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Parent and Adolescent Effects of a Universal Group Program for the Parenting of Adolescents

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Abstract There is growing support for the large-scale implementation of parenting programs for the prevention of child behavior disorders and child maltreatment in younger children. However, there is only limited evidence on the efficacy of parenting programs in modifying risk and protective factors relating to adolescent behavior problems. This study examined the efficacy of Group Teen Triple P (GTTP), an eight-session parenting program specifically designed for parents of young adolescents. Seventy-two families with adolescents aged between 12 and 15 years were randomly assigned to either GTTP (n=35) or a care as usual (CAU) control condition (n=37). Compared to CAU parents, parents who received GTTP reported significant improvements in parenting practices, parenting confidence, the quality of family relationships, and fewer adolescent problem behaviors at post-intervention. Several of the parent-reported effects were corroborated by reports from adolescents, including decreases in parent–adolescent conflict and increases in parental monitoring. Adolescents whose parents participated in GTTP also reported significantly fewer behavioral problems than adolescents in the CAU condition. Many of these improvements were maintained at 6-month follow-up.

Keywords Parenting program · Parenting · Adolescent · Problem behavior

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There have been increasing calls from both researchers and policy makers for the large-scale implementation of evidence-based parenting programs to prevent behavioral disorders among children and to reduce child maltreatment (e.g., National Research Council and Institute of Medicine 2009). Such widespread recognition of the central role of parenting support based on social learning principles has stemmed from decades of carefully conducted trials attesting to the efficacy of programs based on social learning theory (e.g., Eyberg et al. 2008), alongside more recent population trials demonstrating the public health benefits of universal implementation of evidence-based parenting support (Prinz et al. 2009). However, the evidence base for parenting programs stems primarily from work with parents of pre-adolescent children. Systematic reviews of the parenting literature indicate that there is very little evidence that programs designed specifically for parents of adolescents can reduce negative adolescent outcomes, such as delinquency and school failure, and promote positive adolescent development (e.g., Eyberg et al. 2008). Given strong evidence for an adolescent-onset trajectory to conduct disorder (Frick and Viding 2009), population-based parenting approaches are an alternative to clinic-based treatment models for reducing prevalence rates of problem behaviors among adolescents.

Family factors, including the quality of parent–adolescent relationships, appropriate levels of parental monitoring, and positive parenting practices, have been identified as being central to the prevention of negative developmental outcomes for adolescents (Dishion and McMahon 1998). Evidence further suggests that parental conflict and poor parental adjustment can interfere with the ability of parents to discipline effectively and consistently (Sameroff et al. 2003). Yet, in spite of the strength of evidence for the importance of parenting, prevention and intervention programs for adolescent problem behaviors generally have a primary focus on working with individual adolescents or at the school level, with

minimal or no involvement of parents (Kaslow et al. 2012). This lack of attention directed towards support for parents of adolescents may be due to the beliefs that parental influence diminishes over time as adolescent's behavior becomes increasingly individually determined (Kaslow et al. 2012). Hence, there are comparatively few controlled trials testing the efficacy of programs for parents of adolescents.

A small number of programs targeting the parents of adolescents have been shown to produce positive changes in adolescent behavior, parenting, and the parent–adolescent relationship (e.g., Strengthening Families Program 10–14, Spoth et al. 2009; Adolescent Transitions Program, Connell et al. 2007; Guiding Good Choices, Haggerty et al. 1999). Some of these programs (e.g., Strengthening Families Program 10–14 and Guiding Good Choices) include additional components (e.g., adolescent skill training), making it difficult to determine the degree to which the parenting component alone was responsible for the improvements reported. Programs with multiple components are typically more time-consuming and labor-intensive than parenting programs alone (Sanders 2012). Working exclusively with parents provides an effective yet minimally sufficient solution to the prevention and reduction of adolescent problem behaviors, compared to multi-component programs.

One example of a program that works exclusively with parents of adolescents is the Teen Triple P—Positive Parenting Program (Ralph and Sanders 2003), a specially adapted version of the well-established Triple P program for children under the age of 12 (Sanders 2012). Like the program for parents of younger children, Teen Triple P is based on social learning principles and aims to target those modifiable family risk and protective factors associated with negative adolescent outcomes. Teen Triple P, however, places a stronger emphasis on the importance of parents acknowledging and encouraging the growing autonomy and independence of the adolescent relative to younger children. Recognition is given to the likelihood of adolescents engaging in risky behavior that may put their current or future well-being in jeopardy, and providing parents with ways of assisting their adolescent to negotiate and manage these challenges effectively. The Teen program also echoes Triple P's key feature in adopting a self-regulatory framework that involves teaching skills to parents that enable them to become independent problem solvers and promote generalization of parenting skills (Ralph and Sanders 2003). Teen Triple P is available as a multi-level intervention and can be delivered in a range of formats (i.e., large group seminars, small group or individual programs, and self-directed program). A growing number of trials on variants of Teen Triple P have demonstrated the program to be a promising intervention for parents of adolescents (e.g., Ralph and Sanders 2003; Stallman & Ralph 2007).

This study focused on the group version of the program—Group Teen Triple P (GTTP). Group-based programs are an integral component of population approaches to parenting, as this delivery context is able to reach a larger number of families than those that are individually delivered (Sanders 2012). Preliminary evaluation of GTTP with a secondary school sample demonstrated that participation in the program is associated with improvements in adolescent well-being, parenting practices, and the quality of parent–adolescent relationship (Ralph and Sanders 2003). However, this uncontrolled trial precluded attributing observed changes in parent and adolescent outcomes to the program. Given that GTTP is part of a multi-level system, evaluation of each variant of the intervention is required prior to testing the synergistic benefits of implementing multiple levels within the system as a whole.

The present study evaluates the efficacy of GTTP as a universal intervention to reduce family risk factors known to be associated with the development of adolescent problem behaviors. The universal approach involved recruiting parents of adolescents aged between 12 and 15 years without placing restrictions on the level of seriousness of parent concerns about the behavior of their adolescent. A multi-informant (parents and adolescents) approach was utilized to evaluate the effectiveness of GTTP. It was hypothesized that, relative to the control condition at post-intervention, parents participating in GTTP would report (a) improved family relationships including the parent–adolescent relationship, (b) improved parental relationship quality, (c) decreased use of dysfunctional parenting practices, (d) decreased adolescent problem behavior, and (e) improved parental adjustment. For adolescent-reported outcomes, it was hypothesized that, relative to the control condition at post-intervention, adolescents of parents who received GTTP would report (a) improved family and parent–adolescent relationships, (b) increased perceived parental monitoring, (c) decreased problem behavior, and (d) improvement in adolescent adjustment. It was predicted that these intervention outcomes would be maintained at 6-month follow-up. A six-month follow-up period was selected as it is considered to be the minimal follow-up period required for testing efficacious interventions by the Society for Prevention Research (Flay et al. 2005).

Method

Participants

Families were recruited from throughout Auckland, New Zealand, between January 2011 and April 2012. A community outreach approach was utilized involving recruitment through intermediate and secondary schools, media outlets, and the distribution of flyers at a number of community events. A standardized telephone interview informed families about the research trial, obtained their consent to participate, and screened for eligibility. Families were eligible if (1) their child

was in the target age range (12–15 years), (2) their child did not have a developmental or intellectual disability, (3) the child or parent was not currently seeing a professional for the target adolescent's behavior or emotional problems, and (4) the parent was not currently receiving assistance for their own psychological or emotional problems. The criteria were used to reduce the influence of confounding factors and to help strengthen our conclusions that any positive changes observed at post-intervention were in fact due to GTTP and non-external factors, such as participation in a different intervention.

Power analysis indicated that for a large effect size of 0.8 (predicted based on previous Group Triple P research), 26 participants were needed per group, giving a total of 52 participants. In total, 107 parents were screened for eligibility for the study. Nineteen families did not meet the eligibility criteria, and a further 16 chose to withdraw from the study before the completion of the pre-intervention assessment. Seventy-two families completed pre-intervention assessments and were randomly allocated to a condition (GTTP n=35; CAU n=37). The flow of participants through each stage of the study is detailed in Fig. 1.

Although both parents from two-parent household were encouraged to complete assessments, only mother's assessments are reported since a more complete set of data was obtained from mothers than fathers. Mothers were predominately married (66.7 %), with an average age of 44.71 years (SD=4.99). Almost two third of the families (65.2 %) were from an original family (both parents), with 31.9 % being sole-parent families, and with 2.9 % as stepfamilies. More than half of the mothers had obtained a university degree (52.2 %) and were in paid employment (81.2 %). Around one third of families (34.7 %) earned above the average New Zealand household income of $81,067 (Statistics New Zealand 2013). A majority of the families (70.0 %) reported no major difficulties in paying for household expenses in the past 12 months. Adolescents were mostly male (59.4 %) and were an average of 12.85 years (SD=0.66). The majority of mothers reported their child's ethnicity as Pakeha/European (72.5 %), with the remaining reporting their children as Māori (Indigenous New Zealanders, 10.1 %), Pacific Islander (8.7 %), or Asian (8.7 %); this ethnic breakdown is similar to the New Zealand population as a whole (Statistics New Zealand 2013).

Measures

Mothers completed all measures of demographics, family relationships, parental relationships, parenting, and parental adjustment. Of the measures of adolescent adjustment, mothers only completed the measure on adolescent problem behaviors (Strengths and Difficulties Questionnaire (SDQ)). Single mothers did not complete measures that assessed parental relationships. Adolescents completed all measures on family relationships and adolescent adjustment as well as the measure that assessed parental monitoring (Parental Monitoring Scale (PMS)).

Demographics

Family Background Questionnaire This instrument collected family demographic information including parent marital status, employment and education, family composition, and income (Zubrick et al. 1995).

Family Relationships

Family Environment Scale Two of the ten subscales, cohesion and conflict, were selected for this study (Moos and Moos 1994). Each subscale consisted of nine items rated on a six-point scale (0=*strongly disagree* through to 5=*strongly agree*). Internal consistencies for the cohesion subscale and conflict subscale were both α=.84 and α=.83 in the present sample, for parents and adolescents, respectively.

The Parent Conflict Questionnaire The Parent Conflict Questionnaire (PCQ) consists of eight items which measure parent–adolescent conflict (Greenberger et al. 1998). Parents and adolescents rate the frequency of parent–adolescent disagreements about different topics, such as chores, in the previous month. Items were rated on a five-point scale (0=*never* and 4=*almost every day*). In this study, the PCQ had high internal consistency for parents and adolescents (α=.82 and .84, respectively).

Parental Relationship Quality

Parent Problem Checklist The 16-item Parent Problem Checklist (PPC) measures inter-parental conflict over child rearing (Dadds and Powell 1991). It provides an index of the number of disagreements and the frequency of occurrence of such disagreements. Parents rated on a response scale (1=*yes* or 0=*no*) to specify whether or not each item had been a problem for themselves and/or their partner within the previous month. Parents then indicated the degree to which each item had been a problem on a seven-point rating scale (1=*not at all* through to 7=*very* much). In this study, both the problem scale and the extent scale had good internal consistencies (α=.82 and .84, respectively).

Relationship Quality Index The Relationship Quality Index (RQI) is a questionnaire examining parental relationship satisfaction, with six items determining relationship quality using global items (Norton 1983). The first five items are scored on a seven-point scale from 1=*very strongly disagree* to 7=*very strongly agree*. The last item is a global measure of happiness

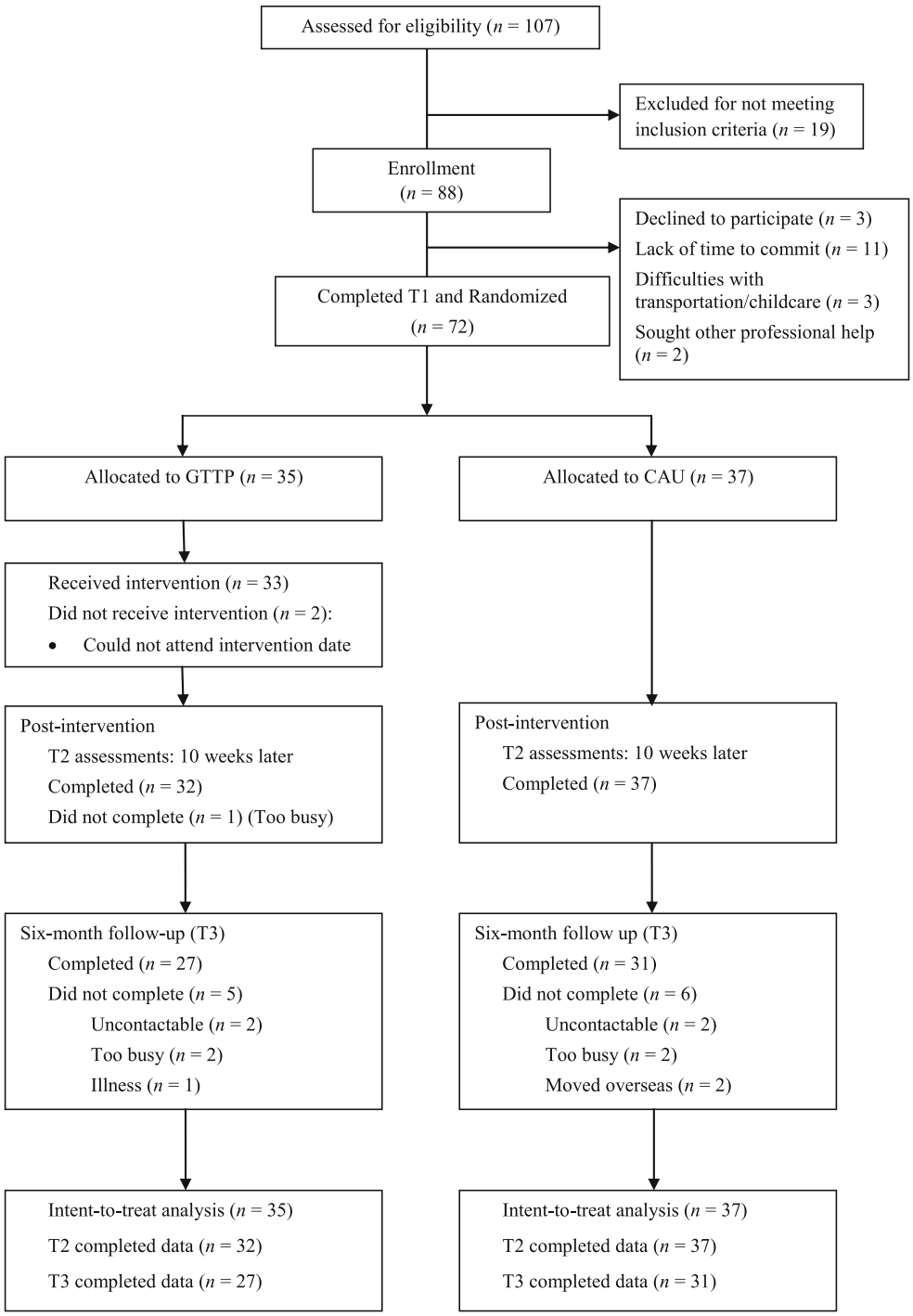

Fig. 1 CONSORT diagram showing the flow of participants through the trial

in the relationship rated on a ten-point scale from 1=*unhappy* to 10=*perfectly happy*. The RQI had a high internal consistency for this sample (α=.93).

Parenting

Parenting Scale–Adolescent Version The Parenting Scale–Adolescent (PSA) version is an adaptation of the Parenting Scale (PS) by Arnold, O'Leary, Wolff, and Acker (1993) (Irvine et al. 1999). The measure consists of 13 items each scored on a seven-point scale measuring laxness and over-reactivity. A score of 1 indicates effective discipline, and a score of 7 indicates dysfunctional discipline. The internal consistencies of the scales were α=.89 for laxness and α=.61 for over-reactivity in this sample.

Parental Monitoring Scale This scale consists of eight items measuring the level of parental monitoring (e.g., how often

teenager tells parents about their whereabouts) (Greenberger et al. 2000). Items were rated on a five-point scale with 1=*never* to 5=*always*. In this sample, the internal consistency was high (α=.91) for both the parent and adolescent.

Parental Self-Efficacy Thirteen items were selected from the original 35-item Parental Self-Efficacy scale (Bandura 2006). The items focused on efficacy in setting limits, influencing peer association, and monitoring tasks by parents. For each item, parents rated how certain they were to carry out each item on a scale of 0=*cannot do it at all* through to 100=*highly certain I can do it*, to demonstrate their confidence level with their adolescents. The internal consistency of the scale was α=.92 in this sample.

Adolescent Adjustment

Strengths and Difficulties Questionnaire The Strengths and Difficulties Questionnaire (SDQ) was used to measure parental perceptions of difficult behaviors in their adolescent (Goodman 1999). Adolescents also completed the self-report version of the SDQ. The items are rated on three-point scales (0=*not true*, 1=*somewhat true*, 2=*certainly true*) and cover four domains of problem behavior: emotional symptoms, conduct problems, hyperactivity, and peer problems. Each of these scales contains five items which sum to yield a Total Difficulties Score. High internal consistencies were found for the Total Difficulties Score for parents and adolescents (α=.79 and α=.81, respectively).

Adolescent Problem Behavior Checklist The Problem Behavior Checklist (PBC) is an adolescent self-report measure comprising 22 items measuring adolescent problem behavior (Greenberger et al. 2000). Multiple domains of problem behavior are assessed (e.g., school-related deviance, risk taking, and substance use). Items are rated on a four-point scale, from 1=*never* to 4=*most often*. Adolescents answered each item based on the frequency to which they have engaged in these behaviors in the past month. Internal consistency of the scale was α=.72 in this sample.

Autonomy Scale The *Autonomy Scale* (AS) measures autonomy in adolescent decision making with regard to 12 adolescent-relevant topics, such as appearance, peers, leisure activity, and school work (Greenberger et al. 2000). Items were rated on a five-point scale where 1=*parents making the decision alone* through to 5=*adolescent making the decision alone*. The AS had good internal consistency in this sample, α=.73.

Rosenberg Self-Esteem Scale The Rosenberg Self-Esteem Scale (SES) consists of ten items to assess adolescents' self-reported self-esteem (Rosenberg 1965). Five of the items are positively worded, and the remaining items are negatively worded. Items were rated on a six-point scale with 1=*strongly disagree* to 6=*strongly agree*. Internal consistency of the scale was α=.89 in this sample.

Positive Youth Development The Positive Youth Development (PYD) measure comprised five scales that measure competence, confidence, connection, caring, and character (Lerner et al. 2005). The subscale for *caring* was used in the present study to measure adolescent's sense of sympathy and empathy for others. Nine items were scored on a four-point scale with 0=*not well* through to 3=*very well*. Internal consistency of the scale was α=.75.

Parental Adjustment

Depression Anxiety Stress Scales-21 The Depression Anxiety Stress Scales-21 (DASS-21) contains 21 items assessing the symptoms of depression, anxiety, and stress in adults (Lovibond and Lovibond 1995). Symptoms are measured through a four-point scale from 0=*did not apply to me at all* to 3=*applied to me very much*. The internal consistencies were α=.87, α=.59, and α=.83 for the subscales depression, anxiety, and stress, respectively. Since internal consistency for the anxiety subscale was inadequate, it was not used in any of the analyses.

Design

The study was a 2 (group: GTTP, CAU)×3 (time: pre- and post-intervention and 6-month follow-up) randomized controlled trial.

Procedure

Ethical clearance for the study was obtained in accordance with the ethical review processes of the University of Auckland. After families were deemed eligible to be a part of the study, hardcopies or online links for the pre-intervention assessments were sent to participants. Parents were randomly assigned to either the GTTP or the CAU conditions once the pre-intervention assessments were completed by their adolescent and themselves. Randomization was implemented using a list of computer-generated random numbers, and families were assigned sequentially to condition according to the list. An independent researcher allocated participants to condition to ensure blind assignment. Parents and adolescents in both conditions completed assessments at three time points: pre-intervention, post-intervention (approximately 12 weeks later), and at the 6-month follow-up. Participants in the CAU condition were offered the program after completing 6-month follow-up assessment.

Intervention Condition

Group Teen Triple P Parents allocated to the GTTP condition attended the 8-week program. Five groups were delivered in community locations across Auckland to accommodate parents' preferences in location and increase ease of accessibility. Group sizes ranged from three to 12 parents. The program consists of four 2-h group sessions that provide parents opportunities to learn and refine the use of positive parenting strategies through observation, discussion, practice, and feedback. Segments from the DVD *Every Parent's Guide to Teenagers* (Ralph and Sanders 2001) are used to demonstrate positive parenting skills. Between sessions, parents complete take home tasks to consolidate their learning from the group sessions. Three 15- to 30-min individual telephone sessions follow the group session to assist parents to fine-tune the implementation of the parenting strategies and problem-solve any implementation difficulties. One final group session was held following the telephone consultations to cover additional skills to facilitate generalization and maintenance of positive changes.

Care as Usual Families allocated to CAU received no intervention or support from the research team and could access alternative services if they so desired but no specific guidance was provided.

Intervention Integrity and Fidelity Promotion

GTTP was delivered by four female accredited Triple P facilitators, who had worked with a diverse range of adolescent families and within educational, community, and/or private settings. Facilitators were provided with a program kit, containing a program manual, DVD, and a disc containing power point slides to facilitate presentation of program content to parents. Following completion of each group and telephone session, facilitators completed session checklists to ensure treatment integrity and reduce protocol drift during the trial.

Statistical Analyses

To evaluate short-term intervention effects, differences between the GTTP and CAU conditions were examined using a series of two-group multi-variate and univariate analyses of covariance (MANCOVAs and ANCOVAs), with post-intervention scores as dependent variables and pre-intervention data included as covariates. MANCOVAs were conducted on each set of conceptually related dependent variables: family relationship (Family Environment Scale (FES) conflict and cohesion, and PCQ), parental relationship (PPC problem and extent, and RQI), parenting (PSA laxness and over-reactivity, Parental Monitoring Scale (PMS), and Parental Self-Efficacy (PSE)), adolescent related-outcome (problem behavior: SDQ and PBC; adjustment: AS, SES, and PYD), and parental adjustment (DASS-21 depression and anxiety). In cases where multi-variate effects were found, ANCOVAs were conducted and univariate F values examined to determine which variables contributed to the multi-variate effect. Univariate ANCOVAs were conducted on mother reports of adolescent problem behavior (SDQ) and adolescent reports on parenting (PMS). Maintenance of intervention effects was analyzed by a series of MANCOVAs and ANCOVAs using 6-month follow-up assessments as the dependent variable and pre-intervention assessments as the control variable. Significant effect sizes were calculated using Cohen's d. An effect size was considered to be meaningful, but small, when d was between 0.20 and 0.49, medium, when d was between 0.50 and 0.79, and large, when d was greater than 0.80 (Cohen 1992). For those measures showing statistically significant change at 6-month follow-up, clinical significance of change was examined using two methods: chi-square analyses of the proportion of participants moving from the clinically elevated to non-clinical range and chi-square analyses of the extent to which changes were reliable or unlikely to be due to chance (i.e., through calculation of a Reliable Change Index; Jacobsen and Truax 1991).

Results

Data Screening

All data were screened for missing values (including missing data due to participant attrition). Only a minimal proportion of values were missing (<10 %). An analysis of missing values indicated that data points were missing completely at random (MCAR), with Little's MCAR test not reaching significance for either mother (χ^2 (12,061)=548.751, p=1.000) or for adolescent (χ^2 (3,182)=164.852, p=1.000) data. Expectation maximization was used to estimate values for the intent-to-treat sample on which all further calculations are based.

Preliminary Analyses

To check for adequate randomization, a series of independent sample t tests and chi-square analyses were conducted to identify any pre-intervention differences between the GTTP and CAU conditions on all of the sociodemographic and outcome variables. A significant pre-intervention difference was observed in mother-reported outcome measures. Mothers in the GTTP condition reported higher levels of parenting over-reactivity than mothers in the CAU condition, t (70)= 2.01, p=.048. No significant differences were observed in sociodemographic variables, or any other mother-reported

and adolescent-reported measures. All differences observed at pre-intervention were controlled by using ANCOVAs and MANCOVAs where relevant.

Attrition

Of the 72 families assigned to GTTP (n=35) or CAU (n=37), 69 families completed post-intervention (GTTP n=32 and CAU n=37), representing a very high retention rate of 96 %. Out of the original 72 families, 58 families (GTTP n=27 and CAU n=31) completed the 6-month follow-up assessment, with a retention rate of 77 % for the GTTP condition and 84 % for the CAU condition, representing a moderately high retention rate. A series of one-way ANOVAs revealed no significant differences at pre-intervention between completers and non-completers at the 6-month follow-up on any of the dependent variables.

Short-Term Intervention Effects

Table 1 shows descriptive statistics for conditions at pre- and post-intervention, as well as univariate F values and effect sizes (Cohen's d) for all mother and adolescent self-report measures.

Family Relationship Multi-variate intervention effects were found for the group of family relationship measures for both mothers (F (3, 65)=6.10, p=.001) and adolescents (F (3, 65)=5.344, p=.002). Follow-up ANCOVAs revealed a significant intervention effect on both subscales of the FES. Mothers and adolescents in the GTTP condition reported lower levels of family conflict and higher levels of family cohesion, compared to the CAU condition at post-intervention. Less parent–adolescent conflict was reported by mothers and adolescents in the GTTP condition at post-intervention compared to mothers and adolescents

Table 1 Descriptive statistics and effect sizes for short-term intervention effects for all measures

	Group Teen Triple P (N=35)		CAU (N=37)		Univariate F for group	p value	Effect size d
	Pre M (SD)	Post M (SD)	Pre M (SD)	Post M (SD)			
Mother reported outcomes							
FES—conflict	1.83 (0.85)	1.36 (0.73)	1.87 (0.72)	1.76 (0.77)	11.11	.001	0.85
FES—cohesion	3.50 (0.60)	3.76 (0.42)	3.27 (0.69)	3.24 (0.72)	14.89	.000	0.99
PCQ	1.17 (0.71)	0.79 (0.54)	1.02 (0.60)	1.05 (0.64)	7.74	.007	0.71
PPC—problem	5.88 (4.45)	3.85 (3.52)	4.54 (3.71)	4.35 (3.48)	1.97	.168	0.41
PPC—extent	26.27 (17.59)	16.94 (13.25)	24.76 (13.36)	17.70 (17.62)	1.83	.184	0.39
RQI	25.15 (7.49)	24.12 (9.34)	25.35 (5.85)	23.57 (6.33)	0.58	.811	0.22
PSA—laxness	3.13 (0.77)	2.58 (0.78)	3.45 (1.16)	3.44 (1.11)	10.34	.002	0.82
PSA—over-reactivity	4.01 (0.63)	3.19 (0.54)	3.70 (0.71)	3.54 (0.75)	12.33	.001	0.90
PMS	2.65 (0.51)	2.84 (0.51)	2.72 (0.60)	2.46 (0.78)	8.29	.005	0.74
PSE	68.66 (15.17)	75.18 (11.30)	69.96 (14.50)	62.05 (18.48)	16.66	.000	1.05
SDQ—total score	9.60 (6.17)	7.30 (5.40)	9.24 (6.64)	10.24 (3.35)	12.93	.001	0.90
DASS—depression	5.01 (3.88)	3.86 (1.97)	6.62 (3.51)	5.57 (3.49)	1.73	.193	0.34
DASS—stress	8.97 (6.93)	5.24 (4.46)	7.30 (6.45)	6.15 (4.83)	1.61	.208	0.32
Adolescent-reported outcomes							
FES—conflict	2.13 (0.88)	1.47 (0.79)	1.92 (0.93)	1.87 (0.86)	8.70	.004	0.76
FES—cohesion	2.91 (0.84)	3.38 (0.70)	2.90 (0.73)	2.89 (0.69)	13.07	.001	0.93
PCQ	1.07 (0.81)	0.81 (0.74)	1.12 (0.73)	1.22 (0.68)	8.94	.004	0.77
PMS	2.53 (0.85)	2.69 (0.69)	2.30 (0.82)	2.28 (0.74)	4.32	.041	0.53
SDQ—total score	11.89 (7.26)	8.54 (4.49)	9.76 (6.10)	7.18 (3.58)	2.06	.156	0.37
PBC	3.37 (4.32)	2.96 (4.74)	3.14 (2.39)	3.48 (2.47)	0.73	.395	0.22
AS	3.28 (0.55)	3.28 (0.51)	3.22 (0.64)	3.23 (0.66)	0.28	.868	0.14
SES	2.27 (0.50)	2.30 (0.43)	2.23 (0.31)	2.16 (0.30)	2.05	.157	0.37
PYD—caring	1.64 (0.59)	1.75 (0.42)	1.59 (0.41)	1.54 (0.35)	5.52	.022	0.60

F ANCOVA univariate effect for condition, *d* effect size, *FES* Family Environment Scale, *PCQ* Parent Conflict Questionnaire, *PPC* Parent Problem Checklist, *RQI* Relationship Quality Index (N.B. GTTP n=24 and control n=24 due to single family status), *PSA* Parenting Scale-Adolescent version, *PMS* Parental Monitoring Scale, *PSE* Parental Self-Efficacy, *SDQ* Strengths and Difficulties Questionnaire, *DASS* Depression Anxiety Stress Scales, *PBC* Problem Behavior Checklist, *AS* Autonomy Scale, *SES* Rosenberg Self-Esteem Scale, *PYD* Positive Youth Development

in the CAU condition. Medium to large effect sizes were found.

Parental Relationship No multi-variate intervention effect was found for the group of parental relationship measures (F (3, 41)=.738, p=.535) nor were there any individual univariate effects on these measures.

Parenting Multi-variate intervention effect was found for the group of parenting-related measures based on mother self-reports (F (4, 63)=6.62, p<.001). Follow-up ANCOVAs revealed a significant intervention effect on the PSA for parental laxness and parental over-reactivity, with mothers in the GTTP condition reporting lower use of dysfunctional parenting practices compared to the CAU condition at post-intervention. Mothers in the GTTP condition also reported increased level of parental monitoring and improved parental confidence at post-intervention compared to parents in the CAU condition. Consistent with mother self-reports, adolescents in the GTTP condition reported increases in parental monitoring at post-intervention, which was not evident in adolescents whose parents were in the CAU condition. The reported changes from parents and adolescents were associated with medium to large effect sizes.

Adolescent Problem Behavior The behavior problems as measured by the Total Difficulties Score on the SDQ reported by mothers and adolescents were in the normal range across both conditions at pre-intervention. Results from univariate ANCOVAs revealed a significant intervention effect on the SDQ as reported by mothers. Less problematic behaviors were reported by GTTP mothers at post-intervention than mothers in the CAU condition. This was associated with a large effect size. However, no significant multi-variate intervention effect was found for the adolescent-reported measures of problem behaviors (F (2, 67)=1.02, p=.367), nor were there any individual univariate effects on these measures.

Adolescent Adjustment No multi-variate intervention effect was found for the adolescent-reported measures of adolescent adjustment (F (3, 65)=1.93, p=.133). However, follow-up ANCOVAs revealed a significant intervention effect on Caring with adolescents in the GTTP condition reporting higher levels of caring at post-intervention compared to adolescents in the CAU condition. This change was associated with medium effect size.

Parental Adjustment No multi-variate intervention effect was found on measures of parental adjustment based on mother self-reports (F (2, 67)=1.07, p=.348), nor were there any individual univariate effects on the subscales.

Six-Month Follow-up Intervention Effects

Table 2 reports the descriptive statistics, results of univariate ANCOVAs, and effect sizes at 6-month follow-up. Follow-up analyses showed a similar pattern to post-intervention findings with most improvements maintained over time. For mother-reported measures, multi-variate intervention effects were found for the group of family relationship (F (3, 65)=7.66, p<.001) and parenting measures (F (4, 63)=5.74, p=.001). Follow-up ANCOVAs revealed significant condition effects for family cohesion and parent–adolescent conflict, parental laxness and over-reactivity, parental monitoring, and adolescent problem behavior; these ranged from medium to large effect sizes. However, no significant differences were observed in mother-reported measures at 6-month follow-up on family conflict and parental confidence despite significant effect at post-intervention. No multi-variate intervention effects were observed for the parental relationship (F (3, 41)= 1.63, p=.197) and parental adjustment measures (F (2, 67)= 0.93, p=.912), at 6-month follow-up.

On adolescent reports, all significant intervention effects observed at post-intervention were maintained at 6-month follow-up. These included multi-variate intervention effects for family relationship (F (3, 65)=10.03, p<.001) and univariate effects for parental monitoring. Additional multi-variate intervention effects were found at 6-month follow-up on adolescent problem behavior (F (2, 67)=10.68, p<.001) and adolescent adjustment (F (3, 65)=4.01, p=.011). Adolescents in the GTTP condition reported significantly less behavioral problems (SDQ and PBC) at 6-month follow-up compared to adolescents in the CAU condition. Adolescents in the CAU condition also reported significantly lower levels of caring at 6-month follow-up compared to adolescents in the GTTP condition. These changes were associated with medium to large effect sizes.

Reliable and Clinically Significant Change

Table 3 reports the results of reliable and clinically significant change analyses and shows the proportion of families from the GTTP and CAU conditions who showed reliable and clinically significant improvement from pre- to 6-month follow-up. Significantly more mothers reliably improved in the GTTP condition compared to the CAU condition on parental laxness and parental monitoring. In addition, more mothers in the GTTP condition moved out of the clinical range in parental laxness compared to the CAU mothers. A significantly higher proportion of GTTP adolescents reported reliable improvements in family conflict and parental monitoring compared with CAU adolescents. Finally, more adolescents in the GTTP condition reported shifts out of the clinical range of problem behavior compared to the CAU condition.

Table 2 Descriptive statistics and effect sizes for 6-month follow-up intervention effects for all measures

	Group Teen Triple P (*N*=35)		CAU (*N*=37)		Univariate *F* for group	*p* value	Effect size *d*
	Pre *M* (SD)	Post *M* (SD)	Pre *M* (SD)	Post *M* (SD)			
Mother reported outcomes							
FES—conflict	1.83 (0.85)	1.43 (0.73)	1.87 (0.72)	1.67 (0.77)	0.45	.506	0.16
FES—cohesion	3.50 (0.60)	3.74 (0.75)	3.27 (0.69)	2.69 (0.97)	19.69	.000	1.05
PCQ	1.17 (0.71)	0.78 (0.51)	1.02 (0.60)	1.21 (0.71)	8.71	.004	0.70
PPC—problem	5.88 (4.45)	4.22 (3.53)	4.54 (3.71)	4.20 (3.04)	1.10	.301	0.38
PPC—extent	26.27 (17.59)	18.59 (10.73)	24.76 (13.36)	20.99 (15.03)	3.58	.065	0.55
RQI	25.15 (7.49)	25.33 (7.93)	25.35 (5.85)	25.00 (4.10)	3.74	.549	0.56
PSA—laxness	3.13 (0.77)	2.56 (0.73)	3.45 (1.16)	3.31 (1.23)	12.84	.001	0.84
PSA—over-reactivity	4.01 (0.63)	3.36 (0.50)	3.70 (0.71)	3.58 (0.62)	5.92	.018	0.57
PMS	2.65 (0.51)	2.84 (0.63)	2.72 (0.60)	2.27 (0.70)	10.72	.002	0.77
PSE	68.66 (15.17)	75.72 (15.56)	69.96 (14.50)	56.81 (21.46)	1.05	.309	0.24
SDQ—total score	9.60 (6.17)	5.35 (4.88)	9.24 (6.64)	8.34 (4.92)	4.45	.039	0.50
DASS—depression	5.01 (3.88)	5.01 (3.89)	6.62 (3.51)	6.62 (3.51)	0.15	.702	0.09
DASS—stress	8.97 (6.93)	6.11 (5.71)	7.30 (6.45)	5.68 (4.04)	0.65	.800	0.19
Adolescent-reported outcomes							
FES—conflict	2.13 (0.88)	1.23 (0.63)	1.92 (0.93)	1.18 (0.67)	17.85	.000	1.00
FES—cohesion	2.91 (0.84)	3.35 (0.62)	2.90 (0.73)	2.84 (0.57)	19.26	.000	1.03
PCQ	1.07 (0.81)	0.87 (0.74)	1.12 (0.73)	1.17 (0.61)	13.32	.001	0.86
PMS	2.53 (0.85)	2.71 (0.47)	2.30 (0.82)	2.13 (0.61)	21.58	.000	1.10
SDQ—total score	11.89 (7.26)	7.79 (5.77)	9.76 (6.10)	11.22 (6.25)	15.09	.000	0.92
PBC	3.37 (4.32)	2.34 (2.32)	3.14 (2.39)	3.76 (2.03)	11.97	.001	0.82
AS	3.28 (0.55)	3.34 (0.36)	3.22 (0.64)	3.36 (0.67)	0.17	.680	0.10
SES	2.27 (0.50)	2.32 (0.57)	2.23 (0.31)	2.18 (0.26)	1.97	.165	0.33
PYD—caring	1.64 (0.59)	1.62 (0.52)	1.59 (0.41)	1.22 (0.36)	6.78	.011	0.61

F ANCOVA univariate effect for condition, *d* effect size, *FES* Family Environment Scale, *PCQ* Parent Conflict Questionnaire, *PPC* Parent Problem Checklist, *RQI* Relationship Quality Index (N.B. GTTP *n*=24 and control *n*=24 due to single family status), *PSA* Parenting Scale-Adolescent version, *PMS* Parental Monitoring Scale, *PSE* Parental Self-Efficacy, *SDQ* Strengths and Difficulties Questionnaire, *DASS* Depression Anxiety Stress Scales, *PBC* Problem Behavior Checklist, *AS* Autonomy Scale, *SES* Rosenberg Self-Esteem Scale, *PYD* Positive Youth Development

Discussion

There is a clear recognition by policy makers and researchers that the cost of adolescent problem behavior is high, and effective evidence-based parenting programs are needed and worth implementing. However, a lack of well-conducted randomized trials that document the efficacy of parenting programs for parents of adolescents hinders large-scale implementation of such programs. This study provided empirical support for the efficacy of GTTP as a universally offered intervention for parents of adolescents. Overall, the findings were promising with medium to large effect sizes comparable to other published efficacy trials of Triple P with younger children (Nowak and Heinrichs 2008). There was also a tendency for a larger proportion of families in the GTTP condition to experience reliable and clinically meaningful improvements, compared to the CAU condition.

Mothers in the GTTP condition at post-intervention reported significant improvements in family relationship quality, including decreased family conflict, increased family cohesion, and decreased levels of parent–adolescent conflict; decreased use of dysfunctional parenting practices; increased parental monitoring; improved parental confidence; and decreased adolescent problem behavior. However, no short-term intervention effect was found for mothers' parental relationship satisfaction and parental adjustment. The present findings are consistent with the results of other studies evaluating Triple P for younger children. These studies found Triple P to be consistently associated with decreased use of dysfunctional parenting practices and reduction of problem behaviors, but not necessarily related to improvements in parental relationships and/or parental adjustment as reported by parents (e.g., Sanders et al. 2000). The extent of impact depends on the level of parental conflict and severity of symptoms of parental adjustment reported prior to intervention. In this

Table 3 Reliable change and clinically significant change results for each significant measure for the intervention and care-as-usual conditions

Measure	Group Teen Triple P		CAU		Reliable change		Clinical change	
	Reliably improved % (*n*/*n*)	Clinically improved % (*n*/*n*)[a]	Reliably improved % (*n*/*n*)	Clinically improved % (*n*/*n*)[a]	χ^2	*p*	χ^2	*p*
Mother reported outcomes								
FES—cohesion	17.14 (6/35)	50.00 (3/6)	0.00 (2/37)	0.00 (0/5)	2.51	0.146	3.44	0.182
PCQ	14.29 (5/35)	100.00 (5/5)	2.70 (1/37)	50.00 (2/4)	3.15	0.102	3.21	0.167
PSA—laxness	34.29 (12/35)	60.00 (12/20)	8.11 (3/37)	15.00 (3/20)	7.47	0.006**	8.64	0.003**
PSA—over-reactivity	28.57 (10/35)	62.50 (15/24)	10.81 (4/37)	39.13 (9/23)	3.62	0.057	2.57	0.148
PMS	22.86 (8/35)	N/A	10.81 (4/37)	N/A	13.51	0.000**		
SDQ—total score	17.14 (6/35)	100.00 (7/7)	10.81 (4/37)	71.43 (5/7)	0.603	0.509	2.33	0.462
Adolescent-reported outcomes								
FES—conflict	34.29 (12/35)	60.00 (3/5)	18.92 (7/37)	57.14 (4/7)	4.06	0.044**	1.66	0.293
FES—cohesion	11.43 (4/35)	20.00 (1/5)	5.41 (2/37)	25.00 (1/4)	0.85	0.423	0.32	1.000
PCQ	5.71 (2/35)	66.67 (2/3)	2.70 (1/37)	0.00 (0/4)	0.41	0.609	3.73	0.143
PMS	11.43 (4/35)	N/A	0.00 (0/37)	N/A	4.48	0.034**		
SDQ—total score	34.29 (12/35)	100.00 (9/9)	18.92 (7/37)	50.00 (4/8)	2.19	0.139	5.89	0.029**
PYD—caring	0.00 (0/35)	N/A	0.00 (0/37)	N/A				

χ^2 Pearson's chi-square (where expected cell frequencies are too low for chi-square, two-sided significance for Fisher's exact test is reported), *N/A* there are no published clinical cut-offs for these measures, *FES* Family Environment Scale, *PCQ* Parent Conflict Questionnaire, *PSA* Parenting Scale-Adolescent version, *PMS* Parental Monitoring Scale, *PSE* Parental Self-Efficacy, *SDQ* Strengths and Difficulties Questionnaire, *PYD* Positive Youth Development

*$p<.05$; **$p<.01$

[a] *n* for denominator represents the number of participants in the clinical range at pre-intervention

study, baseline scores on these variables were in the non-clinical range.

Adolescents whose parents attended GTTP reported significant improvements in family relationships including decreased family conflict, increased family cohesion, and decreased levels of parent–adolescent conflict; increased levels of perceived parental monitoring; and improvement in adolescent adjustment in caring for others. However, contrary to predictions, no short-term intervention effects were found for either adolescent-reported problem behaviors or adolescent self-esteem and autonomy in decision making. One possible explanation is that pre-intervention scores as reported by adolescents were well below the clinical range, and therefore, floor effects made it difficult to detect intervention effects. Alternatively, the effects of the parenting strategies implemented by parents in the GTTP condition may require a longer time period to result in changes in adolescent adjustment and behavior.

Finally, at six-month follow-up, several improvements reported by mothers were maintained: family cohesion, parent–adolescent conflict, dysfunctional parenting practices including over-reactivity, and parental monitoring. However, mother-reported outcomes on family conflict and parental confidence were not maintained. A possible explanation for non-significant intervention effects is that scores at pre- and post-intervention were not within the clinical range. For adolescent-reported outcomes, all short-term intervention effects were maintained at 6-month follow-up. In addition, significant intervention effects on adolescent problem behaviors were observed which were previously not found at post-intervention. Adolescents whose parents attended GTTP reported significantly lower levels of problem behavior than adolescents in the CAU condition. This delayed condition effect suggests that parenting skills implemented by GTTP parents required a longer period of time than immediate post-intervention to have a detectable effect on their adolescents. The finding highlights the importance of follow-up assessments in intervention studies in order to fully capture the effects of the intervention. Moreover, the findings suggest that changes in parenting practices and improvements in the quality of family relationships have the potential to reduce or prevent adolescent-reported problem behaviors in the long term.

The present findings are important because very few studies have documented adolescent-reported outcomes, and of those available, mixed findings have been reported as to the presence of improvements in family relationships and adolescent behavior from the point of view of the adolescent (Chand et al. 2013). As evident in the present study, mothers' changes in their specific parenting practices appear to be accompanied

by broader changes in how they relate to their adolescent (e.g., decreased parent–adolescent conflict), resulting in enhanced family relationships. For adolescents, improvements in family functioning can lead to better communication between parents and adolescents, which is an important determinant of the quality of the parent–adolescent relationship (Maximo et al. 2011). Where parent–adolescent relationships are perceived to be positive by adolescents, there is a greater likelihood that higher monitoring would be reported by both parents and adolescents and therefore less likely for adolescents to engage in problem behaviors (Dishion and McMahon 1998). Although the small sample size did not allow examination of moderators and mediators of intervention effects, the present findings found that adolescents whose parents participated in GTTP reported higher levels of parental monitoring and decreased parent–adolescent conflict as well as a reduction in problem behaviors.

The above findings are consistent with the framework of Teen Triple P, in which it aims to bring about change in families by teaching parents to use positive adolescent management practices, to eliminate or reduce coercive interaction patterns and to create positive family relationships and functioning. It seeks to accomplish this through the use of active skill training within a self-regulation framework (Sanders 2012). Similar to findings on previous variants of Teen Triple P, GTTP was effective in reducing adolescent problems, parent–adolescent conflict, and dysfunctional parenting (e.g., Stallman & Ralph 2007). In addition, these findings are consistent with results from other programs developed for parents of adolescents (e.g., Strengthening Families Program 10–14, Spoth et al. 2009).

The present findings need to be interpreted in light of the study's strengths and limitations. Strengths included use of a randomized controlled design with follow-up, multi-informant assessment, use of intent-to-treat analyses, and reliable, validated outcome assessment tools. A number of limitations are important to consider. Firstly, socioeconomically disadvantaged families were underrepresented limiting the generality of the findings to the most vulnerable parents and adolescents. In addition, families were generally well-functioning. Despite extensive efforts to use social marketing strategies to raise community awareness, participation rates were low. This is consistent with other international research on parenting interventions regarding challenges in recruiting parents in general as well as parents of lower socioeconomic status (Sanders et al. 2007). Future research is needed with more diverse populations to assess the generalizability of the program. Secondly, we assessed intervention outcomes through self-report measures only. Although the measures had strong psychometric properties and utilized multiple informants, no observational data was collected. As with many studies where parents volunteer and consent to participate, it is unknown to what extent differential positive expectancy effects may have contributed to observed group differences. Moreover, few father data were collected in the present sample. Future research would benefit from collecting multiple sources of data, particularly fathers and adolescents, given the current lack of father and adolescent input in parenting intervention research. For example, consulting with both parents (where applicable) and adolescents on how programs can be tailored to meet the needs of families and to determine whether programs involving adolescents is considered acceptable and relevant to parents and adolescents.

Large-scale community-based implementation of parenting programs to prevent and reduce adolescent problem behavior will require a number of effective programs to be available to avoid a "one size fits all" approach. The current findings demonstrated the efficacy of GTTP in reducing adolescent problem behaviors, improve parent–related outcomes, and improve family relationships and functioning for families. Demonstrating efficacy of GTTP is a useful and necessary step towards the ultimate goal of having a multi-level system of parenting support available across childhood and adolescence within a public health framework that ultimately makes a difference in the lives of youth and their families.

Conflict of Interest The Triple P-Positive Parenting Program is owned by the University of Queensland (UQ). The university, through its main technology transfer company UniQuest Pty Limited, has licensed Triple P International Pty Ltd. to disseminate the program worldwide. Royalties stemming from this dissemination activity are distributed to the Parenting and Family Support Centre, School of Psychology, UQ, Faculty of Health and Behavioral Sciences at UQ, and contributory authors. No author has any share or ownership in Triple P International Pty Ltd. Matthew Sanders is the founder and an author on various Triple P programs and a consultant to Triple P International.

The rest of the authors declare that they have no conflict of interest.

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