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An Outcome Evaluation of the Implementation of the Triple P-Positive Parenting Program in Hong Kong

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Abstract

The present study evaluated the effectiveness of the Positive Parenting Program (Triple P) with a sample of Chinese parents of children with early onset conduct-related problems in Hong Kong. The participants consisted of 91 parents whose children attended maternal and child health centers and child assessment centers for service, and were between three to seven years old. Participants were randomly assigned to the intervention (TP) and a waitlist control group (WL). There was no significant difference in pre-intervention measures between the two groups. However, at post intervention, participants in the TP group reported significantly lower levels of child behavior problems, lower dysfunctional parenting styles, and higher parent sense of competence, compared to the WL group. Implications of these findings for the use of Triple P with families of Chinese descent are discussed.

Epidemiological studies indicate that family risk factors such as poor parenting, family conflict, and marital breakdown are powerful early predictors for the development and maintenance of behavioral and emotional problems in children and adolescents (Cummings & Davies, 1994; Dryfoos, 1990; Loeber & Farrington, 1998; Robins & Price, 1991). Specifically, the lack of a warm, positive relationship with parents; insecure attachment; harsh, inflexible, rigid, or inconsistent discipline practices; inadequate supervision of and involvement with children; marital conflict and breakdown; and parental psychopathology (particularly maternal depression and high levels of parenting stress); increase the risk that children develop major behavioral and emotional problems, including conduct problems, substance abuse, antisocial behavior, and participation in delinquent activities (Coie, 1996; Loeber & Farrington, 1998; Patterson, 1982).

In contrast, supportive family relationships have been shown to be a significant predictor of positive adjustment in childhood and adolescence. In addition, indirect evidence suggests that supportive family relationships are a protective factor for conduct problems and adolescent adjustment problems (Cauce, Reid, Landesman, & Gonzales, 1990; Cohen & Wills, 1985; Wills, Vaccaro, & McNamara, 1992).

Greater attention is consequently being given to the importance of better preparation for parents to undertake their role in raising children. Parents generally receive little preparation beyond the experience of having been parented themselves, with most learning on the job through trial and error (Risley, Clark, & Cataldo, 1976; Sanders, Tully, Baade, et al., 1999). The demands of parenthood are further complicated when parents do not have access to extended family support networks (e.g., grandparents, trusted family friends) for advice on childrearing, or when they experience the stress of separation, divorce, or repartnering (Lawton & Sanders, 1994; Sanders, Nicholson, & Floyd, 1997).

Although there are many parenting programs available in the community, most have not been evaluated. In contrast, behavioral family interventions (BFI) based on social learning principles are among the most powerful and thoroughly evaluated interventions available to assist children with conduct problems (Brestan & Eyberg, 1998; Lochman, 1990; Sanders, 1996; Taylor & Biglan, 1998). Typically, parents are taught to increase positive

interactions with children and to reduce coercive and inconsistent parenting practices. These programs are associated with large effect sizes (Serketich & Dumas, 1996). The effects are often generalized to a variety of home and community settings (McNeil, Eyberg, Eisenstadt, Newcomb, & Funderburk, 1991; Sanders & Dadds, 1982), maintained over time (Long, Forehand, Wierson, & Morgan, 1994), and are associated with high levels of consumer satisfaction (Webster-Stratton, 1989). A variety of different delivery formats have been demonstrated to be effective, including individually administered face-to-face programs (e.g., Forehand & McMahon, 1981), group programs (e.g., Webster-Stratton, 1990), telephone-assisted programs (e.g., Connell, Sanders, & Markie-Dadds, 1997) and self-directed programs (e.g., Markie-Dadds & Sanders, 2000). The success of BFI highlights the importance of including parenting interventions in any comprehensive preventive intervention designed to reduce conduct problems in children.

The Positive Parenting Program (Triple P), a form of BFI, is designed as a comprehensive multi-level, prevention-oriented system of parenting and family support developed by Sanders and colleagues at the University of Queensland in Australia. The program introduces positive, nonviolent child management techniques to parents as an alternative to coercive parenting practices (Sanders, 1999). It also emphasizes the importance of changing unrealistic or dysfunctional parental cognitions, specifically attributions and expectations in their child management, and helps parents to identify alternative explanations for their children's behaviors. Triple P aims to promote parental competence and regards parents development of the capacity for self-regulation as the central skill, enabling parents to become independent problem solvers, with the confidence that they could solve problems themselves. Parents are also taught the skills of self-monitoring, self-determination of goals, self-evaluation of performance, and self-selection of change strategies (Sanders, 1999).

The program incorporates five levels of intervention on a tiered continuum of increasing strength for parents of preadolescent children from birth to the age of twelve. Level 1 is a universal parent information strategy that provides parents with useful parenting information through a coordinated media campaign. Level 2 is a brief one or two session primary healthcare intervention providing guidance to parents of children with mild behavior problems. Level 3 is a four-session intervention for children with mild to moderate behavior difficulties. Level 4 is an intensive eight-to-ten session individual or group parent-training program for children with more serious behavior problems. Level 5 is an enhanced program for families where parenting difficulties are complicated by other issues Sanders, 1999).

Although there is ample research evidence showing that Triple P is an effective intervention, most of the published research has been in western societies (see Sanders, 1999 for a review of existing Triple P trials). The effectiveness of Triple P within a Chinese community has not been assessed and warrants further investigation since there are cultural differences between the Chinese culture and the Anglo-Australian culture that would affect parenting practices.

Research on Chinese families suggests that Chinese parents expect their children to obey and respect their elders (Wu, 1996). Research also indicates that Chinese American parents are more restrictive and authoritarian than American parents (Chao, 1996; Chao & Sue, 1996; Wu, 1996). Rosenthal and Feldman (1991) found that Chinese-Australian adolescents reported a more demanding family environment than Anglo-Australian adolescents. In short, in Chinese culture, there is an emphasis on parental authority over children and children are expected to be obedient. Expressions of opinions or independence are not encouraged.

Despite some differences in the cultural contexts for Chinese and Anglo-Australian parents, it is unknown how such differences might affect the cultural appropriateness, acceptability, and effectiveness of the specific parenting skills taught in behavioral family intervention programs such as triple P (e.g., praise, incidental teaching, quiet time, and timeout). Hence, the program needs to be trailed directly with Chinese families experiencing behavior difficulties with their children.

Several aspects of Triple P were hypothesized to increase the likelihood of parental acceptance by Chinese families. First, the program uses a self-regulation framework in introducing parenting skills. This means that parents have considerable flexibility choosing goals and targets relating to changes in their child's and their own behavior that are meaningful for them. Hence, rather than the program simply prescribing what to do in dealing with problem behavior, parents are able to craft solutions from a range of 17 skill options introduced within the program. Second, parental concerns regarding cooperation and compliance of children with adult requests are specifically addressed in the program. Third, parents are provided with clear models and examples via video demonstrations of how to apply specific skills in their interactions with children.

In Hong Kong, in 2001, the Department of Health organized training for Maternal and Child Health Centers (MCHC) and Child Assessment Centers (CAC) staff members to receive training in the implementation of Primary Care Triple P (level 3) and Group Triple P (level 4) programs. The MCHC service is a government-run, personal health service that provides preventive child and maternal healthcare service and the CAC service is a government-run service for children referred because of various developmental problems. The Triple P materials were translated into Chinese by a bilingual clinical psychologist. To determine the efficacy of the Triple P program with the Hong Kong Chinese community, an evaluation study was conducted. The program under evaluation was the level 4 group program conducted by health professionals from MCHC and CAC, with clients from these centers. The evaluation was conducted by the Parent Education Implementation Team, Education and Manpower Bureau.

The program was evaluated using a randomised, controlled trial, comparing the pre and post-intervention results of the intervention group (TP) and control group participants (WL) on a range of measures assessing the extent of disruptive behavior problems in children, parenting skills, parents sense of competence, and parental adjustment.

To determine the efficacy of the program, the following specific hypotheses were tested. Hypothesis 1 predicted that immediately post-intervention, TP participants would experience significantly greater reductions on parent-reported and parent-monitored measures of disruptive child behavior than participants in the WL group. Hypothesis 2 predicted a similar pattern of results on measures of parent-reported parental negativity, dysfunctional parenting, parental distress, and conflict over parenting such that immediately post-intervention, the TP group would be superior to the WL condition.

METHOD

Participants

The participants were 91 parents attending MCHC (n= 74) and CAC (n= 17), with children between 3 to 7 years old. Participants who indicated concerns about their children's behavior (MCHC participants) or were referred because of their children's behavior problems (CAC participants) were invited to join the program by health staff but they had to meet the following criteria: (a) the child showed no evidence of significant developmental delay or other disabilities; (b) parents should be literate, with no major psychiatric disorder; (c) there was no history of domestic violence in the family; and (d) the child and the participating parent must be living together in Hong Kong continuously during the last 12 months. Both parents would need to consent to participate though it was not necessary for both to attend the sessions. The actual recruitment rate could not be determined because the total number of parents informed about the trial, was unknown.

Of the 91 participants (46 in-TP group and 45 in WL group), there were three participants who never returned any of their questionnaires nor turned up for any of the sessions (2 in the WL group and 1 in the TP group), and 69 participants who completed all questionnaires. In this report, the data from these 69 participants were used for further analysis and unless otherwise specified, the statistical analysis reported in this report is based only on these 69 participants. Among these 69 participants, 33 were TP group participants (26 MCHC participants and 7 CAC participants), and 36 were WL group participants (31 MCHC participants and 5 CAC participants).

In terms of the target children, there were 25 females and 44 males and 85.5% (n= 59) were attending kindergartens, with the rest (14.5%, n= 10) attending primary schools. The mean age of the children was 4.23 years (SD= 1.06). There was one child with sensory impairment and one child with developmental delay.

For the program participants, the majority (95.7%, n= 66) were the biological mothers of the children and the rest (4.3%, n= 3) were the biological fathers. The mean ages of the fathers and mothers were 39.36 years (SD= 4.48) and 35.70 years (SD= 4.63), respectively. The fathers' and mothers' mean lengths of residence in Hong Kong were 36.74 years (SD= 9.18) and 32.62 years (SD= 9.25). In terms of parents' education, the majority of the fathers (55.10%, n= 38) and mothers (66.60%, n= 46) had received 7 to 12 years of formal education. In the 2001 Hong Kong census, approximately 56% of those aged between 35 and 40 have received 7 to 12 years of formal education (Census and Statistics Department, 2001). For occupation, the majority of the mothers (58.00%, n= 40) were homemakers and for the fathers, the majority (58.00%, n= 40) were either white collar or professional workers. In the 2001 Hong Kong census, approximately 59.8% of married females between the age of 35 to 40 were in the workforce and about 47.8% of those employed were either clerical, para-professional,

professional, or managerial workers (Census and Statistics Department, 2001). There was one family on public assistance and there were four participants who did not supply information on this question. One participant was not married whereas all others were married. In terms of family composition, the majority (79.70%, *n*= 55) were nuclear families, 18.80% (*n*= 13) were extended families; and there was one single-parent family.

Measures

The materials consisted of a set of questionnaires to be completed by the participants at pre- and post-intervention. All questionnaires were translated to Chinese using the back translation method. Reliability estimates (Cronbach alpha) of the questionnaires are also presented in this section. Generally speaking, scores above .7 are regarded as satisfactory.

Parent Daily Report (PDR; Chamberlain & Reid, 1987) is a checklist with 33 problem-child behaviors and one item referring to the use of physical punishment by parents. Each participating mother[2] recorded which behavior occurred each day on an occurrence or non-occurrence basis over 7 days within a two-week period. Participants chose any consecutive 7 days during that 14-day time period. A total score (sum of the occurrence of behaviors over the 7-day period) and a daily mean score (mean number of problem behaviors each day) are calculated. In the present study, the reliability estimates of the pre- and post-intervention measures were .96 and .98, respectively.

Eyberg Child Behavior Inventory (ECBI; Eyberg & Ross, 1978) is a 36-item measure of parent perception of disruptive behavior in children aged 2 to 16 years. There are two scores that can be calculated: a problem score which is a measure of the frequency of occurrence of disruptive behaviors, and an intensity score which is the sum of participants rating of the intensity of the behaviors on a 7-point scale. In the present study, the reliability estimates of the pre- and post intervention measures were .88 and .94 (problem) and .91 and .95 (intensity), respectively. The mean pre-intervention scores of the TP and WL groups were in the elevated range on the ECBI (intensity > 127 or problem > 11; Eyberg & Rosss, 1978) (see Table 1).

Strength and Difficulty Scale (SDQ; Goodman, 1999) is a 25-item behavioral screening questionnaire that measures parents' perception of prosocial and difficult behaviors in children aged 3 to 16 years. Five scales are computed by summing the five items for each scale (emotional problems, conduct problems, inattention/ hyperactivity problems, peer problems, and prosocial behavior). In the present study, the reliability estimates of the sub-scales ranged from .62 to .72 for pre-intervention measures and .41 to .77 for post-intervention measures.

Parenting Scale (PS; Arnold, O'Leary, Wolff, & Acker, 1993) is a 30-item questionnaire that measures dysfunctional discipline styles in parents. There are three factors: laxness (permissive discipline), overreactivity (authoritarian discipline, displays of anger, meanness, and irritability), and verbosity (overly long reprimands or reliance on talking) measured on a 7-point scale. A total score can be calculated by summing the three factor scores. The reliability estimates for the pre- and post-intervention measures of the total scores were .37 and .78, respectively. In the present study, the reliability estimates of the factor scales ranged from .37 to .71 for pre-intervention measures and from .57 to .79 for post-intervention measures.

Parenting Sense of Competence Scale (PSOC; Gibaud-Wallston & Wandersman, 1978) is a 16-item questionnaire that assesses parents' views of their competence as parents on two dimensions: satisfaction with their parenting role and feelings of efficacy as a parent, on a 6-point scale. A total score can also be calculated. The reliability estimates for the pre- and post-intervention measures are .74 and .78, respectively. In the present study, the reliability estimates of the sub-scales ranged from .67 to .71 for pre-intervention measures and from .71 to .78 for post-intervention measures.

Parent Problem Checklist (PPC; Dadds & Powell, 1991) is a 16-item questionnaire that measures conflict between partners over childrearing. For each item, participating mothers have to indicate whether there is concern over the issue. If the answer to that item is "yes," then they can indicate the extent of the problem on a 7-point scale. A total score can be calculated by summing up the number of "yes" responses. In the present study, the reliability estimates for the pre- and post-intervention measures are .86 and .85, respectively.

Relationship Quality Index (RQI; Norton, 1983) is a 6-item index of martial or relationship quality and satisfaction. Scores less than or equal to 29 are indicative of relationship distress. In the present study, the reliability estimates for the pre- and post-intervention measures are .97 and .96, respectively.

Client Satisfaction Questionnaire (CSQ; Turner, Markie-Dadds, & Sanders, 1998) is a 13-item scale is adapted from the Therapy Attitude Inventory (Eyberg, 1993) and addresses the quality of service provided, the extent to which the program could meet the participants' needs, the perceived increase in parenting skills and decrease in child behavior problems, and whether the participants would recommend the program to others. This is administered only at post-intervention. Participating mothers rate their degree of satisfaction with the service on a 7-point scale and a total score is calculated by summing the individual items. In the present study, the reliability estimate is .93.

Participating mothers were also asked to supply basic demographic information including gender, age, length of residence in Hong Kong, education of target child, health condition of target child, education, and occupation of both parents, as well as family type, marital status, relationship of participant to target child, and public assistance status.

Procedures

Participants were recruited into the program by health professionals. Participants were randomly assigned to either the TP group or the WL group, who were offered the program after the TP group had completed the program.

The participating mothers in both the TP and WL groups were asked to complete the questionnaires before the commencement of the program and after the completion of the program by the TP group. The program was conducted over eight weeks, including four weekly group sessions of 2 hours duration each, followed by four weekly phone consultations of 15–30 minutes each. The participating mothers were given the pre-intervention questionnaires two weeks prior to the commencement of the group program and were asked to complete and return the questionnaires within two weeks. At the completion of the program, they were given two weeks to complete and return the post-intervention questionnaires.

The MCHC participants completed the program in the MCHC that they normally attended whereas the CAC participants attended the program in one CAC.

RESULTS

Preliminary analyses

Only participants with complete data were included in the statistical analysis. However, to insure that there were no differences between participants with complete and incomplete data, a series of chi-square tests and independent *t*-tests were conducted to test for possible differences between these two groups. There was no significant difference between the two groups in terms of demographic variables or on any of the pre- and post-intervention scores available. In the TP group, there was a significant difference between the two groups in terms of their program attendance (TP group participants only), χ^2 (6) = 22.43, p < .001. For those with complete data, 25 out of 33 (TP group members) had attended all sessions whereas for those with incomplete data, only 3 out of 10 (TP group members) had attended all sessions (the other 12 participants with incomplete data were WL group participants and there was no information on their attendance because they had not started the program). According to the facilitators, TP group members (complete or incomplete data) who did not attend all sessions missed sessions because of various personal commitments. The average attendance rate was 7.73 for participants who completed post-assessment and 6.74 across all TP participants.

A series of chi-square tests and independent *t*-tests were conducted to examine whether there were any differences between the TP group and WL group participants on the various demographic measures and pre-intervention scale scores. In terms of the demographic variables, the only significant difference was the gender of target child, χ^2 (1) = 6.39, $p < .05$. There were fewer female target children (n= 8) in the WL group than that in the TP group (n= 17). There was no significant difference between the TP group and WL group participants in terms of pre-intervention scores.

Effects of intervention of child, parenting and family variables

Analyses of Covariance (ANCOVA) and Multivariate Analyses of Covariance (MANCOVA) were used to test for group differences. The independent variables were group status with two levels (TP group and WL group) and gender of target child, and the dependent variables were the post-intervention measures, with the pre-intervention measures as covariates. Gender of target child was included as an independent variable in order to assess the moderating effect of gender of target child on program effectiveness.

For child behavior, ANCOVA results indicated a significant difference in post intervention scores between the TP and WL group participants on mean PDR scores, $F(1,64) = 7.19$, $p < .01$, with the TP group participants reporting lower post-intervention scores than the WL group participants, indicating a decrease in reported child problem behavior among TP group members after intervention. There was no significant effect due to gender of target child or interaction. With regard to ECBI, MANCOVA results indicated that there was a significant group effect, $F(2, 62) = 13.94$, $p < .001$. Univariate analyses indicated significant group differences for both post-intervention ECBI problem and post-intervention ECBI intensity. The TP group members reported lower post-intervention scores than the WL group members, indicating a decrease in reported child behavior problems among TP group members after intervention.

There was no significant difference due to gender of target child or interaction. For SDQ, MANCOVA results indicated a significant group effect, $F(5, 56) = 4.22$, $p < .005$. Univariate analyses indicated significant group differences for SDQ conduct problem, hyperactivity, peer problem, and emotional symptom, but not prosocial behavior. The TP group members reported lower SDQ conduct problem, hyperactivity, peer problem, and emotional symptom scores than the WL group members, indicating a decrease in reported child behavior problems among TP group members after intervention. MANCOVA results also indicated a significant difference by gender of target child, (F [5, 56) = 2.89, $p < .05$). Univaraite analyses indicated significant group differences for SDQ conduct problem and hyperactivity. Participants with male target children reported lower post-intervention scores than those with female target children. The interaction effect was not significant.

With regard to parent measures, ANCOVA results indicated significant group difference in post-intervention PPC scores, F (1, 64) = 14.18, $p < .001$, with TP group participants reporting lower post-intervention scores than WL group participants, indicating a decrease in perceived parental problems in the TP group after intervention. There were no significant gender of target child or interaction effects. ANCOVA results also indicated a significant group difference in post-intervention PSOC total scores (F [1, 64] = 18.41, $p < .001$) with the TP group reporting higher post-intervention scores than WL group participants, indicating an increase in perceived parent sense of competence among TP group members after intervention. The effect of gender of target child and the interaction effect were not significant. MANCOVA was used to examine group difference in the post-intervention PSOC subscales, PSOC efficacy, and PSOC satisfaction, and the results indicated significant group difference. A significant group difference was found (F [2, 62] = 20.76, $p < .001$) where univariate analyses indicated group differences in both PSOC efficacy and PSOC satisfaction. TP group members reported higher post-intervention PSOC efficacy and PSOC satisfaction scores than WL group members, signifying increased perceived parent sense of efficacy and satisfaction among TP group after intervention. The effect of gender of target child and the interaction effect were not significant.

For PS total, ANCOVA results indicated significant group difference in post-intervention PS total scores, F (1, 64) = 19.33, $p < .001$, with TP group participants reporting lower scores than WL group participants, showing decreased dysfunctional parenting behavior after intervention among TP group members. There were no significant effects due to gender of target child and interaction. MANCOVA was used to examine group difference in the post-intervention PS subscales, PS laxness, PS over-reactivity and PS verbosity. A significant group difference, F (3, 60)= 7.00, $p < .001$, was found. Univariate analyses indicated significant group differences for the three subscales, indicating decrease in dysfunctional parenting style such as laxness, over-reactivity and verbosity among TP group members after intervention. ANCOVA results also show no difference for post-intervention RQI.

TABLE 1
Pre. and Post-interventionScores of TPand WL Croup Participants

Scale	TP Group		WL Group		Significance
	Pre	Post	Pre	Post	(twetailed)
PDR	5.00(3.95)	2.85 (3.71)	5.36 (3.49)	5.06 (4.311	,006
ECBI problem	13.25 (6.52)	6.92 (7.54 I	16.56 (7.52)	15.74 (8.32)	<.oo 1
ECBI intensity	131.38 (24.51)	107.28(31.03)	137.70 (27.96)	136.45 (27.30)	d.001
SDQ conduct problem	3.27 (1.631	2.33 (1.73)	3.42 (2.05)	3.56 (1.52)	.002
SDQ hyperactivity	5.85 (2.281	5.15 (2.28)	6.47 (2.16,	6.47 (1.951	-03
SDQ peer problem	2.82 11.45)	2.57 (1.59)	3.48 (2.08)	3.64 (1.761	.03
SDQemotionol symptom	2.79 (2.23)	2.18 (1.70)	3.33 11.991	3.49 (2.49)	.03
SDQ prosociol behavior	6.00 (1.70)	6.45 (1.87)	5.51 (2.11)	5.50 (2.14)	N.S.
PS-total	116.82 (10.96,	99.33 (19.011	116.25 (10.90)	115.17 (11.99)	<.001
PS laxness	40.43 (8.90)	32.58 (10.001	39.81 (7.481	39.11 (8.01)	<,001
PS ovemnctivity	37.39 (8.151	31.09 (9.18)	36.33 (8.50)	36.03 (8.26)	,002
PS verbosity	31.67 (5.241	26.85 (6.86)	33.03 (5.32)	32.56 15.44)	<.oo1
PSOC-total	53.91(8.561	60.45 (8.70)	52.19 (10.261	51.83 (9.33)	1.001
PSOC satisroction	30.45 15.391	32.27 (5.83)	28.03 (7.58)	27.81 16.33)	-007
PSOC cmcilcy	23.45 (4.841	28.18 (4.97)	24.17 (5.33)	24.03 (5.851	<.oo 1
PPC	7.55(4.32I	4.85 (3.71)	8.34 (4.39)	8.37 (3.96)	c.001
RBI	32.73 (9.78)	34.27 (7.44)	31.72 (8.781	31.42 (8.65)	.03

The pre- and post-intervention scores (mean and standard deviation) of the TP and WL group participants, as well as the univariate significance levels, are shown in Table 1. The pre- and post-intervention scores (mean and standard deviation) of the TP and WL group participants with male and female target children are shown in Table 2.

Analysis of attrition and intention to treat

Since there were more participants with Incomplete data who did not attend all sessions, a further analysis was conducted. For those with incomplete data, their missing post-intervention scores were substituted with their pre-intervention scores. This intention to treat analysis was based on the 88 participants who had returned the questionnaires. Again, ANCOVAs and MANCOVAs were used, with the independent variable being group status with two levels (TP group and WL group), and the dependent variables being the post-intervention measures, with the pre-intervention measures as covariates. The intention to treat analysis found an identical pattern of results to the completer-only data.

DISCUSSION

The present study was the first controlled evaluation of Triple P in a non-western cultural context. The overall findings strongly confirm the efficacy of Triple P in reducing parental reports of conduct problems in children and in promoting more harmonious family relationships in Chinese parents living in Hong Kong. Specifically, the results indicated that Triple P was effective in reducing disruptive child behavior problems, as indicated by significantly lower post-intervention ECBI problem scores, ECBI intensity scores, mean PDR scores and SDQ subscale scores in the TP group, compared to the WL group, confirming hypothesis 1. This finding is consistent with a growing body of literature showing the benefits of Group-administered Triple P as an early intervention program for children with disruptive behavior problems (e.g., McTaggert & Sanders, in review; Sanders, Markie-Dadds, Tully, & Bor, 2000; Sanders & McFarland, 2000; Zubrick, Silburn, Burton, & Blair, 2002). Interestingly, SDQ measures showed positive intervention effects for not only conduct problems but also parental ratings of hyperactivity and peer relationship problems. The effect sizes for the main measure of child outcome, namely Changes on the ECBI intensity and problem scales, were d=−.97 and −.90. This is generally considered a large effect size and compares favorably to other published evaluations of Triple P using Australian families. For example, Sanders et al., (2000) found-an effect size of d=−1.05 for the contrast between Triple P delivered individually and a waitlist control condition on the ECBI Intensity Scale.

TABLE 2

Pre- and Post-Intervention Scores of TP Group Participants with Male and Female Target Children

Scale	Participants with Male Target Children				Participants with Female Target Children			
	TP (*n* = 16)		WL (*n* = 28)		TP (*n* = 17)		WL (*n* = 8)	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
PDR	4.70 (3.32)	1.88 (1.86)	5.73 (3.65)	5.33 (4.69)	6.24 (4.56)	3.66 (4.85)	4.04 (2.63)	4.13 (3.15)
ECBI problem	13.56 (6.15)	4.69 (4.61)	17.36 (7.66)	16.32 (8.98)	12.95 (7.02)	8.73 (9.36)	13.75 (6.71)	13.75 (8.38)
ECBI intensity	131.86 (21.83)	104.29 (17.80)	141.40 (27.80)	139.12 (29.09)	130.92 (27.47)	110.10 (49.15)	124.76 (26.72)	127.13 (23.65)
SDQ emotional problem	1.94 (1.57)	1.31 (1.08)	3.29 (1.84)	3.36 (2.41)	3.59 (2.56)	3.00 (1.80)	3.50 (2.56)	4.00 (2.88)
SDQ conduct problem	3.31 (1.30)	1.69 (1.14)	3.57 (2.13)	3.50 (1.63)	3.24 (1.92)	2.94 (1.98)	2.88 (1.73)	3.75 (1.58)
SDQ hyperactivity	6.44 (2.88)	4.13 (1.64)	6.75 (2.32)	6.36 (2.04)	6.29 (2.39)	5.18 (2.86)	5.50 (1.07)	6.88 (1.64)
SDQ peer problem	2.69 (1.08)	2.56 (1.55)	3.62 (2.21)	3.71 (1.80)	2.94 (1.76)	2.65 (1.67)	3.00 (1.51)	3.38 (1.09)
SDQ prosocial behavior	5.25 (1.34)	6.06 (1.29)	5.04 (2.07)	5.39 (2.22)	6.71 (1.72)	6.82 (2.27)	7.13 (1.36)	5.88 (1.96)
PPC	7.69 (5.06)	5.13 (3.77)	8.89 (4.51)	8.87 (4.17)	7.35 (3.62)	4.59 (3.74)	6.38 (3.54)	6.63 (2.62)
PSOC total	52.81 (8.49)	67.81 (7.47)	64.53 (10.62)	62.11 (10.20)	64.94 (8.76)	62.94 (9.27)	54.50 (9.56)	60.88 (6.67)
PSOC efficacy	22.19 (4.53)	27.06 (3.97)	23.96 (6.53)	24.71 (6.03)	24.65 (4.94)	29.24 (5.67)	24.88 (4.82)	21.63 (4.72)
PSOC satisfaction	30.63 (5.99)	40.75 (5.06)	27.67 (7.28)	29.63 (6.98)	30.29 (4.83)	33.71 (5.39)	27.39 (6.48)	29.25 (5.95)
PS-total	114.38 (10.93)	97.00 (19.48)	117.57 (11.14)	116.11 (10.76)	119.12 (10.80)	101.53 (18.87)	111.63 (9.15)	111.88 (16.03)
PS laxness	39.94 (9.44)	31.94 (10.36)	40.43 (7.22)	39.82 (7.64)	40.88 (8.63)	33.18 (9.86)	37.63 (8.47)	36.63 (9.30)
PS overreactivity	36.63 (7.86)	30.50 (8.07)	37.71 (8.13)	36.57 (8.16)	38.12 (8.60)	31.65 (10.33)	31.50 (8.40)	34.13 (8.94)
PS verbosity	30.88 (5.56)	26.13 (7.36)	32.32 (5.12)	32.36 (5.12)	32.41 (4.94)	27.53 (6.50)	35.50 (6.58)	33.25 (6.78)
RQI	32.00 (9.03)	33.44 (6.97)	30.46 (8.75)	30.07 (8.53)	33.41 (10.67)	35.56 (8.72)	36.13 (7.83)	36.13 (7.81)

In relation to hypothesis 2, the findings strongly confirm that improvements in child behavior were associated with hypothesized changes in parenting and family risk factors associated with behavior problems in children. Triple P was effective in reducing dysfunctional parenting style, as indicated by lower post-intervention PS total and PS subscale scores in the TP group, compared to the WL group. Intervention was also effective in increasing parents sense of competence, and reduced conflict over parenting, as indicated by higher post-intervention PSOC total and subscale scores, and the PPC scores in the TP group, compared to the WL group. These findings showed that the effects of intervention were not narrowly confined to targeted parenting skills and child behavior problems. The effects improved a broader range of adult well-being and adjustment (specifically parental distress) as well. These findings highlight the fact that parenting interventions that reduce conflict with children can produce other positive, radiating effects within the family system.

It is also important to note that the present study constitutes an effectiveness trial of an intervention as it was delivered through regular clinical services by clinical staff employed by Health Services within Hong Kong. Staff had been specifically trained to implement the program by trainers from the Parenting and Family Support Center from Australia, and were supervised during the implementation of the program. These factors promoted good program integrity and enhanced protocol adherence by staff delivering the program.

Although care was taken in the random assignment of participants to the TP and WL groups, there were still some differences between groups in that there were fewer female target children in the WL group than in the TP group. Analysis of the pre-and post-intervention scores of participants with male and female target children separately suggested that there were more significant pre- and post-intervention differences for participants with male target children. The target children in the present study were mainly kindergarten students, with some children from lower primary school grades. The effectiveness of the program with target children from the middle- and upper-primary grades needs further investigation.

While only 3 participants failed to complete the intervention, a larger number failed to complete the post-intervention assessment (25%). Although these participants were similar on sociodemographic variables, those who did not complete the full post-assessment attended fewer sessions. These findings highlight the importance of building in strategies for insuring the collection of post-intervention data in families accessing parenting programs through regular child health or mental health services.

Although both mothers and father were eligible to participate, as with most parent training studies, mothers were more likely to participate. The reasons for this low level of father participation in Hong Kong families is difficult to determine although it may be a result of a complex interaction between the long working hours of many fathers, the use of type of child health services to recruit families (which are typically attended by mothers and children), and the mother's traditional role in Chinese families in caring for children. In future studies, it would be useful to collect mother and father data on child and parenting outcomes.

The present study used a waitlist control group as the comparison condition rather than a placebo group or other parent education program. Since this was the first controlled evaluation of Triple P in a Chinese cultural context, we sought to determine whether the intervention would have superior effects-to non-intervention. The design controlled for maturational effects and regression to the mean on repeated testing. In future research, contrasting Triple P with another intervention condition would be desirable. However, there was no published parent education program of a similar nature for a similar age group available in Hong Kong at the time of the study. The decision to use a waitlist control group was also based on ethical considerations. Being a government-run service, it was not possible to withhold treatment completely and therefore deprive clients of services. The waitlist allowed clients in the delayed condition to be offered the service at a later day.

The present study is based on self-report data. Though participants' perceptions were important, it would be desirable to have collaborating evidence from other sources. This should be considered in future studies.

A further cautionary note in interpreting the results is that three of the outcome measures (Strengths and Difficulties Questionnaire, the Parenting Scale, and the Parent's Sense of Competence Scale) had lower levels of internal consistency reliability in this sample than is desirable. This highlights the importance of further work in developing culturally appropriate and change-sensitive tools in assessing outcomes in Chinese families participating in intervention trials.

The present report has not documented the long-term effects of the intervention. A follow up study is underway to assess whether the highly durable intervention effects demonstrated in other research with Triple P (e.g., Sanders et al., 2000) also pertains to Chinese parents.

Footnotes

[2] To assist clarity of presentation, we will refer to all respondents as "mothers" even though there were 3 fathers who filled out the questionnaires along with 66 mothers.

References

Arnold, D. S., O'Leary, S. G., Wolff, L. S., & Acker, M. M. (1993). The Parenting Scale: A measure of dysfunctional parenting in discipline situations. *Psychological Assessment, 5*,
137-144.
Aspland, H., & Gardner, F. (2003). Observational measures of parent-child interaction: An introductory review. *Child and Adolescent Mental Health, 8*, 136-143.
Australian Bureau of Statistics. (2002). *2001 census data*. Retrieved June 17, 2005, from http://www.abs.gov.au
Clifford, P. R., & Maisto, S. A. (2000). Subject reactivity effects and alcohol treatment outcome research. *Journal of Studies on Alcohol, 61*, 787-793.
Eddy, J. M., Dishion, T., & Stoolmiller, M. (1998). The analysis of intervention change in children and families: Methodological and conceptual issues embedded in intervention studies. *Journal of Abnormal Child Psychology, 26*, 53-71.
Eyberg, S. M., & Pincus, D. (1999). *Eyberg Child Behavior Inventory and Sutter-Eyberg Student Behavior Inventory–Revised: Professional manual*. Odessa, FL: Psychological Assessment Resources.
Forehand, R. (1990). Families with a conduct problem child. In G. H. Brody & I. E. Sigel (Eds.), *Methods of family research: Biographies of research projects. Vol. II: Clinical Populations* (pp. 1-30). Hillsdale, NJ: Lawrence Erlbaum.
Gardner, F. (2000). Methodological issues in the direct observation of parent-child interaction: Do observational findings reflect the natural behavior of participants? *Clinical Child and Family Psychology Review, 3*, 185-198.
Glass, C. R., Arnkoff, D. B., & Shapiro, S. J. (2001). Expectations and preferences. *Psychotherapy, 38*, 455-461.
Green, K. D., Forehand, R., & McMahon, R. J. (1979). Parental manipulation of compliance and non-compliance in normal and deviant children. *Behavior Modification, 3*, 245-266.
Hansen, D. J., & Sedlar, G. (1998). *Manual for the PAI: The Parental Anger Inventory*. Lincoln: University of Nebraska, Clinical Psychology Training Program.
Harris, F. C., & Lahey, B. B. (1982). Subject reactivity in direct observational assessment: A review and critical analysis. *Clinical Psychology Review, 2*, 523-538.
Hartmann, D. P., & Wood, D. D. (1990). Observational methods. In M. Hersen & A. E. Kazdin (Eds.), *International handbook of behavior modification and therapy* (2nd ed., pp. 107-138). New York: Plenum.
Johnson, S., & Lobitz, G. (1974). Parental manipulation of child behaviour in home observations. *Journal of Applied Behavior Analysis, 7*, 23-31.
Joyce, A. S., Ogrodniczuk, J. S., Piper,W. E., & McCallum, M. (2003). The alliance as mediator of expectancy effects in short-term individual therapy. *Journal of Consulting and Clinical Psychology, 71*, 672-679.
Kerig, P. K. (2000). Introduction and overview: Conceptual issues in family observational research. In P. K. Kerig & K. M. Lindahl (Eds.), *Family observational coding systems: Resources for systemic research* (pp. 1-22). Mahwah, NJ: Lawrence Erlbaum.
Lobitz, G., & Johnson, S. (1975). Parental manipulation of the behavior of normal and deviant children. *Child Development, 46*, 719-726.
Locke, L. M., & Prinz, R. J. (2002). Measurement of parental discipline and nurturance. *Clinical Psychology Review, 22*, 895-929.
Markie-Dadds, C., Sanders, M. R., & Turner, K. M. T. (1999). *Every parent's self-help workbook*. Milton, Australia: Families International.

Morawska, A., & Sanders, M. R. (2006). Self-administered behavioural family intervention for parents of toddlers: Part I—Efficacy. *Journal of Consulting and Clinical Psychology, 74*, 10-19.
Patterson, G. R. (1982). *Coercive family process.* Eugene, OR: Castalia.
Patterson, G. R., Reid, J. B., & Dishion, T. J. (1992). *Antisocial boys*. Eugene, OR: Castalia.
Robinson, E. A., & Eyberg, S. M. (1981). The dyadic parent-child interaction coding system: Standardization and validation. *Journal of Consulting and Clinical Psychology, 49*, 245-250.
Rosenthal, R. (1966). *Experimenter effects in behavioral research*. New York: Appleton- Century-Crofts.
Sanders, M. R. (1999). Triple P-Positive Parenting Program: Towards an empirically validated multilevel parenting and family support strategy for the prevention of behavior and emotional problems in children. *Clinical Child and Family Psychology Review, 2*, 71-90.
Sanders, M. R., Markie-Dadds, C., & Turner, K. M. T. (1996). *Every parent's survival guide* [Video]. Brisbane, Australia: Families International.
Spencer, F. W., Corcoran, C. A., Allen, G. J., Chinsky, J. M., & Veit, S. W. (1974). Reliability and reactivity of the videotape technique on a ward for retarded children. *Journal of Community Psychology, 2*, 71-74.
Stoolmiller, M., Eddy, J. M., & Reid, J. B. (2000). Detecting and describing preventive intervention effects in a universal school-based randomized trial targeting delinquent and violent behavior. *Journal of Consulting and Clinical Psychology, 68*, 296-306.
Tinsley, H. E. A.,Workman, K. R., & Kass, R. (1980). Factor analysis of the domain of client expectancies about counseling. *Journal of Counseling Psychology, 27*, 561-570.
Tryon,W. W. (1998). Behavioral observation. In A. S. Bellack & M. Hersen (Eds.), *Behavioral assessment: A practical handbook* (pp. 79-103). Needham Heights, MA: Allyn & Bacon.
Turner, K. M. T., Markie-Dadds, C., & Sanders, M. R. (1996). *Triple P tip sheet series for toddlers*. Brisbane, Australia: Families International.
Webster-Stratton, C. (1998). Preventing conduct problems in Head Start children: Strengthening parenting competencies. *Journal of Consulting and Clinical Psychology, 66*, 715-730.