−0.61	−0.51	−0.63	−0.39	−0.36	−0.46
CG	−0.15	−0.46	−0.35	−0.38	−0.39	−0.44
DAS total						
Triple P	0.40	0.24	0.29	0.11	0.26	0.14
CCET	0.63	0.24	0.29	0.53	0.26	0.35
CG	−0.10	0.00	0.10	0.11	0.26	0.29

Note: Triple P = Positive Parenting Program, CCET = couples coping enhancement training, CG = control group.

Table 5  
Effect sizes (Cohen's *d*) for differences between the groups

	Women				Men			
	Pre	Post	FU1	FU2	Pre	Post	FU1	FU2
<b>PS total</b>								
Triple P vs. CCET	0.03	−0.37	−0.31	−0.21	−0.29	−0.52	−0.09	−0.19
Triple P vs. CG	−0.15	−0.70	−0.59	−0.41	−0.23	−0.69	−0.17	−0.03
CCET vs. CG	−0.18	−0.33	−0.27	−0.20	0.06	−0.15	−0.08	0.17
<b>PSOC total</b>								
Triple P vs. CCET	0.26	0.44	0.45	0.37	0.23	0.23	0.14	0.16
Triple P vs. CG	0.09	0.34	0.33	0.53	0.16	0.24	0.10	0.01
CCET vs. CG	−0.17	−0.11	−0.14	0.15	−0.08	0.01	−0.05	−0.16
<b>PPC burden</b>								
Triple P vs. CCET	−0.41	−0.37	−0.45	−0.50	−0.31	−0.21	−0.48	−0.46
Triple P vs. CG	−0.10	−0.55	−0.63	−0.49	−0.02	−0.12	−0.03	−0.34
CCET vs. CG	0.31	−0.17	−0.18	0.02	0.29	0.10	0.46	0.14
<b>ECBI problems</b>								
Triple P vs. CCET	−0.25	−0.22	−0.17	−0.28	−0.21	−0.28	−0.08	−0.39
Triple P vs. CG	−0.03	−0.36	−0.30	−0.41	0.10	0.14	0.14	0.03
CCET vs. CG	0.22	−0.14	−0.13	−0.12	0.31	0.44	0.22	0.44
<b>ECBI intensity</b>								
Triple P vs. CCET	−0.28	−0.27	−0.42	−0.43	−0.14	−0.16	−0.17	−0.23
Triple P vs. CG	−0.24	−0.62	−0.41	−0.64	−0.05	−0.04	−0.03	−0.12
CCET vs. CG	0.04	−0.35	0.02	−0.20	0.10	0.12	0.15	0.11
<b>DAS total</b>								
Triple P vs. CCET	0.49	0.35	0.48	0.50	0.52	0.25	0.51	0.37
Triple P vs. CG	−0.07	0.27	0.11	0.07	−0.12	−0.13	−0.13	−0.25
CCET vs. CG	−0.56	−0.09	−0.38	−0.44	−0.64	−0.39	−0.66	−0.63

Note: Triple P = Positive Parenting Program, CCET = couples coping enhancement training, CG = control group.

prevention program CCET. However, these effects are only present in women, whereas in men only one substantial improvement was found.

Tables 4 and 5 show effect sizes (Cohen's *d*), indicating changes over time within groups and differences between groups. Changes over time (within group effects) were computed by comparing the pre-measures with the three post-measures. The pre-measures were compared with the post-measurement, the measures 6 months after the training and the measures 12 months after the training for each group (Table 4). Between group effects were calculated by comparing the Triple P with the CCET group and the Triple P with the control group, at the post and the two follow-up measurements (Table 5). Results were reported for the total score of the PS, the parenting sense of competence total score (PSOC), the two ECBI scales, as well as the total score of marital quality (DAS).

The within subject effects for pre- vs. post-measures on the PSs (see Table 4) ranged from  $|.54|$  to  $|.89|$  for female, and from  $|.06|$  to  $|.51|$  for male participants of the Triple P. Strongest effects resulted in both women and men for the PS. With respect to common conventions, these improvements in the Triple P group are noticeable in women (almost up to one standard deviation). All effects were at least medium in magnitude for women. Effects for men were considerably lower, ranging up to medium in magnitude.

Somewhat lower effects arose for couples who participated in CCET. In women, effects ranged from  $|.33|$  to  $|.69|$  and in men from  $|.17|$  to  $|.39|$ . The strongest effects resulted from the ECBI problems and ECBI intensity, respectively. In the control group, effects ranged from  $|.08|$  to  $|.26|$  for women and from  $|.04|$  to  $|.46|$  for men.

The within effects for the difference between pre-measures and 6 months after the training ranged from  $|.50|$  to  $|.78|$  for women, and from  $|.22|$  to  $|.49|$  for men participating in the Triple P. That is, at least medium effects

arose for women and small effects for men. The effects for couples belonging to the CCET group were for female and male participants between  $|.32|$  and  $|.69|$  and between  $|.03|$  and  $|.66|$ . The effects for the control group ranged from  $|.09|$  to  $|.46|$  and from  $|.22|$  to  $|.52|$  for women and men.

A similar pattern arose for the comparison of the pre-measures with the 12-month follow-up. The effects for couples who participated in Triple P ranged for women and men from  $|.61|$  to  $|.88|$  and from  $|.25|$  to  $|.89|$ , respectively. For couples belonging to the CCET group, effect sizes ranged for women and men from  $|.38|$  to  $|.83|$  and from  $|.25|$  to  $|.65|$ , respectively. The effects resulting for the control group were between  $|.10|$  and  $|.39|$  and between  $|.08|$  and  $|.78|$  for women and men.

As expected, couples who participated in CCET reported higher marital quality than couples of the Triple P and control group, although effects seem to collapse 6 months after the training.

Effect sizes of pairwise comparisons between Triple P and CCET and between Triple P and control group are presented in Table 5. The direction of all effects was as expected with the exception of marital quality. When comparing the averaged effects across all three post-time measurements (post-measurement, follow-up 1 and 2), effects were consistently smaller between Triple P and CCET than between Triple P and control group, in women, except for parenting sense of competence and marital quality. Comparing Triple P with control group three medium averaged effect sizes were found: PS total ( $d_{\text{mean}} = -.57$ ), PPC burden ( $d_{\text{mean}} = -.56$ ), and ECBI intensity ( $d_{\text{mean}} = -.56$ ). All other averaged effects in women were small ranging from  $|.03|$  to  $|.42|$ . This was equally the case for the comparison between CCET and the control group.

The between effects for men were somewhat smaller on average. Small averaged effects were observed for PS total in both cases (Triple P vs. CCET:  $d_{\text{mean}} = -.26$ ; Triple P vs. CG:  $d_{\text{mean}} = -.29$ ), PPC burden (Triple P vs. CCET:  $d_{\text{mean}} = -.38$ ), and ECBI problems (Triple P vs. CCET:  $d_{\text{mean}} = -.25$ ). The other averaged between effects ranged between  $|.06|$  and  $|.19|$ , also for the comparison between CCET and the control condition.

In sum, the results based on the within and between effects support the assumption that couples participating either in a Triple P or CCET group benefit in terms of issues related to parenting and child rearing. As expected, effects were stronger for Triple P participants than for CCET participants. Analogous results were found for women compared with men. However, positive effects could also be observed in the control group condition.

### *Effects of Triple P intervention on child's problem behavior*

A commonly used measure for the efficacy of Triple P is the noted change in child's problem behavior as reported by their parents on the ECBI intensity using the cut-off of 11 (Eyberg & Ross, 1978). In sum, 48% of the women in the Triple P group reported their child's behavior in the clinically elevated range at pre-test, whereas 54% of CCET group and 53% of control group women did so (no significant difference between the three groups at pre-test). However, at post intervention, Triple P had reduced this rate considerably with only 22% of women rating their child's behavior as dysfunctional compared with 27% of CCET and 55% of controls. Results based on  $\chi^2$  statistics yielded a significant overall group difference ( $\chi^2 = 12.92$ ,  $df = 2$ ,  $p < .01$ ) and substantial difference between Triple P and the control group ( $\chi^2 = 10.94$ ,  $df = 1$ ,  $p < .001$ ). The latter effect was also found after 1 year (follow-up 2) where 20% of the female parents in the Triple P group perceived their child's behavior as problematic, compared with 30% in the CCET group and 40% in the control condition (Triple P vs. control group:  $\chi^2 = 4.04$ ,  $df = 1$ ,  $p < .05$ ).

Comparing within subject effects, significant lower effects were found for all comparisons in women participating in Triple P (pre vs. post:  $\chi^2 = 4.83$ ,  $df = 1$ ,  $p < .05$ ; pre vs. FU 1:  $\chi^2 = 4.83$ ,  $df = 1$ ,  $p < .05$ ; pre vs. FU 2:  $\chi^2 = 6.82$ ,  $df = 1$ ,  $p < .01$ ) and in women who participated in CCET (pre vs. post:  $\chi^2 = 4.90$ ,  $df = 1$ ,  $p < .05$ ; pre vs. FU 1:  $\chi^2 = 4.90$ ,  $df = 1$ ,  $p < .05$ ; pre vs. FU 2:  $\chi^2 = 4.12$ ,  $df = 1$ ,  $p < .05$ ).

A similar pattern was also observed for men. At pre-test 42% of Triple P group, 46% of CCET group, and 36% of control group perceived their child's behavior as problematic with regard to ECBI intensity. There was no significant difference between the groups at pre-test. At post-intervention, a reduction was found in all groups with a decrease of 16% in the Triple P, 14% in the CCET, and 8% in the control group compared with pre values. One year after the training, 23% of Triple P, 31% of the CCET, and 16% of the men of the control

group had ECBI intensity scores above the cut-off. There were no significant differences between groups across all time measures.

With respect to the within subject effects, significant lower effects in terms of ECBI intensity resulted for all comparisons in men participating in Triple P with the exception of the pre–post-comparison (pre vs. post:  $\chi^2 = 1.88$ ,  $df = 1$ ,  $p = .17$ ; pre vs. FU 1:  $\chi^2 = 4.80$ ,  $df = 1$ ,  $p < .05$  pre vs. FU 2:  $\chi^2 = 3.90$ ,  $df = 1$ ,  $p < .05$ ). There were no substantial effects, however, in men participating in CCET.

As the sample in this study was split roughly in half (between children in the clinical range and those outside the clinical range as defined by children's problem indicated) by the ECBI intensity variable, the mixed models were extended by including an additional group factor (child's behavior problem below the cut-off vs. above the cut off). Thus, mothers' scores were used to compute the ECBI factor since their estimation might be more reliable than those of the father. After running the expanded models, there was a significant main effect for the factor ECBI low vs. high in eight out of 11 models. No significant differences were found for laxness on the PS, PPC frequencies, and marital quality. In all other variables couples of the group reporting low child problems had better scores than couples reporting high child problems. Substantial interaction effects between time and ECBI groups were observed for ECBI problems and ECBI intensity as well as marital quality indicating that changes over time depended whether mother report low or high child problems. Specifically, Triple P and CCET parents reporting a lot of problem seemed to benefit more than Triple P and CCET parents reporting little child problems especially immediately after the training. All other interaction effects involving ECBI groups were not significant.

Overall, these findings illustrate in a coherent pattern greater efficacy of Triple P in reducing dysfunctional child behavior (as reported by mothers) after participation in a Triple P group program, as compared with either the control or CCET conditions. Nonetheless CCET, also showed an important reduction of child misbehavior in mothers' perception, as was hypothesized.

## Discussion

This randomized controlled trial is one of the first studies to evaluate the efficacy of Triple P in a European sample (Swiss parents) using two comparison conditions: (a) a non-intervention control group and (b) an intervention aimed at improving marital quality (CCET), over the course of 1 year. This design allows the efficacy of Triple P to be evaluated in a rather sophisticated manner with enhanced capacity to rule out competing explanations for change, rather than simply using a waitlist control or an attention-placebo condition. By examining the improvements in parenting and reductions in child's dysfunctional behavior achieved by Triple P compared with both a non-intervention control condition and an active, credible alternative intervention that targets marital quality the specificity of intervention effects can be examined (see Kanoy et al., 2003; Papp, Cummings, & Schermerhorn, 2004; Wilson & Gottman, 1995). Overall, the findings of this 1 year longitudinal treatment study supports the hypotheses that Triple P is an effective method for strengthening parenting competencies in mothers and for improving children's behavior (see also Sanders, 1996, 1998; Sanders & Dadds, 1993).

Positive effects of Triple P intervention in women were found with regard to parenting behavior (less over-reactive parenting), satisfaction with one's own parenting, and the perception of fewer burdens with regard to parenting. Furthermore, Triple P was able to reduce mother's reports of the child's disruptive behavior. Greater effects were found for Triple P compared with both the control parents and CCET parents. Although CCET also showed better effects in most of the dependent variables (in women), our findings indicate that Triple P group did better than CCET couples. The assumption that CCET was a much lower dose intervention than Triple P was not correct as both prevention approaches had the same theoretical cognitive-behavioral background and the same duration. CCET as well as Triple P are powerful intervention programs (for CCET see Bodenmann & Shantinath, 2004; Ledermann, Bodenmann, & Cina, 2007); thus, as our findings reveal, Triple P has a considerable higher impact on parenting variables than CCET. This is credible as CCET should only indirectly (by improving marital quality) positively influence parenting and child well-being. However, this hypothesis has not been tested in this study.

Furthermore, it should be noted that only few significant effects were found for men. This finding is surprising as both mothers and fathers participated together in Triple P groups. It is unclear why women

reported more positive effects for Triple P than men. One possible explanation might be that women are typically more skilled and experienced in observing children's behavior compared with men. This may be due to the fact that Swiss mothers are typically spending much more time with their children than fathers. In Switzerland, mothers are the primary agents of socialization for children and fathers mainly interact with their off-spring in the evening after work. For this reason, their parenting behavior is often not as challenged by the children as both usually spend privileged time together. Mothers, on the other hand, are primarily engaged in child rearing. It is widely held cultural belief that their job to deal with the children and they spend significantly more time with them than fathers do. Therefore, conflicts between mothers and children are more likely and more salient, meaning that mothers are more prone to show poor parenting, therefore effects of Triple P might be higher in this group. Another possible explanation is that women are generally more skilled at self-reflection and self-evaluation which allows them to give a more reliable picture of their parenting and of child behavior than fathers do (e.g., Fujita, Diener, & Sandvik, 1991). In particular child misbehavior can be rated by mothers in a more adequate way and based on a larger sample of behaviors, due to the fact that mothers interact more frequently with their children and not only in privileged times (see above). Our findings, that effects of Triple P were much weaker in fathers than mothers is, however, congruent to previous findings (e.g., Sanders et al., 2000).

In sum, these findings may suggest that in a situation where mothers spend most of their time with children and are the most likely implementers of Triple P advice, there is less need for fathers to change their parenting. This is particularly true if children are better behaved when they get home from work. Several other studies have examined whether fathers' involvement increases the beneficial effects of parenting interventions on children, and this seems not to be the case. If mothers improve their parenting, it works, providing fathers are not critical or undermining of mother's efforts to implement (e.g., Dadds et al., 1987; Ireland, Sanders, & Markie-Dadds, 2003).

This study further revealed that Triple P is culturally accepted also in a European country. Triple P showed significant positive effects in mothers compared with a marital distress prevention program and a non-treated control group. Other evidence also shows that this parenting program is not only highly effective but also well accepted. A previous study on the effectiveness of Triple P in Switzerland ( $N = 314$  mothers und 162 fathers) revealed that 91% of the parents rated Triple P as very helpful and 86% stated that they would again attend a Triple P group if they needed to (see Cina, Bodenmann, Hahlweg, Dirscherl, & Sanders, 2006; Ledermann, Cina, Meyer, Gabriel, & Bodenmann, 2004). Among these 476 parents, 85% reported an improvement of their child's behavior after their participation, an effect that was stable over 1 year.

These results, in addition to the findings of the present study support the notion that Triple P is well regarded by parents in Switzerland and that parenting strategies taught in Triple P are as applicable in Europe as in Australia or other parts of the world where it has been tested (e.g., Heinrichs et al., 2006; Leung, Sanders, Leung, Mak, & Lau, 2003; Thomas & Zimmer-Gembeck, 2007). This statement is further supported by a comparison of effect sizes found in our study and effect sizes reported in previous studies on Triple P. A meta-analysis by de Graaf, Speetjens, Smit, and Tavecchio (2008) shows that Triple P yielded within group effect sizes of  $d = .55$ – $1.46$  and between group effect sizes of  $d = .50$ – $1.27$  (for post and follow-up measurements up to 1 year). These effect sizes are comparable to the ones found in our study that ranged between  $d = .54$  and  $.88$  for within group effect sizes and  $d = .36$ – $.70$  for between group effect sizes (for parenting and child variables). In sum, it seems, however, that effects of Triple P were somewhat weaker in our sample than in the samples unified in the meta-analysis (including 14 international studies), but comparably with effects of European Triple P Studies (e.g., Heinrichs et al., 2006). A direct comparison with another parenting program in Switzerland is unfortunately not possible as Triple P is thus far the only scientifically evaluated program in this country.

There are few limitations to this study. One limitation concerns the fact that our findings only relied on parent's ratings of parenting and child behavior problems (albeit both parents completed questionnaires). No additional independent evaluations were made by clinicians, experts, teachers, or the children themselves. Thus, it is possible that results are biased by the fact that parents were the only source of information. Notwithstanding this limitation, for some of the variables of interest the parent is the only available informant (e.g., appraisals of parenting competence, low prevalence disruptive behaviors, infrequent but high impact marital conflict over parenting). This limitation is also due to the fact that children had a mean age of 6.6 years

and thus most of them were not able to complete reliably questionnaires. Nevertheless, the present findings provide support to previous empirical findings on the efficacy and effectiveness of Triple P, and provide important knowledge on the cultural transferability of this program in a European country.

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