



Research article

The effectiveness of the Stepping Stones Triple P seminars for Korean families of a child with a developmental disability

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ABSTRACT

Background: Children with a developmental disability (DD) are more likely to develop behavioral problems. The Stepping Stones Triple P Positive Parenting Program (SSTP) for parents of children with a DD has demonstrated effectiveness for improving parenting practices and reducing child behavior problems. However, there is scant research in Asian countries and with less intensive SSTP interventions.

Aim: This study examined the effectiveness of the SSTP seminars for Korean parents of a child with a DD.

Methods: Parents were randomly assigned to an intervention group ($n = 21$) or a delayed intervention group ($n = 17$). Data was collected on child adjustment problems, parenting practices, parental adjustment, and family relationships from both groups at pre- and post-intervention, and from the intervention group at 4-month follow-up. Twelve parents provided post-intervention interview data.

Results: A series of one-way Analysis of Covariance (ANCOVA) were used to examine differences between the intervention and delayed intervention groups at post-intervention. Significant short-term intervention effects were found for reductions in child behavior and emotional difficulties, and dysfunctional parenting practices. These improvements were maintained 4-months later by the intervention group. At post-intervention, inter-parental child-rearing conflict was reduced as a trend, with a moderate effect size. Interviews provided additional insights into the benefits gained from program participation.

Conclusions: Findings, for parents within this study, contribute to the evidence base for the effectiveness of the SSTP seminars.

What this paper adds?

This study provides evidence for the efficacy of the SSTP seminars in a sample of Korean parents of a child with a DD. Following participation in three 90-minute SSTP parenting seminars, intervention group parents reported significantly fewer and less severe child behavior and emotional problems and less dysfunctional parenting practices compared to delayed intervention group parents. These findings extend the limited research about the effectiveness of the low intensity, Level 2 SSTP parenting seminars for improving child and parenting outcomes. Results indicate that the SSTP content and strategies can be implemented successfully with Korean parents of children with varying special needs, in a time-efficient, cost-effective way. Parent interviews highlighted the perceived benefits of SSTP for increasing parenting knowledge and improving parent and child well-being. High levels of program acceptability and satisfaction were found suggesting that SSTP is acceptable for Korean parents of a child with DD.

1. Introduction

Developmental disabilities (DD) are described as “a group of conditions with onset in the developmental period” (American Psychiatric Association, 2013, p. 31), which includes developmental deficits that cause difficulties of personal, social, academic, or occupational functions. Developmental disabilities range broadly from specific learning difficulties to conditions with severe functional impairments. Examples of these conditions include intellectual disability (ID), autism spectrum disorder (ASD), motor disorders, and other neurodevelopmental disorders. Two or more conditions frequently co-occur (American Psychiatric Association, 2013).

Children with a DD often experience a wide range of social, communication, and behavioral difficulties. A considerable number of studies have examined the emotional and behavioral difficulties that children with disabilities experience. For example, research conducted in the Netherlands by Dekker et al. (2002) compared the emotional and behavioral problems of 6 to 18-year-old children with ($n = 968$) and

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without ($n = 1855$) ID. Controlling for sex, age, and SES, almost 50% of the children with ID were reported to have clinical levels of behavior difficulties compared to 18% of normally developing children. In terms of the progression of behavioral problems, a study carried in the USA by Hauser-Cram and Woodman (2016) investigated the developmental course of internalizing and externalizing behavior problems of 169 children with a DD over a period of 15 years (from age 3 to age 18). Approximately half of the children displayed high and increasing patterns of internalizing problems, while one-tenth of the children showed clinically significant internalizing scores. Half of the children with moderate levels of externalizing problems showed similar levels of externalizing problems across the entire study period.

When comparisons have been made with parents of typically developing children, findings suggest that parenting children with a DD is more stressful and problematic (Woolfson and Grant, 2006), and that parents experience poorer psychological well-being (Gray et al., 2011). Across a number of studies, child behavioral problems were found to be the most distinguishable factor related to parental stress or parental depression and anxiety (Eisenhower et al., 2005; Gray et al., 2011; Woodman et al., 2015). The level of parental stress has also been found to vary with child disability type. For example, many studies have revealed that parents of a child with autism report higher levels of parental stress and negative emotional reactions compared to parents of a child with other developmental disabilities (Eisenhower et al., 2005).

Participating in a parenting intervention may benefit families of a child with a DD for several reasons. Behavioral family interventions, based on social learning theories, have been shown to reduce child behavior problems and decrease parenting stress (Sanders, 2012), which is a particular concern of parents of children with a DD (Woodman et al., 2015). Secondly, children with a DD need more parental assistance with tasks such as generalization of skills from educational settings to the home settings (Matson et al., 2009). Compared to interventions based on applied behavior analysis, parenting programs can be a more cost-effective way to provide parents with strategies to teach their child new skills and plan structured activities for their child to practice these new tasks (Matson et al., 2009).

There are several evidence-based parenting interventions available to parents of a child with a DD that are effective in reducing child behavior difficulties (Skotarczak and Lee, 2015). One of these interventions is Stepping Stones Triple P (SSTP), a version of the Triple P- Positive Parenting Program (Triple P) specially designed for parents who have a child with a disability (Mazzucchelli and Studman, 2017; Sanders et al., 2004). Triple P is a multilevel parenting program which aims to prevent severe behavioral, emotional, and developmental difficulties in children by improving the knowledge, skills, and confidence of parents (Sanders, 2012). SSTP shares the five principles of Triple P, which are explored during the program: ensuring a safe and interesting environment, creating a positive learning environment, using assertive discipline, having realistic expectations, and taking care of oneself as a parent. Moreover, SSTP has two additional principles, which are family adaptation to a child with a disability and being part of the community. Parents are taught to consider the functions of children's behaviors when selecting suitable parenting strategies. The SSTP program emphasizes the importance of teaching children new competencies, such as communication skills (Sanders et al., 2004). SSTP has five levels of intervention strength to provide for the differing levels of need that families may require. These include level one (universal media-based parenting information), level 2 (brief parenting intervention, one to three seminars on selected topics), level 3 (an 80-minute, four session parent training program for addressing a narrow range of moderately challenging behavior problems), level 4 (broad focus parent training, targeting parents of children with more severe behavior problems), and level 5 (for families with complex clinical needs, including severe behavior problems and significant family dysfunction).

Systematic reviews and meta-analyses support the effectiveness of SSTP interventions for parents of children with disabilities (Ruane and

Carr, 2019; Tellegen and Sanders, 2013). Across all levels of the intervention, medium effect sizes were obtained for child behavior problems and parental self-efficacy, a large effect size for parenting style, and a significant small effect size for parental adjustment. The strongest treatment effects were found for level 4, compared with more or less intensive levels of SSTP interventions, for which there are fewer evaluations. Most of the evaluations of SSTP have been conducted in Australia, with a small number carried out in European countries and the USA. Only one published study has evaluated the effectiveness of level 2 SSTP. The RCT, with 53 Australian parents of a 2 to 10-year-old child, found that intervention group parents reported significant reductions in the number of child behaviour problems, less frequent use of dysfunctional parenting style, and fewer parental conflicts compared to control group parents (Sofronoff et al., 2011). Ruane and Carr (2019) and Tellegen and Sanders (2013) highlight the need for more research to further evaluate the effectiveness of less intensive levels of SSTP. More international studies have also been advocated in order to draw more robust conclusions about the generalizability of the effectiveness of SSTP to contexts outside Australia (Ruane and Carr, 2019).

Apart from a recent study in Japan (Nojiri and Yanagawa, 2019), there is a lack of research evaluating the efficacy of SSTP with parents living in Asian countries. The present study examines the efficacy of the Stepping Stones Triple P Program with Korean parents of a child with a DD. The parenting risk factors that could potentially be addressed by a parenting intervention have been highlighted by several studies conducted in Korea (Kim and Eo, 2015; Kim et al., 2018; Nam and Chun, 2014). For example, in a sample of 470 mothers of young children at risk of developmental delay, parenting stress was a strong predictor of a less positive parenting style (Nam and Chun, 2014). In another study by Kim et al. (2018) of 313 Korean mothers of children with DD (age ranged 2–18), parenting stress and acceptance of disability were significant mediators of the relationship between child behavioral problems and maternal Hwa-Byung (HB; Korean culture-specific syndrome meaning 'anger illness').

A recent survey of 171 Korean parents of a child with a DD by (Lee et al., unpublished results) revealed that one-third of children had behavioral and emotional problems in the clinical range. Parents of a child with high levels of problems were more likely to use dysfunctional parenting practices, and have greater levels of parental stress, family relationship and parental teamwork problems, and lower levels of parental confidence. The survey also showed that the most influential factors in parents' decisions to attend a parenting program were accessibility to trained practitioners and a program with demonstrated success. In connection with these findings, the aim of the current study was to evaluate the effectiveness of the Stepping Stones Triple P Program in reducing child behavior problems and dysfunctional parenting practices, and improving family relationships and parenting confidence in Korean parents of a child with a DD. To address the identified need for further research evaluating low intensity SSTP, we chose to investigate the effectiveness of the level 2 SSTP seminars consisting of three seminars covering positive parenting for children with a disability; helping children reach their potential; changing problem behavior into positive behavior.

It was hypothesized, based on previous SSTP studies, that participation in the SSTP seminars would result in reduced child behavior and emotional problems; decreased dysfunctional parenting practices, improved parental self-efficacy and lower levels of inter-parental conflicts over child-rearing. It was expected that these effects would be maintained at 4-month follow-up. The study also explored the effects of the SSTP seminar series on parental adjustment and family relationships. Due to the lack of treatment effects for these variables in other level 2 evaluations, specific hypotheses were not proposed. An additional focus of this study was to examine parent satisfaction with the quality of the program and the acceptability of parenting strategies taught during the program. This focus is important given the lack of prior research that has evaluated SSTP with Korean parents. Collecting parent feedback allows the program developers to gain an

understanding of the match between taught parenting strategies and parents' values in raising their children, the cultural appropriateness of program content, and the extent to which program content was helpful and met parent and child needs. The information gathered could potentially be used to improve the program offered to Korean parents in the future. Accordingly, program acceptability and satisfaction data were collected at post-intervention using questionnaire and interview methods.

2. Method

2.1. Participants

Participants were 38 Korean parents of a child with a DD aged 2–10 years old. Thirty-four parents lived in Korea (recruited from the cities Seoul, Keonggi, and Cheungju), located in the north east region of Asia, and four mothers lived in Auckland, New Zealand. The majority of participants were mothers (88.2%) of children (two-third boys) aged 2–10 years old ($M = 5.87$, $SD = 2.03$) with a DD including autism spectrum disorder (42%), intellectual disabilities (23.7%), Down Syndrome (21.1%), and developmental delay (13.2%). Thirty-four parents were living in households with both biological or adoptive parents present, and 24 parents had University level education.

Parents responded to advertisements placed in locations likely to be seen by parents of children with a DD, such as childcare centers, private clinics, and disability support group websites. Using purposive sampling, the advertisements encouraged parents to self-refer to take part if they met the eligibility criteria for the study. Interested parents were screened for participation using the following inclusion criteria: 1) Korean parent or caregiver who could understand and speak Korean; 2) parent or caregiver had at least one child aged 2–10 years; 3) the child had a developmental disability diagnosis. Families were excluded if parents were receiving other kinds of parenting support, or had a child with a diagnosis of ADHD only (because the Triple P Program for parents of children without developmental disabilities is more suitable for these children). Three families were excluded because their child was outside the age range and five parents declined to participate due to lack of time or other reasons.

Following completion of T1 assessments, 21 parents were randomly allocated to an intervention group and 17 to a delayed intervention group, using a list of computer-generated numbers. Preliminary analysis revealed no significant differences between the groups on demographic variables and baseline measures. Figure 1 displays participant flow through the study. Twelve parents from the intervention ($n = 10$) and control group ($n = 2$) volunteered to participate in an interview at the end of the seminar series and were interviewed six weeks after the intervention.

2.2. Measures

All measures were completed by parents at pre- and post-intervention (six weeks after the intervention group completed the three seminars), except for the program satisfaction questionnaire (T2 only). Intervention group parents only completed the measures again, four months (T3) after receiving the intervention.

2.2.1. Child behavior (DBC-24 and CAPES-DD)

The DBC-24 (Taffe et al., 2007) is a short version of the original DBC (Developmental Behavioral Checklist) (Einfeld and Tonge, 1996) for measuring children's behavioral and emotional disturbance and was normed on children with a DD. Twenty-four items (e.g., 'Becomes over-excited', 'Chews or mouths objects, or body parts') are rated on a 3-point Likert scale (from 0 = not true to 2 = often true). A total behaviour problem score is calculated by summing the item scores, with high scores indicating poorer adjustment. A mean cut-off score of .48 or

higher indicates clinically significant problems. In the current study, the internal consistency range across the three time points was $\alpha = .81 - .85$.

The CAPES-DD (Child Adjustment and Parent Efficacy Scale Developmental Disability) was developed to assess externalizing and internalizing behavior problems and social problems of 2–16-year-old children with a DD as well as caregivers' confidence to handle these problems (Emser et al., 2016). Caregivers rate the child's behavioral (10 items) and emotional problems (3 items) using a 4-point scale (from 0 = not true to 3 = true most of the time), followed by a 1 to 10 rating of their confidence in dealing with these behavior problems (1: 'certain I cannot manage it' to 10: 'certain I can manage it'). Another eight items, on a 4-point scale, ask about the child's prosocial skills (e.g., 'make request appropriately'), and the items are reverse scored to give an indication of children's social problems. Ratings on each subscale are summed to obtain total subscale scores. High scores mean greater levels of emotional and behavioral problems. A higher score on the Self-efficacy subscale indicates a higher level of parenting confidence. In a sample of 636 Australian parents of a child with a DD, the CAPES-DD showed good reliability with Cronbach's alphas for Behavioral Problems, Emotional Problems, Prosocial Problems, and Self-Efficacy of .89, .71, .82, and .94 respectively (Emser et al., 2016). Good to excellent reliabilities were found in the present study, $\alpha = .79 - .86$ for the Behavioral and Emotional problem scale; $\alpha = .83 - .88$ for the Prosocial behavioral scale; and $\alpha = .96 - .97$ for the Self-efficacy scale.

2.2.2. Parenting and family adjustment (PAFAS and PPC)

The Parenting and Family Adjustment Scale (PAFAS) is a brief self-report measure used to assess parenting practices and family adjustment (Sanders et al., 2014). It consists of 30 items with 18 items measuring parenting practices and 12 items measuring Family adjustment. The Parenting Practices scale comprises four subscales: Parental consistency (5 items), Coercive parenting (5 items), Positive encouragement (3 items), and Parent-child relationship (5 items). The Family adjustment scale contains three subscales: Parental adjustment, Family relationships (4 items), and Parental teamwork (3 items). Items are rated on a 4-point scale (0: not at all to 3: very much). The scores of positively formulated items are reversed, and scale items are summed to create total sub-scale scores. A total dysfunctional parenting score is calculated by summing the four parenting practices sub-scales. High scores indicate higher levels of dysfunctional parenting practices and family adjustment difficulties. The reliability of the PAFAS in an Australian sample were good, with alphas for each subscale ranging from .70 to .87 (Sanders et al., 2014). In the current study, the Cronbach's alphas were acceptable to good; Parenting scale ($\alpha = .66 - .85$), Parental adjustment ($\alpha = .67 - .78$), and Family relationships ($\alpha = .62 - .73$). There were poor internal consistencies; $\alpha = .12 - .34$ for the Teamwork subscale, which was therefore excluded from further analyses.

The Parenting Problem Checklist (PPC) is a measure of inter-parental conflict regarding child-rearing issues, such as household rules, type of discipline, and inconsistency between parents (Dadds and Powell, 1991). It consists of 16 items that comprise two sub-scales, Extent and Problem subscales. The Problem subscale uses a 'yes' or 'no' format for parents to respond to questions about whether or not specified child-rearing issues have been a problem and the Extent subscale asks to what extent the issue has been a problem for parents using a 7-point scale (1: Not at all to 7: Very much). A total score greater than 5 in the problem subscale is considered to be in the clinical range. The internal consistency in an Australian sample for the problem subscale was $\alpha = .77$ (Sofronoff et al., 2011). In the current study Cronbach's alphas were $\alpha = .73 - .88$ for the Problem subscale, and $\alpha = .89 - .92$ for the Extent subscale.

2.2.3. Program acceptability (PAQ and CSQ)

The Parent Acceptability Questionnaire (PAQ) measures the acceptability to parents of the principles in the Triple P seminar series (Sanders and Turner, 2005). Parents are asked to rate (on a 7-point scale, from '1:

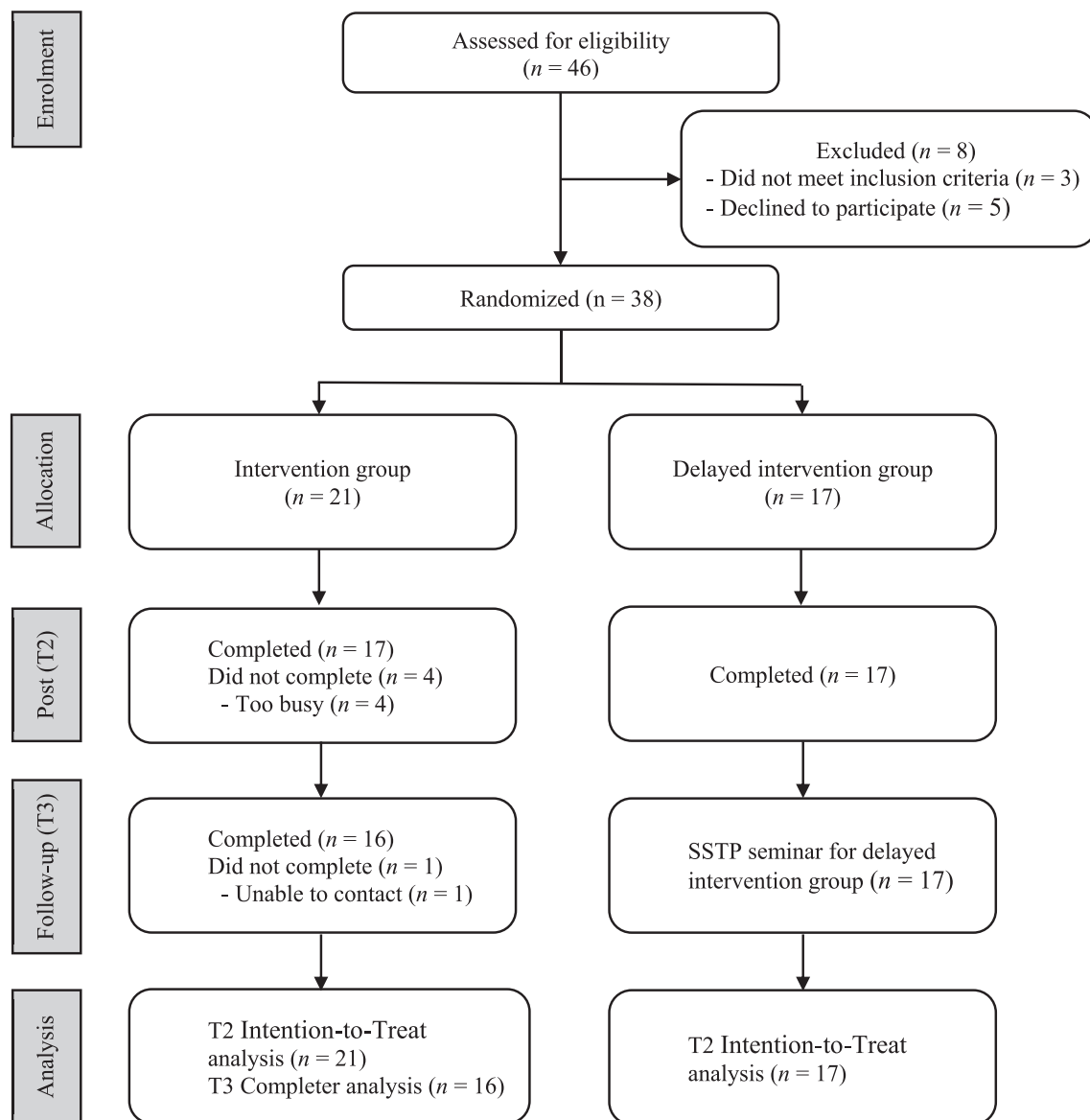


Figure 1. Flow of participants through each stage of the study.

not acceptable' to '7: extremely acceptable') the extent to which the principles and strategies discussed in each seminar session match with their values in raising children. For example, 'having a positive environment', 'using effective teaching strategies'. Parents are also asked to rate the extent to which they found the content of the seminar appropriate to their culture. The PAQ showed good internal consistencies in an evaluation of Triple P seminar series with Indonesian parents, with $\alpha = .72$, $\alpha = .85$, and $.93$ for seminar one, two, and three, respectively (Sumargi et al., 2015). In this study, the PAQ had some words changed to make the questions relevant to the SSTP principles and strategies. The internal consistencies for the PAQ were $\alpha = .91$ for seminar one, and $\alpha = .95$ for seminar two and three.

The 13-item Client Satisfaction Questionnaire (CSQ) was developed for parents to evaluate the program's quality (e.g., 'How would you rate the quality of the service you and your child received?') and provide their opinions about the program (e.g., 'How satisfied were you with the amount of help you and your child received?') (Turner et al., 2002). There are also three open questions asking parents about any further assistance sought for their child's behavior or their family. Participants in both groups were asked to complete the CSQ at the end of the seminar

series. The CSQ showed high internal consistency ($\alpha = .91$) in a sample of Japanese parents who completed Group Triple P (Matsumoto et al., 2007). In the current study, the CSQ showed high internal consistency, $\alpha = .90$.

2.2.4. Interview questions

The semi-structured interview consisted of 12 open-ended questions that included benefits parents and children obtained from the program, strategies parents found useful, strategies that were less effective than expected, changes they had noticed in their child's behavior, and suggestions for other content to include in future SSTP seminar series for Korean parents. Other questions comprised: "How helpful was the program in helping you manage your child's behavior?", "Were there any barriers for you in using the parenting strategies you learnt in the program?", "How will you deal with these barriers in future?", "What did you expect of the program?", "Would you recommend this program to others?", "Do you need more help with your child's behavior at this time?", "Overall, how do you feel about your experience of the SSTP seminar series?". All interviews were audio-recorded and interview data was transcribed in Korean by the first author.

2.3. Procedure

Ethical approval for the study was granted by The University of Auckland Human Participants Ethics Committee. The study complies with all ethical requirements and informed parent consent was obtained prior to the commencement of the trial. The evaluation of the SSTP seminar series was implemented according to a 2×3 randomized control design (2 groups \times 3 times). Intervention group parents received the SSTP seminar series within 2 weeks of completing T1 measures. Parents in the delayed intervention group received the SSTP seminars after the completion of T2 measures.

2.4. SSTP seminar series

The level 2 SSTP seminar series consists of three 2-hour seminars comprising 90-minutes of presentation and 30-minutes for questions and discussion. The first session, 'Positive Parenting for Children With a Disability' deals with the challenges of behavior problems and the benefits of positive parenting. In the second session, 'Helping Your Child Reach Their Potential', parents learn how to use positive parenting strategies such as communication and problem-solving strategies in order to teach children important skills. The third session, 'Changing Problem Behavior Into Positive Behavior', provides parents with information regarding the reasons for the occurrence of behavior problems and practical suggestions to promote alternative and desirable behavior. A Power Point presentation and SSTP Tip Sheets, provided in the Korean language, were used as program resources. These resources were translated from English into Korean by the first author, with the permission of Triple P International. Another Korean bilingual researcher back-translated the materials from Korean into English. The back-translated versions were checked against the original English versions by a native English-speaking research assistant. The same steps were also followed for translating the study measures from English into Korean. The intervention was delivered in Korean by the first author who is an experienced Special Education teacher and an accredited SSTP practitioner. Checklists created by the program developers were used to monitor intervention fidelity. Inter-rater checks (based on 30% of the seminars) between the practitioner and a second independent rater, who was a Korean special education teacher, showed 100% agreement.

2.5. Analytic strategy

An Intent-to-Treat (ITT) analysis was used to test for post-intervention effects (with the exception of CAPES-DD Self-efficacy and PPC Extent). Missing data were dealt with using the expectation-maximization (EM) algorithm. A series of one-way Analysis of Covariance (ANCOVA) were used to examine differences between the intervention and delayed intervention groups at post-intervention using the pre-intervention scores on each measure as covariates. This approach allows a comparison of change over time across the groups from pre-to post-intervention, which increases the precision on estimates of treatment effects and can statistically account for pre-intervention differences between groups (Morris, 2008). Effect sizes (Cohen's d) were calculated by subtracting the pre-to post-change in the delayed intervention group from the pre-to post-change in the intervention group, and dividing this total by the pooled pre-intervention standard deviation (Morris, 2008).

Due to the high rate of missing data for the CAPES-DD Self-efficacy and PPC Extent at post-intervention, data analysis was based on participants with complete data (completers). As the completer sample size was too small to meet the assumptions of using parametric tests, the Mann-Whitney U test was used to test for differences between the intervention and delayed-intervention groups in the CAPES-DD Self-efficacy and PPC Extent scores. Similarly, the Friedman test was used to examine changes in outcome scores for the intervention group across Time 1, Time 2, and Time 3 (4 months follow-up), due to the small number of completers ($n = 16$). Post hoc tests were conducted using Wilcoxon Signed

Rank Tests. Effect sizes were calculated by dividing the z value by the square root of N , where $N =$ total number of cases.

The Reliable Change Index (RCI, Jacobson and Truax, 1991) and the clinical cut-offs were used to examine statistically reliable and clinically significant change from pre-to post-intervention on the DBC and PPC Problem scores for each condition. Only the DBC and PPC Problem scores were analyzed because clinical cut-offs are not available for the other outcome measures. Chi-squared tests were used to examine differences in distribution between the two conditions. Fisher's exact χ^2 tests were used as there were fewer than five cases in some categories.

The interview data were analyzed using a general inductive approach, which involves summarizing raw data to identify key themes (Thomas, 2006). The analysis was guided by the interview questions, and topics, categories, and sub-categories were identified in relation to each interview question. All transcripts were read several times by the first author, and a subsample was read by the second author to identify topics and categories. After discussion, a coding frame was developed and the transcripts were coded according to the following topics: 1) Perceived benefit of the program, 2) Changes in child behavior and affect, 3) Strategies to handle child behavioral difficulties, 4) Barriers to using the strategies, 5) Suggestions on content and delivery strategies for SSTP. To increase reliability, text assigned to each theme was reread and a final list of themes was achieved through discussion. The data obtained from the parent interviews was used to explore parent satisfaction with the program and to elaborate on the quantitative data on the same topic.

3. Results

3.1. Short-term effects for the ITT sample

As shown in Table 1, following program completion intervention group parents reported significantly fewer and less severe child behavior and emotional problems compared to delayed intervention group parents with medium effect sizes on the DBC ($d = .70$) and CAPES-DD Emotional problem ($d = .75$). Although there were no statistically significant differences between the intervention and delayed intervention group on the CAPES-DD behavioral problems scale, there was a trend for intervention group children to show greater improvements in behavior compared to delayed intervention group children ($d = .49$).

Intervention group participants reported significantly lower dysfunctional parenting practices than participants in the delayed group at post-intervention with a small effect size ($d = .46$). There were no significant differences between the intervention group and delayed intervention group on the PAFAS Adjustment and Family relationship scales, or the PPC Problem scale at post-intervention. However, the mean score changes from Time 1 to Time 2 indicate trends for greater improvements in PAFAS family relationships ($d = .45$) and PPC problems ($d = .71$) for intervention group parents, compared to delayed intervention group parents.

3.2. Short-term effects for the completer sample

As shown in Table 2, there were no statistically significant differences between the intervention and delayed intervention groups on the CAPES-DD Self-efficacy and PPC Extent. However, medium effect sizes were found for both variables.

3.3. Reliable and clinically significant change

Table 3 shows that 10 parents (approximately half of the participants) in the intervention group achieved reliable improvements in child behavior problems compared to five parents in the delayed intervention group. Also, eight intervention group parents indicated reliable improvement in parental conflict compared to five parents in the delayed intervention group. More than three times the number of parents in the intervention group reported clinically significant changes in child

Table 1. Short-term Intervention Effects for the ITT sample.

Measure	Intervention group (n = 21)				Delayed intervention group (n = 17)				Univariate ANCOVA results for condition		
	Pre		Post		Pre		Post		F	p	d
	M	SD	M	SD	M	SD	M	SD			
DBC	12.49	7.34	9.24	4.92	12.27	5.96	13.88	7.04	7.25	.011	.704
CAPES DD Behavioral problems	10.38	4.80	9.39	4.03	9.35	4.60	10.71	5.07	2.95	.095	.488
CAPES DD Emotional problems	1.86	1.39	1.53	1.31	2.29	1.31	3.00	1.70	8.42	.006	.751
CAPES DD Prosocial problems ^a	12.05	4.84	10.76	4.74	13.59	3.10	13.41	2.09	2.82	.103	.267
PAFAS Parenting	20.00	5.47	16.95	6.69	21.81	5.55	21.35	4.35	4.99	.032	.461
PAFAS Adjustment ^b	7.81	2.66	7.00	3.08	9.13	3.20	8.00	2.54	.00	.973	-.108
PAFAS Family relationships ^b	2.81	1.66	2.24	1.89	3.53	1.72	3.73	1.94	3.59	.067	.447
PPC problem	5.09	3.43	3.26	2.10	4.75	2.20	5.06	3.63	3.66	.064	.711

Note. ^a Intervention group (n = 17); ^b Delayed intervention group (n = 15).

Table 2. Short-term intervention effects for parent self-efficacy and parent problem extent.

Measure	Intervention group		Delayed intervention group		Mann-Whitney U results		
	n	Md	n	Md	U	P	r
CAPES-DD Self-efficacy	7	102.00	10	86.06	20.00	.16	.36
PPC Extent	14	36.51	15	37.88	100.00	.85	.40

Table 3. Statistically reliable and clinically significant change from pre to post-intervention on the DBC and PPC problem by condition.

	DBC				χ^2	p	PPC				χ^2	p
	Intervention (n = 21)		Delayed intervention (n = 17)				Intervention (n = 21)		Delayed intervention (n = 17)			
	n	%	n	%	n	%	n	%				
<i>Statistically Reliable Changes</i>					2.42	.30					.68	.67
Reliably improved	10	47.6	5	29.4			8	38.1	5	29.4		
Reliably deteriorated	4	19.0	7	41.2			2	9.5	3	17.6		
No reliable change	7	33.3	5	29.4			11	52.4	9	52.9		
<i>Clinically Significant Changes</i>					4.08	.26					4.88	.18
Clinically significant change	7	33.3	2	11.8			11	52.4	5	29.4		
No clinically significant change	4	19.0	7	41.2			1	4.8	5	29.4		
Worsened	1	4.8	2	11.8			2	9.5	2	11.8		
Below cut-off at pre- and post-intervention	9	42.9	6	35.3			7	33.3	5	29.4		

behavior problems compared to parents in the delayed intervention group. In addition, twice as many parents in the intervention group moved out of the clinical range for inter-parental conflicts about child-rearing, compared to parents in the delayed intervention group.

3.4. Long-term intervention effects

As shown in Table 4, there was a statistically significant difference in PPC problem scores (inter-parental conflict about child-rearing) across the time points. When post-hoc tests were conducted, there was a statistically significant difference between T1 and T2 ($z = -2.18, p = .029$) with a medium effect size ($r = .39$). However, the difference between and T1 and T3 was not significant ($z = -.400, p = .690$). There were also no statistically significant improvements across the three time points in child problems, and other parenting and family relationship variables.

3.5. Program attendance, acceptability and consumer satisfaction

Participants in the intervention group showed relatively high attendance rates at seminars, with 12 parents participating in all three seminars, five parents did two seminars (23.8%), and four parents did one seminar. The main reasons for absence were related to child or parent

illness. Parents who missed seminars were sent the seminar tip sheets by post within the week of when the seminar was held. Two participants brought their partner to the second or third seminar.

Parents in both groups were asked to complete the PAQ after each seminar and they reported high acceptability of the seminar content. Parent ratings indicated that seminar content was considered to be culturally appropriate. All items across the three seminars were given ratings of 5 or more, out of 7 points (M s ranged from 5.37 to 6.27). The highest ratings were given to the principles of ‘Having a safe, interesting environment’ ($M = 6.24$), ‘Break the skill into steps’ ($M = 6.05$) and ‘Understand why the behavior is occurring’ ($M = 6.27$) for seminar 1, 2, and 3 respectively.

Program satisfaction was relatively high with a mean of 4.97 across the seven scores (M s ranged from 4.35 to 5.35). Participants gave the highest ratings to helping parents deal effectively with child’s behavior, willingness to come back to SSTP again when they need help, satisfaction with the amount of help, and overall satisfaction with the seminars.

3.6. Interview results

Five topic categories were coded from the parent interviews. These were: perceived benefits of the program, changes in child behavior and

Table 4. Changes in outcome scores for the intervention group across three time periods (n =16).

Measure	Pre Md	Post Md	Follow-up Md	Friedman's Test (χ^2)	p
DBC	11.77	9.15	8.50	2.53	.282
CAPES DD Behavioral problems	8.00	8.00	8.50	1.26	.532
CAPES DD Emotional problems	2.00	1.76	1.50	.15	.926
CAPES DD Prosocial problems ^a	12.00	10.00	11.00	2.52	.284
CAPES DD Self-efficacy	87.50	101.00	97.00	5.48	.065
PAFAS Parenting	18.00	17.00	17.00	2.85	.241
PAFAS Adjustment	7.50	7.50	8.50	3.43	.180
PAFAS Family relationship	3.00	2.12	3.00	2.46	.292
PPC Problem	4.47	3.00	4.50	6.00	.050
PPC Extent ^b	32.32	38.50	40.83	.67	.717

Note. ^a n = 15; ^b n = 12.

affect, strategies to handle child behavior difficulties, barriers to using the strategies, and suggestions about the content and delivery of SSTP. Nearly all parents reported that they obtained new parenting knowledge about effective parenting skills and strategies applicable to children with DD. One parent (P 9) mentioned, "I thought there are no special parenting strategies for child with disabilities. ... However (the seminar) let me know there are specific parenting skills to improve the difficulties of children with disabilities." Many parents mentioned they were able to provide more positive care to their children after taking part in the SSTP seminars, which led to improved parent-child relationships. For instance, one parent (P 23) said, "I can feel a deep and positive bond with my child. That is the biggest change for me after this program." Some parents reported changes in their parenting attitudes that made it possible to consider things from their child's perspective. Parents also reported positive changes in their own well-being, such as a relaxed feeling and being better able to manage negative emotions after using taught parenting strategies. This is illustrated by the following quote: "Now I know some strategies to deal with behavioural difficulties, so I am less anxious, rather I think of an effective strategy for managing the behaviour. So, I am getting less upset than before" (P 17). Other parents mentioned feeling supported and less isolated through attending the seminars.

Most parents reported improvements in positive behaviors in their children. These included behaving more independently, increased social interactions, cooperation with an instruction, and expressing more positive feelings and affection. For example, "He asked me to show affection. ... He had never said to me 'kiss me' or 'say good-night to me', however, he did! I was very surprised and almost cried" (P 36). Decreased behavior problems were also reported, such as reduction in irritation and tantrums. For instance, "My child was crying and showing her annoyance in front of a childcare centre that she did not want to enter. ... However, I now kiss and say 'I love you', then she enters the childcare centre without behavioural difficulty" (P 16).

Parents stated that using behavior checklists, time-out, rewards, and descriptive praise were the most helpful parenting strategies in managing their child's behavior. Barriers to using the taught parenting strategies included lack of time, due to other family demands or attending other therapies needed by their child. Another barrier was generalization of the strategies to other adults involved in caring for their child. Parent suggestions for the content and delivery of SSTP included more detailed examples to illustrate the strategies and more frequent sessions.

4. Discussion

This study evaluated the effectiveness of the Stepping Stones Triple P Program in reducing child behavior problems, dysfunctional parenting practices, inter-parental conflict, and improving parental adjustment and parenting confidence in Korean parents of a child with a DD. As hypothesized, short-term intervention effects were found for behavioral (DBC) and emotional difficulties (CAPES-DD), with moderate effect sizes. These results are supported by the parent interview findings indicating improvements in children's cooperation and positive mood. Although the group differences in the CAPES-DD Behavioral problems and CAPES-DD Prosocial behavior were not statistically significant, there was a trend for the intervention group to show greater improvements compared to the delayed intervention group. These trends were reflected in interviewed parents' comments about increased social interactions and reduction in tantrums, which are also measured by the CAPES scales.

Hypothesized short-term intervention effects were also found for dysfunctional parenting practices. The reported improvements in parenting practices are likely due to the skills parents acquired in helping them deal effectively with their child's behavior, as reflected in the program satisfaction ratings. Similarly, interviewed parents also commented on the new parenting knowledge they obtained about effective parenting strategies applicable to children with DD. The intervention effects found in the present study for child behavior problems and dysfunctional parenting practices add to Sofronoff et al. (2011), who obtained similar results in an Australian sample of parents of children with DD, following participation in the SSTP seminar series. Findings are also consistent with results obtained with more intensive levels of SSTP (Ruane and Carr, 2019; Tellegen and Sanders, 2013).

Based on findings from Sofronoff et al. (2011), it was expected that there would be a post-intervention reduction in inter-parental conflict over child-rearing. While group differences were not significant, a clear trend could be seen in the assumed direction, with a moderate effect size. Likewise, although the two groups did not differ significantly with respect to clinically significant and reliable change on interparental conflict (PPC) (due to the small numbers in all groups), there was a notable decrease in the number of parents in the clinical range in the intervention group (52%) compared to the delayed intervention group (29%).

The present study explored the effects of the SSTP seminar series on parental adjustment and family relationships and found no statistically significant group differences at post-intervention. The current findings are also consistent with the small number of other Level 2 SSTP interventions, which did not find significant treatment effects for family relationships and parental adjustment (Tellegen and Sanders, 2013). It may be that Level 2 interventions do not provide sufficient assistance to result in significant improvements in parent adjustment and family relationships (Tellegen and Sanders, 2013).

Post-intervention improvements in behavioral (DBC) and emotional difficulties (CAPES-DD) and parenting practices were maintained at 4-month follow-up. However, there were no statistically significant changes in outcome scores for the intervention group across the three time points. This may be due to the small intervention group size (n = 16) at follow-up, which may have provided insufficient power to detect intervention effects.

Post-intervention survey results showed high levels of program acceptability and satisfaction, with the highest rating given to the program helped parents deal effectively with the child's behavior. Interview responses suggest other reasons for the high program satisfaction and acceptability. These included positive changes in parents' own well-being and support gained from attending the seminars. Parent interview findings provide some suggestions for the content and delivery of SSTP. For example, to increase generalization of the strategies to other adults involved in caring for their child, one option might be to encourage

carers to attend SSTP sessions. Alternatively, they could be provided with SSTP materials such as tip sheets, to help them to learn about the strategies.

Interpretation of the study findings should take into account the strengths and limitations of the study. A strength of the study was its use of a randomized design. The post-intervention effects of the SSTP seminars were confirmed by more conservative intent-to-treat analyses, which controlled for the effect of attrition. Another strength was the qualitative post-intervention interviews which provided useful insights into Korean parents' experience of SSTP, including perceived benefits of the program, the parenting strategies they found useful in managing behaviors of concern to them, and positive changes in child behavior. A limitation of the study was the small sample size which may have provided insufficient power to detect a wider range of intervention effects. Small sample sizes are a common limitation in parenting intervention research with families of children with a disability due to the children's special characteristics (Ruane and Carr, 2019). Therefore, due to the small sample size, the findings of the current study should be interpreted with caution. Another potential sample limitation is that parents in the current study had relatively high levels of education (63%) and family income, which may limit the generalization of the study results to parents with lower levels of income and education. Future studies of the effectiveness of SSTP with Korean parents should attempt to recruit a more representative sample.

The 4-month follow-up assessment was conducted for the intervention group only. Future research, with a larger sample that includes a control group at follow-up, may help to rule out alternative explanations, such as the passage of time, for the maintenance of intervention effects.

A further limitation relates to the study measures. Outcome data was collected using only parent-report measures, which may be subject to self-report bias. Collecting data from other informants such as the other parent, teachers, or other caregivers would address this limitation and provide an independent assessment of intervention outcomes. However, parental reports are particularly valuable given their unique knowledge about their child's behavior and their status as participants (Pffner, 2014).

Overall, within the limitations noted, the results of this study tentatively suggest that the SSTP seminars are effective in reducing child behavior and emotional problems and dysfunctional parenting practices in the sample of Korean parents of a child with a DD. Findings contribute to the evidence base for the effectiveness of the SSTP seminars and indicate that the content and strategies can be implemented in a time-efficient, cost-effective way. The interview data provided additional insights into the benefits gained from program participation, including parenting knowledge and improvements in parent and child well-being. The study results suggest that SSTP is acceptable for Korean parents of a child with DD, due to the practical help they received in managing their child's behavior.

Declarations

Author contribution statement

Youngzie Lee: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Louise Keown: Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Matthew Sanders: Conceived and designed the experiments; Wrote the paper.

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Data availability statement

Data will be made available on request.

Declaration of interests statement

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Additional information

No additional information is available for this paper.

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