

## Development and Aging

# Parenting programs during adolescence: Outcomes from universal and targeted interventions offered in real-world settings

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The aim of this naturalistic study was to explore short and long-term outcomes of five different group-based parenting programs offered to parents of 10 to 17-year-olds. Three hundred and fifteen parents (277 mothers and 38 fathers) who had enrolled in a parenting program (universal: Active Parenting, COPE; Connect; targeted: COMET; Leadership training for parents of teenagers [LFT]) answered questionnaires at three measurement waves (baseline, post-measurement, and one-year follow-up). The questions concerned parenting style, parental mental health, family climate and adolescent mental health. Results revealed small to moderate changes in almost all outcome variables and in all parenting programs. Overall, parents in COMET reported the largest short and long-term changes. No substantial differences in change were seen between the other programs. The results support the general effectiveness of parenting programs for parents of adolescents.

**Key words:** Adolescent mental health, parenting, parenting programs, prevention.

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### INTRODUCTION

Adolescence is a period of great change for the family, and the transition from childhood can be challenging for both youths and their parents (Steinberg & Silk, 2012). Not only does the child go through dramatic biological, cognitive, and social development, most teenagers' parents find themselves at mid-life, a potentially difficult time for many adults (Lachman, 2004; Steinberg, 2014). Adolescence is the one period in the child's life, other than infancy, that parents feel the most nervous and apprehensive about (Pasley & Gekas, 1984; Steinberg, 2001). Not surprisingly, most parents find support during these years important (Thorslund, Johansson-Hanse & Axberg, 2014). Furthermore, mental health problems often emerge during adolescence (WHO, 2015) and the quality of the adolescent's relationships with his/her parents is the most consistent predictor of adolescent mental health and well-being (Resnick, Bearman, Blum *et al.*, 1997; Sroufe, 2005). Despite this, interventions to support parents of adolescents are scarce (Chu, Farruggia, Sanders & Ralph, 2012). Recently, researchers and policy makers around the world have increasingly called for large-scale evidence-based parenting programs aimed to prevent psychological and behavioral problems in adolescents (Chu *et al.*, 2012). Structured parenting group programs are promising, yet little is known of their effects in parents of older children and teenagers, especially when they are offered to all parents, regardless of potential risk factors (Chu, Bullen, Farruggia, Dittman & Sanders, 2015).

### Background

Over the past decades, a variety of parenting programs have been developed and implemented in North America, Australia, and more recently in Scandinavia and other European countries. The

programs have somewhat different goals, but their overall shared purpose is to strengthen the parent-child relationship and to prevent psychological and behavioral problems in children and adolescents. They are commonly structured, with a number of standardized components, typically involving role-play and/or video vignettes to teach effective parenting skills and encourage reflection and practice (Stattin, Enebrink, Özdemir & Giamotta, 2015), and guided by a manual (SBU, 2010). They are usually delivered in a group-based format by trained group leaders, but also as self-directed programs, or individual face-to-face sessions (Wessels, 2012).

Programs are usually classified as either behavioral or relational (Stattin *et al.*, 2015). Behavioral approaches rely on social learning theories (Bandura, 1977) and are strongly influenced by behavior modification principles. Parents are typically taught systematic techniques and principles aimed at modifying the behavior of the child through encouraging cooperative behavior using praise and incentives, ignoring inappropriate behavior, and exerting authoritative discipline through rules, routines, and setting effective limits (Stattin *et al.*, 2015). Most of these "Parent Management Training" (PMT) programs are adaptations of, or inspired by, the Parent Management Training-Oregon (PMTO) model developed by Patterson and colleagues at the Oregon Social Learning Center (Forgath & DeGarmo, 1999).

In contrast to behavioral models, relational approaches emphasize parental awareness, understanding, and acceptance of the child's feelings. Dysfunctional communication patterns in the parent-child relationship are seen as the source of the child's inappropriate behavior (Lamont, 2008; Pinsker & Geoffroy, 1981; Wessels, 2012). Theory wise, relation-oriented parenting programs often relay on attachment theory (Moretti & Obsuth, 2009), family systems theory (Cunningham, Bremer & Secord, 2010) or individual psychology theory (Popkin, 1989).

Most parenting programs were originally developed for parents of younger children and for targeted or clinical populations. Over time, however, the interventions have been adapted and recommended to promote general mental health and prevent problems, including for parents of adolescents (Bremberg, 2006a). Several studies of structured parenting programs, mostly behavioral but also relational, have found positive effects such as decreased problem behaviors in children and improvements in parental mental health and parenting skills, mostly in efficacy, but also in effectiveness (Dretzke, Davenport, C., Frew *et al.*, 2009; Eyberg, Nelson & Boggs, 2008; Furlong, McGilloway, Bywater *et al.*, 2012; Michelson, Davenport, Dretzke, Barlow & Day, 2013; Stattin *et al.*, 2015). Most of these studies have sampled targeted or clinical populations, mainly parents of younger children or pre-teens (3–12 years), and studies of universally offered programs and programs for parents of adolescents are scarce (Chu *et al.*, 2015; Ulfsdotter, Enebrink & Lindberg, 2014).

#### EFFECTS OF PARENTING PROGRAMS ON PARENTS OF ADOLESCENTS

The topic for the present study is structured parenting group programs for parents of adolescents with a general purpose to strengthen the parent–child relationship to prevent adolescent psychological and behavioral problems based solely on parental training. Historically, and possibly yet today, the most common parenting programs for parents of adolescents are programs aimed at preventing or reducing adolescent alcohol, drug and/or tobacco use and/or antisocial (e.g. criminal) behavior. These so called *communication programs* have many similarities with the more general programs in focus for this article, since they aim to increase a positive parent–adolescent relationship and teach parents effective ways to communicate with their children (Bremberg, 2006a). In contrast however, several of them include modules where adolescents participate (separate or together with the parent) which have made it difficult to conclude what the effects depend upon, but studies have shown them to be effective in preventing and reducing substance use in both long and short term and in increasing positive parent–adolescent interaction (Kosterman, Hawkins, Haggerty, Spoth & Redmond, 2001; Spoth, Redmond & Shin, 2000, 2001; Vermeulen-Smith, Verdurmen & Engels, 2015).

At the time of writing, there is only a handful of published studies of programs for parents of adolescents with the main purpose to strengthen the parent–child relationship to prevent adolescent psychological and behavioral problems exclusively through parent training (i.e. Chu *et al.*, 2015; Leijten *et al.*, 2012; Moretti & Obsuth, 2009; Mullis, 1999). Only one of these studies (i.e. Chu *et al.*, 2015) had evaluated the long-term effects and no study had evaluated the effects of different programs simultaneously. Thus, there is a need for more studies of programs for parents of adolescents, in the general population as well as for those identified as at risk.

Research findings from the existing studies of communication programs and general programs for parenting adolescents can be categorized in different domains. Positive effects have been found in *parenting style*, such as less use of dysfunctional parenting

practices, increased involvement and problem-solving skills and improved confidence and satisfaction (Chu *et al.*, 2015; Kosterman *et al.*, 2001; Leijten, Overbeek & Janssens, 2012). Effects in *parental mental health*, such as decreases in symptoms of depression, anxiety and stress, have been found by some (Moretti & Obsuth, 2009) but not by others (Chu *et al.*, 2015). Further, positive effects have been found in *family climate*, with decreased family conflict and increased family cohesion (Chu *et al.*, 2015). Most studies have also found positive changes in *adolescent mental health*, such as decreased levels of adolescent problem behavior and psychiatric symptoms (Chu *et al.*, 2015; Leijten *et al.*, 2012; Spoth *et al.*, 2000).

#### Aims

Based on earlier research findings from studies of programs for parenting adolescents, the overarching aim of this study was to explore age-relevant psychological and behavioral outcomes from five different general parenting group programs – three universal and two targeted – for parents of adolescents in a naturalistic setting. The specific research aims were: (1) to explore short and long term change in parenting style, parents' mental health, family climate and adolescent mental health; and (2) to compare these outcomes between the different programs.

#### METHOD

This study is part of a research project supported by the Public Health Agency of Sweden and run by a research team at the Department of Psychology, University of Gothenburg. It was approved by the Regional Ethics Committee of Gothenburg. We collaborated with 12 municipalities in southwest Sweden that offered five of the most common parenting programs for parents of adolescents in Sweden. In total, 59 groups were included during the research period (September 2011 to February 2014). The design of the study was naturalistic; the research team followed already existing parental support activities in the participating municipalities. We did not recruit participants to the parent groups. Five parenting programs were investigated.

#### *Active Parenting teens groups*

The relation-oriented program Active Parenting was developed in the US (Popkin, 1989) and primarily based on Adler's (1935) individual psychology theory of development. The program stresses the child's psychological and behavioral goals, the use of natural and logical consequences, the importance of mutual respect, and methods of encouragement (Mullis, 1999). It targets all parents, caregivers, and other people living with children, and so is viewed as a universal intervention. The program aims at making caregivers more conscious of their own parenting styles to train them to become more "active" (authoritative) and less lenient or authoritarian. Encouraging and appreciative parenting is favored over the use of rewards and token economies characteristic of PMT programs, since the latter are thought to lead to an external locus of control focused on performance (Mullis, 1999). Active Parenting exists for parents of small children (1 to 4 years), preschool/school-aged children (2 to 12

years), and adolescents (11 to 18 years). The latter was adapted by Stagling Birgersson and Hansson (2012) in a Swedish version that focuses more on process and reflection than the American model (Bremberg, 2006b).

#### *Connect adolescent version*

Connect, another relation-oriented program, was developed in Canada (Moretti & Obsuth, 2009) based on attachment theory (Bowlby, 1969/1982, 1973, 1980). The program focuses on teaching parents about attachment in adolescent development, rather than on specific techniques for managing teen behavior. Parents are trained to take their children's perspective to understand their reactions and emotional experiences (Moretti & Braber, 2013). Although originally developed for caregivers of 13 to 18-year-olds (and later, of 8 to 12-year-olds) with serious behavioral and social-emotional problems, Connect is designed to be sensitive to parent-child issues that commonly emerge during (pre)adolescence such as desire for autonomy, peer relationships, and rejection of parental authority and beliefs (Moretti, Obsuth, Maysless & Scharf, 2012). In Sweden, Connect is used both as a targeted and a universal intervention. In the present study, the latter approach was used.

#### *COPE teenage version*

The COPE (Community Parent Education) program, developed in Canada (Cunningham *et al.*, 2010), is based mainly on social learning theory, but is also influenced by other theories such as family systems theory (Minuchin, 1974). COPE differs from other PMT programs in some ways. To be cost-effective, facilitate better group dynamics, and strengthen parental networks, COPE groups are recommended to include 20 to 30 parents. During sessions, parents work together in small groups to generate solutions to their problems; these solutions are then modeled and discussed in the larger group. COPE was originally developed for parents of 3 to 12-year-old children with externalizing problem behaviors, but it has been further adapted for parents of 13 to 18-year-olds. In Sweden, COPE is used as both a universal and a targeted intervention in a version adjusted to Swedish conditions (The Swedish COPE Association, 2015). In the present study, the universal approach was used.

#### *COMET 12–18*

The Swedish program COMET (Communication Method; Forster & Livheim, 2009) builds mainly on behavior analysis. Parents are encouraged to praise and reward desired behavior and to pay attention to and show interest in their children, rather than focusing on problematic behavior. A main characteristic of the program is its emphasis on planning and following-up on homework assignments. COMET 12–18 is an adaptation of the original COMET for parents of 3 to 11-year-olds. The adolescent version was developed for parents of teenagers with antisocial behavior, but it is sometimes offered universally. In the present study, the program was used as a targeted intervention.

#### *Leadership training for parents of teenagers (LFT)*

This Swedish program (Jörhall & Wibrån, 2013) was developed for parents who feel that they have lost control of their teenagers and it was created through continuous dialogue between clinicians and parents in the field. LFT is inspired mainly by various PMT programs, but incorporates aspects of structural family therapy and attachment theory. The program emphasizes parental leadership and ultimate responsibility for the atmosphere in the home and in the parent-adolescent relationship. LFT encourages parents to formulate personal goals for the aspects of their parenting that they want to change. The program is occasionally used as a universal approach but mostly, as well as in the present study, the program is run as a targeted intervention.

The five programs have somewhat different theoretical orientations and foci, but the practical content in the program manuals and the conduct of the interventions appear to be more similar than different. Common components are lectures on different themes, video vignettes, discussion and reflection exercises, and role-playing. Although the programs vary in their emphasis on various components, Connect differs from the other programs with its greater emphasis on lectures and less opportunities for parents' active participation in role-playing and group discussions. Most role-plays are modeled by group leaders instead of parents and no homework is assigned. For an overview of program characteristics, see Table 1.

#### *Procedure*

Parents were recruited to the interventions by representatives of the programs in their municipality, and trained leaders ran all programs in a municipal setting. Active Parenting, Connect, and COPE (27 groups in total) were offered universally, that is, advertised in schools, local newspapers, community websites, and other public venues. COMET and LFT (32 groups in total) were mainly targeted, that is, places where generally assigned to parents already in contact with social services or a child/adolescent psychiatric clinic but the groups were also advertised in similar public venues as described above, which allowed parents from the whole population to sign up for the program. According to parents' own reports, around 25% of participants in COMET and LFT were recruited this way. To illustrate the difference between the two types of programs, only around 7% of parents in Active Parenting, Connect and COPE were recruited through recommendations from professionals in social services or child/adolescent psychiatric clinics.

At the beginning of the first group session, a member of the research team informed parents about the study. Consenting participants were asked to fill in the baseline questionnaire at home, which was collected at the second meeting. The post-measurement questionnaire was either mailed out one week before, or delivered by group leaders, at the penultimate meeting. The questionnaires were collected by the research staff at the last meeting. One year after the groups began, parents were mailed a follow-up questionnaire and a prepaid reply envelope. As a reward for every completed questionnaire parents could choose either a scratch card or a gift card for groceries, each worth 3 euro.

Table 1. Program characteristics

Program	Prevention level	Theoretical ground	Sessions	Recommended group size	Modalities	Adolescent version evaluated?
Active Parenting	Universal	Relational (mainly Adlerian, but also inspired by Rudolph Dreikurs, Thomas Gordon, and Carl Rogers)	6 sessions @ 3 hours/ every other week; optional follow-up session	8–12 parents	Teaching, role plays, reflection exercises, homework, take-home materials	Mullis (1999)
Connect	Initially targeted, today also used universally (as in the present study)	Relational (mainly attachment theory, but also systemic theory)	10 sessions @ 1 hour/ week	12–14 parents	Teaching, role plays by group leaders, reflection exercises, take-home materials.	Moretti and Obsuth (2009), Moretti <i>et al.</i> (2012, 2013) and Jaf (2015)
COPE	Initially targeted, today also used universally (as in the present study)	Behavioral (mainly social learning theory, but also cognitive-attributional, family systems, and group theory)	10 sessions @ 2 hours/ week; optional follow-up sessions	20–30 parents	Teaching, videotaped modeling, role plays, group discussions, homework, self-monitoring.	No, only for parents of younger children (e.g., Cunningham, Bremer & Boyle, 1995; Stattin <i>et al.</i> , 2015; Thorell, 2009)
COMET	Targeted*	Behavioral (social learning theory, behavioral analysis)	8 sessions @ 2.5 hours/ week + booster session after 2 months	6 families (parents of 6 children)	Teaching, video vignettes, role plays, homework, take-home materials	Jalling <i>et al.</i> (2015) (but when used for prevention of antisocial behavior and substance use)
LFT	Targeted*	Behavioral (mainly social learning theory, but also functional and structural family theory and attachment theory)	9 sessions @ 1h 45 min/ week; optional follow-up session	10–12 parents	Teaching, role plays, reflection exercises, homework, take-home materials.	Jörhall (2008)

Note: \*These programs are occasionally used universally.

Table 2. Group and participant characteristics and comparisons of covariates used in the analyses, stratified by type of parenting program

	Active Parenting (A)	Connect (B)	COPE (C)	COMET (D)	LFT (E)	Total	F/ $\chi^2$	Post hoc test <sup>e</sup>
<b>Group characteristics</b>								
Number of study participants	46	62	65	27	115	315		
Number of study groups	9	9	9	7	25	59		
Study participation	63%	71%	50%	76%	66%	62%		
Group size (range and mean independent of study participation)	5-11 (M 8.8)	4-17 (M 11.6)	5-25 (M 15.2)	5-11 (M 7.7)	3-13 (M 7.8)	3-25 (M 10.2)		
<b>Participant characteristics</b>								
Proportion of mothers	82.6%	85.5%	92.3%	100%	87.0%	88.3%	<i>ns</i>	
Parents' age at baseline (% of the categories 31-40/41-50/51-60)	27.9/60.5/11.6 <sup>a</sup>	22.0/67.8/10.2	20.0/69.2/10.8	32.0/56.0/12.0	22.8/58.8/18.4	23.5/62.7/13.7	<i>ns</i>	
Parents w. higher education (college/university)	40.9%	61.4%	60.7%	34.6%	52.2%	52.5%	9.15	D < B & C
Living conditions (parents cohabiting)	62.2%	67.7%	56.3%	66.7%	34.2%	52.2%	$p = 0.06^b$ 24.08, $p < 0.001$	E < A, B, C, D
Children's age <sup>c</sup> and age range at baseline	13.37 (1.65) 11-17	12.81 (1.68) 10-17	13.28 (1.48) 10-17	14.63 (1.42) 11-17	14.79 (1.56) 11-20 <sup>d</sup>	13.87 (1.76) 10-20	22.48, $p < 0.001$ <i>ns</i>	D & E > A, B, C
Children's gender (proportion of boys)	56.5%	48.4%	53.8%	44.4%	47.8%	50.2%		
Previous professional contact regarding child	33.3%	48.3%	31.7%	65.4%	68.8%	51.6%	31.38, $p < 0.001$	D & E > A, B, C
Other professional contact during intervention reg. child	17.8%	12.5%	6.7%	50%	40.2%	25.9%	36.88, $p < 0.001$	D & E > A, B, C

Notes: ANOVA was used for the child age comparisons and chi-square tests for the remaining comparisons. *ns* = not significant at 5%. <sup>a</sup>Additionally, one parent in Active Parenting was between 21-30 and one parent in was 61+. <sup>b</sup>Parental education differed among programs as reported here but was not associated with the outcome variables; thus it was not included as a covariate in the analyses. <sup>c</sup>Mean and standard deviation in parentheses. <sup>d</sup>Bonferroni post hoc test was used with ANOVA and standardized residuals was used with chi-square. <sup>e</sup>One child in LFT was 18 years old and another was 20 years old at baseline.

### Participants

No exclusion criteria were used; all parents enrolled in one of the parenting programs were eligible. Between 50 to 76% of invited parents chose to participate in the study, which resulted in 358 participants (278 mothers and 80 fathers), of whom 43 were co-parents of the same child. We were unable to do attrition analyses on those who declined study participation, but according to lists of participants and anecdotal information the majority of the declining parents did not attend more than one or two group sessions and/or had severe difficulties with the Swedish language. Also, study participation was lower in COPE compared to other programs (i.e. 50% versus 63-76%).

To simplify model specifications and data analyses, and to avoid potential additional dependency in the data, we used only one parent report per child. Because the majority of parents were mothers, we used mothers' reports whenever possible. This resulted in 315 parents (Active Parenting  $N = 46$ , Connect  $N = 62$ , COPE  $N = 65$ , COMET  $N = 27$  and LFT  $N = 115$ ), of whom 277 (88%) were mothers and 38 (12%) were fathers. Of the 315 participating parents, 296 (94%) completed the post-measurement and 269 (85%) the follow-up measurement. Among the latter, two parents did not complete the post-measurement. For participant and group characteristics, see Table 2.

### Measures

The questionnaire booklet contained background questions about the child and the parent and behavioral and psychological measures. Reported internal validity (i.e. Cronbach's alpha) was calculated on the baseline measurements of the study sample. Except for the background questions (which were replaced by follow-up questions), the same questions were used at all three measurement waves.

*Background questions.* Socio-demographic questions about the parent: gender, country of origin, educational level, and marital status (with several answer options merged to "married/co-habiting" or "other" in the analyses).

Socio-demographic questions about the child: age, gender, and earlier or ongoing contact with child psychiatry or with school health care because of psychological problems.

*Parenting style.* To measure attitudes towards parenthood a composite score named *parents' negative attitudes* was constructed with six items from the Parental Locus of Control Scale (PLOC; Campis, Lyman & Prentice-Dunn, 1986; Hagekull, Bohlin & Hammarberg, 2001) and four items from the Parental Sense of Competence Scale (PSOC; Gibaud-Wallston & Wandersman, 1978), based on a factor analysis of all items. The first of three factors carried most of the variance and was thus chosen. *Parents' negative attitudes* regarding her/his own parenting consisted of: "I always feel in control when it comes to my child" (PLOC, reversed), "My child's behavior is sometimes more than I can handle" (PLOC), "Sometimes I feel that my child's behavior is hopeless" (PLOC), "My child often behaves in a manner very different from the way I would want him/her to behave" (PLOC), "Sometimes I feel that I do not have enough control over the direction my child's life is taking" (PLOC), "It is

not too difficult to change my child's mind about something" (PLOC, reversed), "Even though being a parent could be rewarding, I am frustrated now while my child is at his/her present age" (PSOC), "Being a parent is manageable, and any problems are easily solved" (PSOC, reversed), "Considering how long I have been a parent, I feel thoroughly familiar with this role" (PSOC, reversed), and "Being a parent makes me tense and anxious" (PSOC). Parents answers ranged from 1 ("Not true at all"/"Strongly disagree") to 6 ("Totally true"/"Totally agree"). Cronbach's alpha for the scale was 0.84.

In order to measure parents' reactions to the adolescent's behavior two scales were used: *Emotional outbursts* ( $\alpha = 0.79$ ) and *Attempted understanding* ( $\alpha = 0.70$ ) from Tilton-Weaver, Kerr, Pakalniskeine, Tokic, Salihovic and Stattin (2010), based on the answers to the question "What do you do when your child does something you really do not like?" The Emotional outbursts scale included four out of five items: "My first reaction is anger and I yell at the child," "I have problems controlling my irritation in such situations," "I easily get into arguments where we yell at each other," and "I get angry and have an emotional outburst." The Attempted understanding scale includes five items such as: "I listen and try to take the child's perspective." Parents answered on a three-point scale (1 = never/almost never to 3 = mostly).

*Parents' mental health.* The Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983) was used to measure *parental depression and anxiety*. The measure consists of two subscales, one measuring depressive symptoms, with seven items such as "I feel as if I am slowed down," and the other measuring anxiety symptoms, with seven items such as "Worrying thoughts go through my mind." A total score was calculated by adding together all items. Answers ranged from 0 (never) to 3 (almost always). Cronbach's alpha was 0.90.

The Caregiver Strain Questionnaire (CGSQ; Brannan, Heflinger, & Bickman, 1997) was used to measure *parental stress*. Parents were asked to look back on the last 6 months and report how they had been affected by their children's problems. The scale consists of 13 questions such as: "How often did you feel embarrassed because of your child's problems with feelings and behavior?" The scale ranged from 1 (never) to 5 (very often). Cronbach's alpha was 0.92.

*Family climate.* In order to measure family climate a questionnaire about four different family climates based on Baumrind's (2005) typology of parenting styles was used (Alfredsson, Broberg & Wirehag, 2013). Parents were asked to rate how well each of the following climates best described their own family:

- democratic: "In this family, members respect each other and listen to each other's opinions. Family members discuss and decide together. Everyone can influence the decisions";
- authoritarian: "In this family, parents decide most things. Only they can influence the decisions";
- permissive: "In this family, there are no direct rules. Family members do as they please. Everyone makes their own decisions, without having to ask other family members what they think"; and

- chaotic: “In this family, changes have occurred and the parents are not in charge anymore. Their opinions and power have lost significance, and the children make their own decisions.”

Parents rated how well their own family climate matched each of these descriptions (1 = not at all to 7 = very well). In this study, only democratic and chaotic family climates are reported as they are respectively the most positive and most negative.

*Adolescent mental health.* The *Total Difficulties* scale on the parental version of the Strengths and Difficulties Questionnaires (SDQ; Goodman, 1999; Smedje, Broman, Hetta, von Knorring, 1999) was used ( $\alpha = 0.84$ ) in order to measure adolescent psychiatric symptoms. The instruction to the parents was to choose the most fitting answer option (“not true,” “partly true,” or “totally true”) for 20 statements such as “Often complains of headaches, stomachaches, or sickness,” “Has many worries or often seems worried,” “Constantly fidgets or squirms,” “Often is unhappy, depressed, or tearful,” and “Often lies or cheats.”

The *Child Disclosure Scale* (Stattin & Trost, 2000) was used to assess the adolescent’s openness about everyday life events in the relationship with the parent. It contains five questions such as “Does your child spontaneously tell you about what happens in school (relationships with teachers and peers, etc.)?” Parents responded on a scale ranging from 1 (“never/not at all”) to 5 (“always/very much”). Cronbach’s alpha was 0.83.

#### Data analysis

To evaluate the effectiveness of the programs, a series of piecewise two-slope growth-curve multilevel models (see e.g. Snijders & Bosker, 2012) were fitted to the data using the lme4 package in R (Bates, Mächler, Bolker & Walker, 2014). Time in all models was coded as time in study, counted in months, with waves of measurements taking the values wave 1 = 0, wave 2 = 2.3, and wave 3 = 12. All conditioned intercepts were centered on wave 2 at the end of the intervention period. The first slope in the piecewise model was coded to quantify the expected linear rate of change within the intervention period, from baseline to 2.3 months, while the second slope was coded to quantify the expected linear rate of change from the end of the intervention to the 12-month follow-up. A piecewise two-slope model with an unconstrained variance/covariance random matrix is not identified with only three waves of data; we therefore constrained one of the random slopes to zero based on the relatively better model fit determined by the Akaike information criterion (AIC; Akaike, 1973).

The parenting group intervention variable was defined as a dummy coded covariate and included in the models as fixed main effects (thereby modelling and accounting for the conditional mean differences in levels on the outcome variables across the programs) and fixed interaction effects of both time slopes (thereby modeling the conditional mean differences across the programs in linear rate of change within and after the intervention). The Active Parenting intervention was defined as the reference group in all models and all other covariates in the models were mean-centered. Estimates were derived using restricted maximum likelihood estimation (REML) and missing data were handled through the REML procedure based on

missing at random (MAR) assumptions as conventionally defined (Little & Rubin, 1987).

Because of initial between-program differences in background characteristics (see Table 2) and their potential impact on outcomes, we included the main effects of the child’s age, child’s living arrangements, and other professional contact before and during the intervention as covariates in our models.

#### Attrition and attendance

No parenting program was overrepresented in attrition between baseline and post-measurement. Comparisons between drop-outs ( $N = 17$ ) and remaining parents at post-measurement showed no systemic differences in either background- or outcome variables at baseline. Between post- and follow-up-measurement the attrition rate was higher in COMET and LFT than in the other programs (15–17% vs. 2–8%;  $\chi^2 = 12.68$ ,  $p < 0.001$ ). However, within these two programs, no systemic differences in background or outcome variables were detected between drop-outs and completers at follow-up. Parents who attended half of the program sessions or fewer ( $n = 34$ ) differed from the rest by reporting fewer problems at baseline. No program was overrepresented in infrequent attendance and these parents were included in subsequent analyses.

## RESULTS

The outcome variable distributions are presented in Table 3 and estimates from the piecewise growth-curve models are shown in Table 4. In Table 5, we report two standardized effect sizes and two pseudo  $R^2$  coefficients. The D1 coefficient refers to the proportion of the total average change within the intervention period over the baseline total sample distribution for the respective outcome variables (positive values indicate improvement). The D2 coefficient is defined as the proportion of the total average change within the total study period over the baseline total sample distribution for the respective outcome variables. The R1 is the proportional reduction in the level 1 residual when comparing the fitted model with a multilevel model including only the level 2 covariates. This quantifies how much of the total variability in the outcome is explained by the time trend. The R2 coefficient refers to the proportional reduction in the sum of the random effects (level 1 and 2) when comparing a piecewise growth curve model including only the covariates (i.e. excluding the program type indicators) with the reported models. This quantifies how much of the total variance is explained by the program type distinction. Parents’ raw score trajectories and estimated fixed effects (i.e., expected trajectories in red) from the models presented in Table 4 are exemplified in Figs. 1 and 2.

#### Parenting style

As shown in Table 4 (Slope 1 parameter and associated interactions) *Parents’ negative attitudes* decreased substantially during the intervention period and remained stable after the intervention in all programs except COMET, in which a further decrease was detected at wave 3 ( $-0.02$ , 95% CI  $[-0.05, -0.002]$ ).

*Parents’ emotional outbursts* also decreased in all programs during the intervention period, and the decrease tended to be

Table 3. Descriptors of outcome variables in the total group

	Parents' negative attitudes	Parents' emotional outbursts	Parents' attempted understanding	Parental depression and anxiety	Parental stress	Democratic family climate	Chaotic family climate	Adolescent psychiatric symptoms	Adolescent disclosure
T1 (n = 315)	3.40 (0.74)	2.05 (0.46)	2.56 (0.33)	12.35 (7.15)	2.02 (0.79)	4.51 (1.52)	2.27 (1.81)	10.58 (6.39)	3.02 (0.91)
T2 (n = 296)	3.14 (0.68)	1.86 (0.39)	2.66 (0.33)	10.26 (6.77)	1.91 (0.80)	4.78 (1.45)	1.97 (1.59)	9.26 (5.90)	3.03 (0.91)
T3 (n = 269)	3.07 (0.68)	1.84 (0.41)	2.69 (0.30)	9.07 (6.42)	1.75 (0.71)	4.85 (1.49)	1.80 (1.42)	8.80 (5.56)	3.12 (0.84)
ICC <sup>a</sup>	0.67	0.55	0.50	0.65	0.69	0.52	0.54	0.69	0.76

Notes: Means and standard deviations in parentheses. <sup>a</sup>Intraclass correlation coefficients based on estimated maximum likelihood of full information.

larger in COMET than in the other programs ( $-0.13$ , 95% CI  $[-0.21, -0.06]$ ). Although not significant, there were some average further decrease in emotional outbursts after the interventions in Connect, COPE, COMET and LFT.

Parents' attempted understanding increased during the intervention period in Connect, COPE, COMET, and LFT, but no change was seen in Active Parenting ( $-0.01$ , 95% CI  $[-0.05, 0.03]$ ). However, at wave 3, a delayed improvement was detected in Active Parenting ( $0.01$ , 95% CI  $[0.00, 0.02]$ ), while the other programs remained relatively stable.

#### Parents' mental health

There was an estimated average decrease in symptoms of *parental depression and anxiety* in all programs during the intervention period, with a tendency towards a relatively larger decrease in COMET ( $-1.71$ , 95% CI  $[-2.79, -0.64]$ ). All programs were relatively stable after the intervention period, except COMET, where a further decrease was seen at follow-up/third wave ( $-0.40$ , 95% CI  $[-0.61, -0.19]$ ), indicating a prolonged effect of the intervention.

Parental stress decreased in all programs except COMET during the intervention period ( $0.01$ , 95% CI  $[-0.09, 0.12]$ ). Instead, while the other programs remained relatively stable or showed only minor tendencies towards a further decrease after the intervention period, a substantial decrease was found in COMET at wave three ( $-0.09$ , 95% CI  $[-0.11, -0.05]$ ), indicating a delay in the intervention effect.

#### Family climate

Family climate did not change significantly in any program except in COMET, where positive changes were seen. There was a substantial tendency to increased *democratic climate* during the intervention period ( $0.25$ , 95% CI  $[-0.04, 0.55]$ ), and then significantly at wave 3 ( $0.08$ , 95% CI  $[0.01, 0.15]$ ). The opposite pattern (a tendency to decrease during the intervention period and a significant decrease at wave 3) was seen in *chaotic family climate* ( $-0.21$ , 95% CI  $[-0.53, 0.12]$  at wave 2 and  $-0.11$ , 95% CI  $[-0.17, -0.04]$  at wave 3).

#### Adolescent mental health

The parents' reports of the *adolescent's psychiatric symptoms* (SDQ Total difficulties) decreased during the intervention period in all programs except COPE ( $0.00$ , 95% CI  $[-0.46, 0.46]$ ). While Active Parenting, COPE, and LFT were relatively stable on the SDQ scale after the intervention, there was a non-significant tendency towards a further decrease in Connect ( $-0.13$ , 95% CI  $[-0.27, 0.02]$ ) and COMET ( $-0.09$ , 95% CI  $[-0.31, 0.13]$ ).

No significant changes in *child disclosure* were seen in any program or at any measurement wave.

## DISCUSSION

The analyses suggest that the parenting programs were successful on most outcome variables. Generally, small to moderate positive short-term changes were found in parents' attitudes, dysfunctional

Table 4. Fixed effects coefficient estimates from piecewise growth curve models fitted to all outcome variables

Parameters	Parents' negative attitudes		Parents' emotional outbursts		Parents' attempted understanding		Parental depression and anxiety		Parental stress		Democratic family climate		Chaotic family climate		Adolescent psychiatric symptoms		Adolescent disclosure	
	Est.	95% CI	Est.	95% CI	Est.	95% CI	Est.	95% CI	Est.	95% CI	Est.	95% CI	Est.	95% CI	Est.	95% CI	Est.	95% CI
Intercept/ AP <sup>a</sup>	3.06	(2.86, 2.27)	1.80	(1.68, 1.92)	2.61	(2.51, 2.71)	9.40	(7.40, 11.40)	1.49	(1.29, 1.69)	4.84	(4.39, 5.29)	1.89	(1.44, 2.34)	7.18	(5.58, 8.78)	3.07	(2.81, 3.34)
Connect	-0.06	(-0.34, 0.22)	0.08	(-0.09, 0.25)	0.02	(-0.12, 0.15)	0.70	(-2.24, 3.52)	0.24	(-0.04, 0.52)	-0.19	(-0.81, 0.43)	-0.06	(-0.69, 0.56)	2.87	(0.63, 5.10)	-0.25	(-0.63, 0.13)
COPE	0.00	(-0.26, 0.26)	0.00	(-0.16, 0.15)	0.16	(0.03, 0.29)	0.36	(-0.18, 1.80)	0.25	(-0.01, 0.52)	0.08	(-0.51, 0.67)	-0.12	(-0.70, 0.46)	1.53	(-0.54, 3.61)	0.12	(-0.23, -0.47)
COMET	0.31	(-0.06, 0.67)	0.21	(-0.00, 0.43)	0.06	(-0.11, 0.24)	3.36	(0.00, 7.27)	1.17	(0.80, 1.53)	-0.51	(-1.33, 0.31)	0.71	(-0.09, 1.51)	4.14	(1.27, 7.02)	-0.08	(-0.57, 0.40)
LFT	0.13	(-0.12, 0.39)	0.08	(-0.07, 0.23)	0.02	(-0.10, 0.15)	1.24	(1.28, 3.75)	0.60	(0.35, 0.86)	0.04	(-0.52, 0.59)	-0.04	(-0.60, 0.51)	2.56	(0.57, 4.57)	-0.07	(-0.40, 0.27)
Slope 1 <sup>b</sup> / AP	-0.09	(-0.16, -0.02)	-0.07	(-0.13, -0.02)	-0.01	(-0.05, 0.03)	-1.14	(-1.89, -0.40)	-0.10	(0.17, -0.03)	0.08	(-0.12, 0.28)	-0.09	(-0.32, 0.14)	-0.62	(-1.15, -0.09)	0.05	(-0.03, 0.12)
Connect	-0.07	(-0.17, 0.04)	0.00	(-0.07, 0.08)	0.05	(-0.01, 0.11)	0.89	(-0.17, 1.95)	0.05	(-0.05, 0.15)	-0.05	(-0.33, 0.22)	-0.03	(-0.34, 0.29)	0.18	(-0.57, 0.93)	-0.05	(-0.16, 0.05)
COPE	-0.01	(-0.11, 0.08)	0.00	(-0.06, 0.07)	0.08	(0.02, 0.13)	0.81	(-0.18, 1.80)	0.07	(-0.02, 0.17)	0.02	(-0.24, 0.28)	-0.00	(-0.31, 0.30)	0.62	(-0.08, 1.33)	-0.04	(-0.14, 0.06)
COMET	-0.06	(-0.19, 0.06)	-0.06	(-0.15, 0.03)	0.02	(-0.05, 0.09)	-0.57	(-1.88, 0.73)	0.11	(-0.02, 0.24)	0.17	(-0.18, 0.53)	-0.12	(-0.52, 0.28)	-0.31	(-1.24, 0.61)	-0.01	(-0.14, 0.13)
LFT	-0.01	(-0.10, 0.07)	-0.02	(-0.08, 0.04)	0.06	(0.01, 0.11)	-0.07	(-0.95, 0.82)	0.04	(-0.04, 0.13)	0.03	(-0.20, 0.27)	-0.04	(-0.31, 0.22)	-0.21	(-0.84, 0.42)	-0.03	(-0.12, 0.05)
Slope 2 / AP	-0.01	(-0.03, 0.01)	0.00	(-0.01, 0.02)	0.01	(0.00, 0.02)	0.06	(-0.07, 0.17)	0.01	(-0.00, 0.03)	0.00	(-0.04, 0.05)	0.01	(-0.04, 0.05)	0.04	(-0.11, 0.20)	-0.00	(-0.03, 0.02)
Connect	0.01	(-0.02, 0.03)	-0.01	(-0.02, 0.01)	-0.01	(-0.02, 0.01)	-0.13	(-0.27, 0.06)	-0.01	(-0.04, 0.02)	0.01	(-0.05, 0.08)	0.00	(-0.06, 0.07)	-0.17	(-0.39, 0.05)	0.02	(-0.01, 0.04)
COPE	0.01	(-0.01, 0.04)	-0.01	(-0.02, 0.01)	-0.02	(-0.02, 0.00)	-0.10	(-0.24, 0.07)	-0.01	(-0.04, 0.01)	-0.01	(-0.07, 0.05)	0.01	(-0.05, 0.07)	-0.09	(-0.30, 0.11)	0.01	(-0.02, 0.03)
COMET	-0.01	(-0.04, 0.01)	-0.01	(-0.03, 0.00)	-0.00	(-0.02, 0.01)	-0.46	(-0.58, -0.16)	-0.10	(-0.13, -0.06)	0.08	(-0.01, 0.16)	-0.12	(-0.19, -0.04)	-0.13	(-0.40, 0.14)	0.02	(-0.01, 0.06)
LFT	0.01	(-0.01, 0.03)	-0.01	(-0.02, 0.01)	-0.01	(-0.02, 0.01)	-0.14	(-0.25, 0.03)	-0.02	(-0.05, -0.00)	-0.02	(-0.07, 0.04)	-0.04	(-0.09, 0.02)	-0.01	(-0.20, 0.18)	0.01	(-0.02, 0.03)

Notes: <sup>a</sup>Active Parenting (AP) is defined as the reference group. The intercept is centered at the end of the intervention, i.e., 2.3 months after the beginning of the intervention. <sup>b</sup>Slope 1 refers to estimated linear rate of change within the intervention period; slope 2 refers to estimated linear rate of change after the end of the intervention. Full reporting of these models, including random effects and model fit indices, are available upon request to the first author.

Table 5. Standardized effect sizes for all outcome variables and pseudo R<sup>2</sup> for the fitted models

Effect sizes <sup>a</sup>	Parents' negative attitudes		Parents' emotional outbursts		Parents' attempted understanding		Parental depression and anxiety		Parental stress		Democratic family climate		Chaotic family climate		Adolescent psychiatric symptoms		Adolescent disclosure	
	D1 <sup>b</sup>	D2 <sup>c</sup>	D1	D2	D1	D2	D1	D2	D1	D2	D1	D2	D1	D2	D1	D2	D1	D2
AP	0.38	0.41	0.36	0.36	0.07	0.22	0.37	0.28	0.29	0.17	0.12	0.11	0.07	0.23	0.16	0.13	0.13	0.13
Connect	0.50	0.50	0.57	0.57	0.28	0.28	0.08	0.17	0.14	0.15	0.05	0.11	0.10	0.17	0.35	0.00	0.21	0.21
COPE	0.31	0.31	0.36	0.57	0.49	0.19	0.10	0.16	0.09	0.09	0.15	0.09	0.01	0.01	0.08	0.03	0.13	0.13
COMET	0.47	0.73	0.66	0.88	0.07	0.36	0.55	1.09	0.03	1.08	0.38	0.89	0.27	0.86	0.47	0.10	0.31	0.31
LFT	0.31	0.31	0.46	0.47	0.35	0.35	0.40	0.50	0.26	0.30	0.16	0.04	0.17	0.33	0.25	0.05	0.16	0.16
Pseudo R <sup>2</sup>	R1 <sup>d</sup>	R2 <sup>e</sup>	R1	R2	R1	R2	R1	R2	R1	R2	R1	R2	R1	R2	R1	R2	R1	R2
	0.15	0.00	0.39	0.01	0.07	0.01	0.39	0.00	0.22	0.10	0.02	0.00	0.26	0.00	0.26	0.03	0.17	0.02

Notes: <sup>a</sup>Positive D values indicate effect sizes in the expected direction; negative values would indicate effect sizes in the unexpected direction, however none were found. <sup>b</sup>Wave 2. Defined as the proportion of the total amount of average change within the intervention period over the baseline total sample distribution for the respective outcome variable. <sup>c</sup>Wave 3. Defined as the proportion of the total amount of average change within the total study period over the baseline total sample distribution for the respective outcome variable. <sup>d</sup>Defined as proportional reduction in level 1 residuals when comparing the fitted growth curve models with multilevel models including only the level 2 covariates (i.e., child's age, parents' living arrangements, other professional contact before the intervention, and other professional contact during the intervention). <sup>e</sup>Defined as proportional reduction in the sum of random effects (level 1 and 2) when comparing the fitted models with piecewise growth curve models including only the level 2 covariates.

parental practices, positive parenting and well-being. Parents in all programs except COPE reported small declines in adolescents' psychiatric symptoms from baseline to post-measurement. Changes were maintained or further improved at the one-year follow-up. The differences between changes across programs were relatively small for most variables, with some notable exceptions. A recurring pattern in most outcome variables was that change was greatest in COMET and least in COPE.

Parenting style

Parents' negative attitudes decreased in all programs, similar to results from earlier studies that noted increased parental satisfaction and efficacy (Moretti & Obsuth, 2009) and increased parental confidence (Chu *et al.*, 2015) directly after the interventions. We also found that decreases in negative attitudes were maintained, or even continued at follow-up. Even though this finding is in contrast with the conclusions drawn by Chu and colleagues, the pattern of change in their intervention condition, based on pre, post and follow-up scores, is similar to that in our study. Had they not based their results on comparisons with care as usual, conclusions from the two studies would probably be more similar.

Reductions in parents' emotional outbursts were similar to those found in earlier studies of various dysfunctional parenting behaviors among parents of adolescents (Chu *et al.*, 2015; Leijten *et al.*, 2012) and parents of younger children (Stattin *et al.*, 2015). Positive parenting behaviors (i.e., attempted understanding) increased in all programs (although the change in Active Parenting was noted only at the one-year follow-up). These results are similar to those of Leijten and colleagues (2012), who observed increases in parents' positive affect, problem solving skills, and communication with their adolescents, but contrasts the conclusions of Stattin and colleagues (2015), who did not find significant increases in short-term attempted understanding in parents of younger children compared to the control group condition. Yet, the patterns in pre- and post-intervention scores in our respective studies are in fact quite comparable. Further, Stattin and colleagues also found that at least three out of four programs were effective in increasing parents' rewarding strategies, another aspect of positive parental behavior.

Parents' mental health

Consistent with studies of parents of adolescents (Moretti & Obsuth, 2009) as well as of younger children (Stattin *et al.*, 2015), parents' symptoms of depression, anxiety, and stress decreased in all programs. Parents in COMET differed from the rest in reporting no change in parental stress from baseline to post-measurement; however, they later showed the greatest long-term decrease. One explanation for this might be that COMET's heavy focus on changing behavior and encouraging parents to be active between sessions (Forster & Livheim, 2009) creates more short-term tension in the family than other interventions. If so, parents might need some preparation before entering the program.

Family climate

COMET was the only program in which parents reported significant increases in positive family climate. Earlier studies

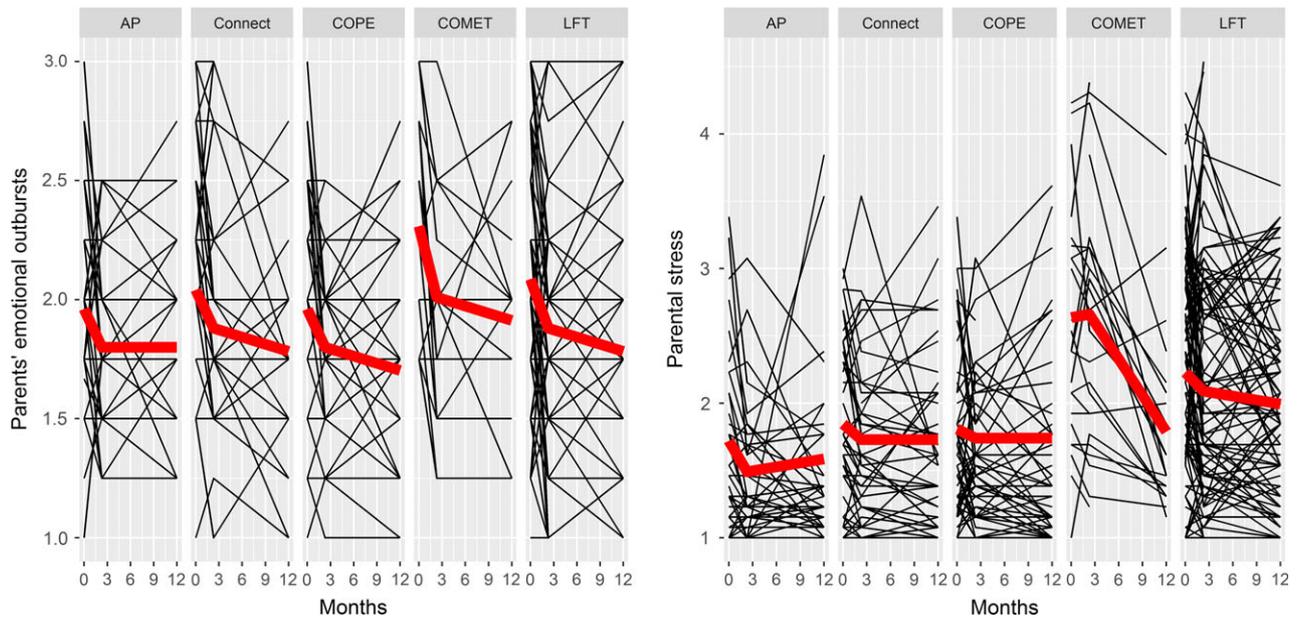


Fig. 1. Parents' emotional outbursts and parental stress.  
 Notes: Raw score trajectories for the Parents' emotional outbursts and Parental stress variables stratified by program type. Red lines indicate estimated average trajectories.

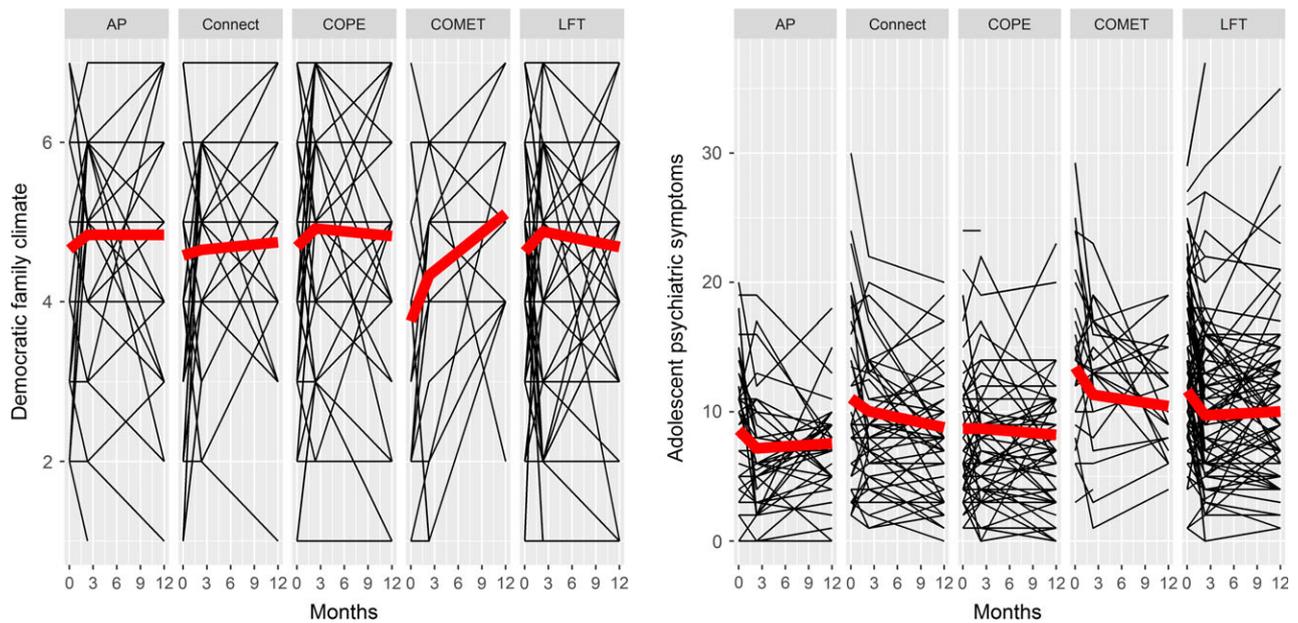


Fig. 2. Democratic family climate and adolescent psychiatric symptoms.  
 Notes: Raw score trajectories for the Democratic family climate and Adolescent psychiatric symptoms variables stratified by program type. Red lines indicate estimated average trajectories.

(Chu *et al.*, 2015) found similar results, with improvements in family relationship, family cohesion, and lessened family conflict. One reason for the non-significant changes in the other programs in our study might be that those families did not have the same need for change in this domain, as baseline levels of both democratic and chaotic family climates were substantially less problematic than those in COMET.

*Adolescent mental health*

Parents in all programs except COPE reported decreases in psychiatric symptoms in their adolescents, which is consistent with some earlier findings (Chu *et al.*, 2015; Moretti & Obsuth, 2009) but in contrast to the conclusions of others (i.e. Leijten *et al.*, 2012). However, had Leijten and colleagues not based their results on control group comparisons they might have reached a conclusion more in line with ours.

*Initial differences and differences in changes between programs*

Parents in COMET consistently reported the highest levels of problems in nearly all outcome variables, followed by parents in LFT, but no substantial differences were seen between Active Parenting, COPE, and Connect. Even if not significant, the effect sizes of the outcomes in LFT were somewhat larger in average than those in the universal programs, and COMET generally changed the most, with several large effect sizes in long-term positive change. These results are in line with results from Stattin and colleagues (2015), in which COMET for parents of younger children had the most consistent positive effects among the programs studied.

Our finding of the largest changes in COMET parents is not surprising; given their highly elevated levels in all outcome variables at baseline, they had greater room for improvement than the other parents (Offord, Chmura Kraemer, Kazdin, Jensen, Harrington & Samuel Gardner, 1999; Smith, Perou & Lesesne, 2012). The effects in these parents might therefore be associated with the sample rather than the intervention. However, the larger changes in this group might also have to do with the characteristics of the program. COMET differs from other programs in the study by seeming to be the only one to really encourage parents to attend the program together (Forster & Livheim, 2009). COMET was the one program that most parents attended together, and the COMET groups were relatively small (mean group size 7.7). The program also includes booster sessions after the program has ended. At least in this study, COMET functioned more than the others as a clinical intervention, with larger engagement in families and more room to focus on each individual family; its larger effect sizes are possibly due to these factors.

An alternative explanation of the larger effects in COMET could be its theoretical (i.e., behavioral) base, as earlier findings have shown that behavioral programs are more effective in some aspects, at least in the short term (Stattin *et al.*, 2015). However, considering that the effects of COPE, the closest of the other programs to COMET theoretically, were generally – although not significantly – the smallest, that hypothesis is not supported by the present study.

The COPE program was the only program where no significant change was detected in adolescents' psychiatric symptoms and the program also showed the smallest changes in general. Although not statistically significant, parents in COPE consistently reported the fewest problems at baseline. The logic above (i.e., high levels of initial problems allow greater room for improvement) might also explain the relatively small changes in COPE: lower levels of initial problems may reduce the need and motivation for change. The smaller changes might also be due to program characteristics, such as the larger group setting and less leader-led time in sessions. Additionally, the COPE program often did not function as it was designed to do regarding number of participants per group (recommended group size is 20–30 parents but in the present study group size ranged between 5 to 22 participants with a mean of 15.2). This might off course also have influenced the outcomes of the program.

Even if the COPE program did not fully function as it was designed to in terms of recommended group size, the COPE groups were still largest in average size compared to other

programs in the study. From a health-economic perspective, a program that produces relatively small changes could in fact be the more cost-effective program, due to characteristics such as large group settings or number of sessions (Sampaio, Enebrink, Mihalopoulos & Feldman, 2016). Although attempts to recommend any particular program over others based on effects and costs was beyond the aims of this study, decision-makers should take cost-effectiveness into consideration when priorities are set across different interventions.

*The naturalistic setting*

Even if the main aim of the study was to explore outcomes from five of the most used parenting programs for parents of adolescents in Sweden, additional findings regarding how these programs are actually run in their real-world settings are worth mentioning. For example, the study showed that at least four out of the five programs – especially COPE – had lower average participation regarding group size than what is recommended in the program manuals. Another finding was that participating parents often had younger, and sometimes older, children/adolescents than what the programs are designed for. The naturalistic observational study design can provide valuable information regarding how interventions are actually used and how successful they are in what they aim to achieve – in this case, meet the needs of support among parents of adolescents – outside the experimental setting, but off course it also implicates difficulties regarding the study procedure such as the risk of low study recruitment rates and lack of control group conditions.

*Limitations*

The first and most important limitation of this study was the varying, and sometimes relatively low, participation rate among parents in the different programs. In COPE, the participation rate was as low as 50% and this greatly limits the conclusions regarding the outcomes from this program and comparisons with the other programs. Second, the study did not have an untreated control group, which limits the conclusion that change occurred as an effect of the program interventions. However, adolescents consistently report more mental health problems with age (WHO, 2015); this pattern should counteract long-term positive effects such as ours. The third limitation is the lack of randomized assignment to the various programs, which could have ruled out systemic differences between program participants. Attempts were made to control for relevant variables that differed across groups, and differences in baseline levels of the dependent variables were modeled, but the non-experimental design of the study limits our ability to compare effects between programs.

Forth, due to consequences of the naturalistic design parents completed the baseline measurement after the first group session, and post-measurement was completed just before the last session. Overall, this might have reduced the effect sizes between baseline and post measurement. Further, the content of the first session might have influenced parents' reports on the baseline measurement, while the content of the last session was not accounted for in the post measurement. Also, compared to parents

attending programs with relatively many sessions (such as Connect), parents attending programs with fewer sessions (such as Active Parenting) ended up reporting the impact of a smaller proportion of the program. Altogether, the data collection procedure might have reduced the probability of finding existing differences within as well as between programs.

Fifth, the attrition analyses showed that parents attending COMET and LFT were more likely to drop out of the study between the second and third measurement wave. However, comparisons between drop-outs and completers at follow-up in these two programs showed no significant differences in background or outcome variables, and hence, the long-term results in these programs were unlikely influenced by the drop-outs. Sixth, the results are based solely on parental reports with no other sources of information. Finally, mothers were over-represented among participants and were in fact chosen in order to keep results from the various programs as homogeneous as possible, but this limits our ability to generalize the results to fathers.

## CONCLUSIONS

The overall results in the present study are mostly consistent with those of earlier studies and support the conclusion that programs for parenting adolescents are successful in reducing dysfunctional parental strategies, increasing positive parenting and decreasing parents' mental health problems, as well as decreasing adolescent psychiatric symptoms. While larger changes can be expected in groups with relatively high initial problem levels, no substantial differences in change were found between the various types of universally offered parenting programs. Thus, this study supports the general effectiveness of parenting programs for parents of adolescents in both the short and the long term when offered in real-world settings to parents with different needs.

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