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Effectiveness of Group Stepping Stones Positive Parenting Program for Children with Autism Spectrum Disorder and Disruptive Behaviour: Program Evaluation from a Large Community Implementation

L'efficacité du programme en groupe « Stepping Stones Positive Parenting » pour les enfants ayant un trouble du spectre de l'autisme et des comportements perturbateurs : évaluation d'une implantation de programme à grande échelle.

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Abstract

Children on the autism spectrum often experience higher rates of emotional and behavioural difficulties than their typically developing peers. Parenting a child with special needs can place increased stress and demands on parents, and those parents often seek out specialized parenting programs and supports to address the unique needs of their children. This study evaluated the effectiveness of the group Stepping Stones Triple P (SSTP) Program, a 9-week intervention for parents of children with disabilities and behavioural challenges, within the context of a large clinical implementation. Parents of children on the autism spectrum participated in the group SSTP Program and completed measures pre- and post-intervention; 131 families enrolled, and we obtained post-intervention data from 109 on at least some measures. Significant improvements were reported for self-efficacy (Parenting Tasks Checklist; p's < .001) and parenting over-reactivity and laxness (Parenting Scale; p's < .001). Reduced parent stress (p < .001) emerged on the Depression Anxiety Stress Scales, and decreases in anxiety (p = .032) and depression (p = .036) approached significance. Improvement was reported, on the Strengths and Difficulties Questionnaire, for children's overall difficulties, behavioural (conduct) challenges, hyperactivity/inattention, and prosocial behavior (all p's < .001), but not for emotional symptoms or peer problems. The Parenting Stress Index –Short Form revealed improvements on all domains (p's range: < .001 to .005). Overall, parents were satisfied with the

program, and attrition rates were very low (approx. 15%). This study demonstrates the acceptability, feasibility, and effectiveness of the 9-week group SSTP program, for use with children on the autism spectrum, in a large clinical setting. One logical next step is to explore adaptations to this program for virtual delivery in order to increase access for hard-to-reach families of children on the autism spectrum.

Résumé

Les enfants ayant un trouble du spectre de l'autisme (TSA) vivent souvent davantage de difficultés émotionnelles et comportementales que leurs pairs ayant un développement typique. La parentalité d'un enfant avec des besoins particuliers peut engendrer du stress et des exigences élevés chez les parents. Ces derniers recherchent fréquemment des programmes spécialisés concernant la parentalité et un soutien leur permettant de répondre aux besoins uniques de leur enfant. Cette étude évalue l'efficacité du programme en groupe de parentalité positive, « Stepping Stones Triple P », une intervention de 9 semaines pour les parents d'enfants ayant une incapacité et des comportements perturbateurs, en contexte d'implantation clinique à grande échelle. Les parents d'enfants ayant un TSA ont participé au programme de parentalité positive et ont effectué des mesures pré- et post-intervention. 131 familles ont été inscrites et les données post-intervention ont été obtenues sur quelques mesures auprès de 109 familles.

Des améliorations significatives ont été soulevées pour l'auto-efficacité (Parenting Tasks Checklist; $p < .001$) ainsi que pour la sur-réactivité parentale et le laxisme parental (Échelle de Parentalité; $p < .001$). Une réduction du stress parental ($p < .001$) a été retrouvée aux Depression Anxiety Stress Scales, alors qu'une diminution de l'anxiété ($p = .032$) et de la dépression ($p = .036$) proches du seuil de signification. Des améliorations ont été identifiées pour le Strengths and Difficulties Questionnaire concernant les difficultés générales, les défis comportementaux (conduite), l'hyperactivité/inattention et les comportements prosociaux ($p < .001$) des enfants. Toutefois, aucune amélioration n'a été rapportée concernant les symptômes émotionnels ou les problèmes avec les pairs. La version brève de la Parenting Sress Index – Short Form a révélé des améliorations dans chacune des sous-échelles ($p < .001$ à $.005$). Dans l'ensemble, les parents étaient satisfaits du programme et le taux d'attrition était très faible (environ 15 %). Cette étude démontre l'acceptabilité, la faisabilité et l'efficacité du programme de groupe de parentalité positive de 9 semaines auprès d'enfants ayant un TSA dans un cadre clinique à grande échelle. Une prochaine étape consisterait à explorer les adaptations virtuelles de ce programme afin d'en faciliter l'accès par les familles d'enfants ayant un TSA qui sont plus difficiles à rejoindre.

Mots-clés : Trouble du spectre de l'autisme, comportements perturbateurs, intervention de soutien aux parents, parentalité positive, dispensation de services communautaires.

Caring for a child on the autism spectrum can be accompanied by unique joys as well as significant challenges for parents (Myers et al., 2009). Difficulties may arise from the nature of the core characteristics of autism, including challenges with social communication together with restricted, routinized behaviours, intense interests, and resistance to change, all of which can interfere with successful participation in family and community activities (American Psychiatric

Association, 2013). In addition, children on the autism spectrum often experience additional functional impairments, co-occurring physical conditions, as well as challenging internalizing (e.g., withdrawal, anxiety) and externalizing (e.g., aggression, self-injury; Fenton et al., 2003; Ghaziuddin et al., 2002; Simonoff et al., 2008) behaviours. Indeed, as many as one-third of youth on the autism spectrum exhibit challenging behavioural problems, which can interfere with daily living skills and increase social isolation (Hartley et al., 2008). These concerns, in turn, may negatively impact children's quality of life, as well as the health and wellbeing of their parents (Lecavalier et al., 2006; Wood & Gadow, 2010). Thus, parents often seek out programs through which they can learn adaptive ways to support and manage their child's challenging or interfering behaviours.

There is considerable research detailing the correlates of the chronic stressors that many parents experience. As a group, parents of children on the autism spectrum are consistently shown to experience more negative psychological outcomes, including elevated levels of stress, anxiety, and depression, when compared to parents of typically developing children and parents of children with other developmental disabilities or special healthcare needs (Estes et al., 2009; Gau et al., 2012; Hayes & Watson, 2013). Parent wellbeing is known to be inversely associated with challenging, disruptive, or interfering behaviours of children on the autism spectrum (Herring et al., 2006), and parent functioning may also have negative transactional effects on child behaviour (Baker et al., 2003; Osborne et al., 2008). Specifically, parental psychological distress, increased stress, and reduced adaptability have been shown to contribute to, and exacerbate, behavioural difficulties in children on the autism spectrum (Baker et al., 2011; Lecavalier et al., 2006; Zaidman-Zait et al., 2014). Research efforts have identified some factors that improve parent psychological wellbeing and reduce child behavioural challenges. Specifically, parenting cognitions (i.e., the thoughts, attitudes, and beliefs that parents have about their own parenting experiences) as well as their parenting behaviours play important roles in parenting competence and associated child outcomes (Kuhn & Carter, 2006). For instance, an increased sense of parenting efficacy (i.e., how confident a parent feels in their ability to handle their child's challenges; Johnston & Mash, 1989) is associated with a decrease in the problem behaviours of children on the autism spectrum (Sofronoff & Farbotko, 2002). Moreover, parenting efficacy has been shown to mediate the effect of child behaviour problems on maternal anxiety and depression among mothers of children on the autism spectrum (Hastings & Brown, 2002). Finally, parental empowerment and acceptance have been shown to mediate the impact of child challenging behaviour on parents' mental health (Weiss et al., 2012). These findings point the importance of bolstering parents' self-efficacy and empowerment as a means of optimizing both child adaptive behaviour and parent mental wellbeing, leading to improved quality of life for the family.

How parents interpret their children's behaviour can influence their parenting efforts and outcomes. Specifically, parents' attributions about the behavioural difficulties of their children on the autism spectrum that focus on more stable and less controllable child- and parent-related causes are associated with increased levels of parent-reported parenting burden (Hartley et al., 2013). There is substantial evidence that when child behaviour problems are attributed to factors that parents feel less able to control, they are more likely to engage in harsh and critical parenting behaviours, which in turn can exacerbate the behavioural problems exhibited by the child (Park et al., 2018; Slep & O'Leary, 1998). To this effect, Boonen and colleagues (2014) found that negative or controlling parenting styles (i.e., discipline and harsh punishment) were associated with more externalizing behaviors in children on the autism spectrum. Taken together, these

findings underscore the importance of providing parents of children on the autism spectrum with supports that foster their parenting self-efficacy, positive attributions of their child's behaviours, and effective parenting practices.

Founded on the theoretical underpinnings of Applied Behaviour Analysis (and related Positive Behaviour Support), cognitive social learning theory, developmental research on social competence, research on risk and protective factors, and public health and community psychology, Stepping Stones Triple P (SSTP) emphasizes the development of positive parenting practices (Mazzucchelli & Sanders, 2011). The SSTP intervention is part of the Triple P (Positive Parenting Program), which is a system of parenting and family interventions for parents of children who have or are at risk of developing behavioural or emotional problems, with a focus on supporting emotional regulation and functional skill development (vs. suppressing 'unwanted' behaviour). The program was designed specifically for families who have a child with a disability, and it aims to optimize quality of life and outcomes for children by way of enhancing their parents' knowledge, accurate attributions, parenting skills, and confidence in managing child challenging behaviour. Broadly, the program aims to: (a) enhance the knowledge, skills, confidence, self-sufficiency and resourcefulness of parents; (b) promote nurturing, safe, engaging, non-violent and low conflict environments for children; and (c) promote children's social, emotional, language, intellectual and behavioural competencies through positive parenting practices (Sanders et al., 2004). The SSTP program can be provided as a group-based model or delivered individually, as clinically indicated.

Positive outcomes of SSTP have been documented for children with a range of disabilities including autism, acquired brain injury, cerebral palsy, Down syndrome, fragile X syndrome and general developmental delays (Brown et al., 2014; Hodgetts et al., 2013; Kasperzack et al., 2020; Leung et al., 2013; Roberts et al., 2006; Sanders et al., 2004; Schrott et al., 2019; Sofronoff et al., 2011; Whittingham et al., 2009; see Tellegen & Sanders, 2013 for a systematic review and meta-analysis). Evidence supports the efficacy of the group model for parents of children on the autism spectrum, including reductions in parents' use of maladaptive discipline styles (e.g., over-reactivity, verbosity), decreased parenting stress, increased self-efficacy, improved attributions, and reduced parent-reported child behaviour challenges (e.g., Kasperzack et al., 2020; Leung et al., 2013; Schrott et al., 2019; Whittingham et al., 2009). Recently, the group SSTP program has been recommended as an evidence-based approach in the practice guidance report for autism published by the European Society of Child and Adolescent Psychiatry (Fuentes et al., 2020).

However, the majority of research on SSTP for parents of children on the autism spectrum has been conducted in the context of well-controlled and/or small research studies, which yield evidence of efficacy under ideal (i.e., constrained) conditions. Moreover, only one very small study has examined the impact of SSTP within a Canadian context, using the individual (standard) model. Hodgetts et al. (2013) used a mixed-methods, small multiple case-study design (n = 6), which demonstrated improved parental self-efficacy related to managing disruptive behaviours. They found that, overall, participation in SSTP was associated with fundamental, positive changes in the meanings that parents ascribed to their child's behaviours (i.e., attributions) and to their own experience as parents and caregivers. This study failed to yield significant reductions in parenting stress, which the authors attributed to their small sample – although this mirrors findings from a previous RCT (Whittingham et al., 2009), also using the individual model. Notably, however, evidence of reduced parenting stress has emerged from studies of the group model (e.g., Leung et al., 2013; Schrott et al., 2019). Thus, the impact of

SSTP on parenting stress appears to be somewhat variable across studies, but it is worth considering whether there are special properties of the group-based model that add a unique therapeutic benefit beyond that of the individual approach, perhaps leading to reduced parent stress (see Biggs et al., 2020 for discussion of the unique properties of group-based mental health interventions generally).

In light of evidence of efficacy in small and/or tightly controlled study designs, the remaining step is to establish the *effectiveness* of the group SSTP program, for parents of children on the autism spectrum, through a large community-based implementation.

Hypotheses

Based on previous efficacy research, we hypothesized that participating in group SSTP would yield decreases in maladaptive parenting style (laxness, over-reactivity, verbosity), improved parenting confidence (self-efficacy), improved parental mental wellbeing (reduced stress, anxiety, depressive symptoms), and decreased child behaviour problems (emotional reactivity, conduct problems, inattention/hyperactivity, and improved prosocial behaviour). Each of these domains is captured by at least one of the measures described below.

Methods

Objective and Analytic Plan

The primary objective of this pre-post design program evaluation was to examine the efficacy of the 9-week group SSTP program for children on the autism spectrum, delivered through a large community implementation. Evaluation of the dependent variables of parenting style, parenting self-efficacy, and parental stress was conducted, in addition to parent-rated child behaviours, both prior to and immediately following intervention, using measures recommended by the program developers (outlined below). Paired samples t-tests were used to examine pre- versus post-intervention differences, with effect sizes reported as Cohen's *d* (interpreted as small = .20 - .49; medium = .50 - .79; or large: $d \geq .80$). Bonferroni correction was applied to reduce the risk of Type I error, using familywise corrections, based on the number of subscale comparisons within a particular assessment measure. Exploratory sub-analyses examined differences between completers and non-completers, and between mothers and fathers.

Sample Size Calculation

We calculated a necessary sample size of 99 in order to detect a small effect size ($d = .4$), with power = .80 and two-tailed alpha set at .05 (Cohen, 1992), using paired-samples t-tests. We analyzed all data available from the clinical program in order to reach this sample size for data available at both pre- and post-intervention time points, allowing for some expected attrition of participants throughout the program.

Participants

Participants included 131 parents of children on the autism spectrum, aged 2 to 12 years who accessed care at Holland Bloorview Kids Rehabilitation Hospital (hereafter, Holland Bloorview), between the years 2010 and 2014; all were affiliated with the hospital through the diagnostic clinic, and parents were seeking support for difficult child behaviour. Holland Bloorview is Canada's largest paediatric rehabilitation hospital, located in Toronto, the largest city in Canada and one of the most multicultural and multiracial cities globally. Groups were made up of between 4 and 15 participants (the smallest group took place in the summer); the modal and median group size was 7. Of the 131 families who enrolled in the clinical program, 129 completed at least one pre-intervention measure (see Results). Data from all 129 families were analyzed.

Procedure

Families were invited to attend the clinically provided group SSTP program via advertising through the hospital's Family Resource Centre, through social workers, who met with families shortly after diagnosis, and through other front-line clinicians. This program evaluation entailed a retrospective chart review of existing data collected as part of the clinical service; as such the requirement for individual consent was waived by the hospital's research ethics board, which approved the study. Parents seeking parenting education to address mild to moderate child behaviour challenges (e.g., difficulty with transitions, completing daily self-help activities, sharing, independent play, protest behaviour, and mild aggression that does not cause injury to self or others) were invited to attend the groups. The clinical program required parents to have adequate (self-reported) English comprehension to understand the content of the program and respond to the questionnaires. Families were not enrolled in this group-based clinical program if their children were experiencing severe, long-standing behaviour challenges (e.g., significant physical aggression causing injury to self or others, episodes that are non-responsive to redirection, or other behaviours that were felt to require more intensive or urgent supports; in such cases, referrals were made for more appropriate services). The program was not offered to families who had participated in SSTP Programs or Seminars within the last six months, or if they were already participating in another parenting intervention program aimed at improving parenting skills and reducing child behavior problems. All group facilitators had completed the Provider Training Course for Group SSTP, which requires attending a three-day training program, completing set readings, and demonstrating knowledge and competence in program delivery through a skills-based accreditation process.

For the purposes of the current program evaluation, we accessed existing anonymized data from Holland Bloorview's Child Development Program database for all participants who enrolled in the clinical program. All data were already de-identified and no linking code existed in order to be able to re-identify participants based on their de-identified study number. All participants were enrolled into the group SSTP program as a clinical service. Prior to the first group session, families were mailed a questionnaire package to complete (taking approximately 20-30 minutes) and were asked to bring it with them to the first SSTP intervention session. Participants received a phone call 14 days after the questionnaires were mailed to encourage them to complete and bring their questionnaires in with them to the first session, or to complete them at the first session. Upon

completion of the group SSTP program, parents were asked to fill out the questionnaire package again.

Measures

Clinical data from the following measures were accessed to examine the dependent variables of parenting style, parental self-efficacy, parenting stress, and child behaviours at both pre- and post-intervention time-points. With the exception of the Parenting Stress Index, each of the measures below is a component of the program evaluation recommended by the program's developers (Sanders et al., 2012), and has been used widely in previous Triple P evaluation studies.

Depression Anxiety Stress Scales (DASS; Lovibond & Lovibond, 1995) – This 42-item caregiver-report questionnaire measures parent mental health problems by examining symptoms, each measured on a 4-point Likert-type scale, that fall into three categorical axes: Depression (D), Anxiety (A), and Stress (S). Raw scores are derived by totaling item scores on each axis, with higher scores indicating more severe symptoms. The following ranges have been proposed as clinical cut-offs for interpretation of scores (Khatibi, 2018): 'Normal' (D: 0-4; A: 0-3; S: 0-7); Mild (D: 5-6; A: 4-5; S: 8-9); Moderate (D: 7-10; A: 6-7; S: 10-12); Severe (D: 11-13; A: 8-9; S: 13-16). The scale has shown convergent validity with measures such as the Beck Depression Inventory (Beck et al., 1961) and the State-Trait Anxiety Inventory (Spielberger et al., 1983).

Parenting Stress Index – Short Form (PSI-SF; Abidin, 1995) – This 36-item self-report measure is designed to measure the extent and sources of stress within the parent-child relationship, including identification of parenting styles that are not optimal for supporting adaptive child development (labelled as 'dysfunctional' on the measure). Written at a 5th-grade reading level, for parents of children 12 years and younger, the PSI-SF yields a Total Stress score (ranging from 36 to 180), derived from three subscale scores (each ranging from 12 to 60): Parental Distress (PD), Parent-Child Dysfunctional Interaction (P-CDI), and Difficult Child (DC). We also report data on the Defensive Responding (DR) scale, which provides some insight into a parent's tendency to downplay or under-report parenting stressors. Clinical cut-offs (associated with raw domain scores $\geq 85^{th}$ percentile) are as follows: DR ($\geq$ 17), PD ($\geq$ 33), P-CDI ($\geq$ 26), DC ($\geq$ 33), and Total Stress ($\geq$ 86). The PSI-SF has been empirically validated to predict observed parenting behavior and children's current and future behavioral and emotional adjustment, in a variety of U.S. and international populations (Abidin, 2012). Validation work has been done for use in the autism population, but with some caveats regarding interpretation of the P-CDI and DC scales in children on the autism spectrum (Zaidman-Zait et al., 2010).

Parenting Scale (PS) – The Parenting Scale (Arnold et al., 1993) contains 30 items that capture the use of maladaptive parenting discipline styles in parents of young children: Laxness (permissive discipline), Over-reactivity (authoritarian discipline, displays of anger, and irritability) and Verbosity (overly long reprimands or over-reliance on talking). Scores exceeding the following values are considered clinically significant (for mothers and fathers, respectively): Laxness (2.63, 2.58); Over-reactivity (3.13, 2.97); Verbosity (1.65, 1.63).

Parenting Tasks Checklist (PTC; Sanders & Wooley, 2001) – The PTC is a 28-item checklist that assesses parents' self-efficacy. Parents rate how confident they are that they can deal with their child if their child engages in difficult behaviour during common parenting situations. Two

dimensions are measured: Behavioural self-efficacy (parents' confidence in dealing with specific child behaviours) and setting self-efficacy (confidence in dealing with difficult behaviours in different settings), each with scores ranging from 0 to 100 (with high scores reflecting greater self-efficacy). Scores ≤ 65 (behavioural) and ≤ 75 (setting) are considered to fall within the clinical range (Sanders et al., 2012). The measure has high reliability for the behavior (α = .97) and setting (α = .91) subscales (Sanders & Woolley, 2001).

Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997). The SDQ includes 25 items relating to the frequency of positive and negative child behaviours (each rated on a 3-point scale, 0-1-2). Scale scores (ranging from 0 - 10) are computed by summing the five items for each scale (with higher scores indicating more impairment on most scales, and clinical cut-offs as follows): Emotional Symptoms (clinical cut-off ≥ 6), Conduct (Behavioural) Problems (≥ 5), Inattention/hyperactivity (≥ 7), Peer Problems (≥ 4), and Prosocial Behaviour (≤ 5; i.e., a lower score here indicates more impairment). A Total Difficulties score is derived by adding four of the scale scores (excluding Prosocial), for a total up to 40 (clinical cut-off ≥ 18), and a Total Impact score is derived (cut-off ≥ 2). Numerous studies from diverse countries have yielded favorable results regarding the SDQ's construct validity and clinical utility (Emerson, 2005; Niclasen et al., 2012; Vostanis, 2006; Woerner et al., 2004).

Client Satisfaction Questionnaire – This measure, provided as part of the packaged SSTP program, was used to measure parents' satisfaction with the program. The satisfaction survey addresses the quality of the service provided, how well the program met parent needs, and whether the tip sheets received were perceived as useful. The measure derived is a composite score of the program satisfaction ratings on 7-point scales. Although not specifically related to any of the hypotheses, program evaluations often explore client satisfaction as a way to ascertain a program's acceptability to the clients being served.

Results

Participants Characteristics

Of the 131 families who received the clinical service, 129 completed at least one pre-intervention measure (80 mothers, 48 fathers, and 1 aunt); the two cases with no pre-intervention data did complete post-intervention forms. Although only one parent per family was asked to complete the forms, families were invited to bring both parents to the sessions. Of 131 families enrolled, 65 brought both parents and 66 brought only one. Of the 129 families with pre-intervention data, 109 also completed at least one post-intervention questionnaire, with response rates as follows (for pre- and post-intervention, respectively): PS and PTC (n = 129, 109); DASS (n = 117, 103); PSI-SF (n = 97, 82); and SDQ (n = 127, 103). Note that the PSI-SF was only added after the fourth session, so was only available to 97 participants in total.

Primary Outcomes

Primary analyses included different numbers of participants, reflecting variability in available data (outlined above); for all pre-post comparisons, analyses included only those cases with data at both time points (see Table 1 notation for exact n per analysis). No differences emerged for

questionnaires completed by mothers versus fathers (all *p*'s > .04), so data were collapsed across respondent for the remaining analyses. As can be seen in Table 1, each of the measures captured parent-reported change in the expected direction on at least some subscales.

Significant improvements emerged on the measure of parenting style (PS) in the domains of over-reactivity and laxness, as well as for total score (all *p*'s < .001), but not for verbosity (*p* = .12). Parents also reported significant gains in both domains of self-efficacy (PTC; both *p*'s < .001). Parenting stress decreased following the program, with significant reductions on all domains of the PSI-SF (*p*'s range: < .001 to .005), and on the stress domain of the DASS (*p* < .001). A trend toward reduced parental anxiety and depression also emerged on the DASS, but these differences were not significant after error correction (*p* = .032, and .036, respectively).

Parent ratings on the SDQ revealed significant improvements in their children's total difficulties, behavioural (conduct) problems, inattention/hyperactivity, and prosocial behavior (all *p*'s ≤ .001), but not emotional symptoms or peer problems (*p*'s = .31 and .17, respectively).

Table 1 *Pre- and Post-Intervention Parent Ratings on All Measures.*

Measure	Pre-intervention Mean (SD)	Post-intervention Mean (SD)	t-test value (df)	Significance (*p* value)	Effect size (Cohen's *d*)
PS: Over-reactivity scale	3.10 (1.00)	2.49 (.95)	6.17 (108)	< .001	.59
PS: Laxness scale	3.02 (.84)	2.42 (.86)	6.72 (108)	< .001	.64
PS: Verbosity scale	1.49 (.61)	1.40 (.62)	1.58 (108)	.117	.15
PS: Total score	3.11 (.62)	2.54 (.64)	10.37 (108)	< .001	.99
PTC: Self-Efficacy – setting	77.15 (13.57)	84.74 (12.70)	-7.50 (108)	< .001	-.72
PTC: Self-Efficacy – behavioural	66.47 (17.42)	78.71 (16.67)	-7.94 (108)	< .001	-.76
DASS: Stress subscale score	10.55 (7.58)	6.86 (6.45)	6.17 (101)	< .001	.61
DASS: Anxiety subscale score	3.48 (4.42)	2.65 (4.06)	2.18 (101)	.032	.22
DASS: Depression subscale score	4.60 (5.87)	3.49 (5.65)	2.13 (101)	.036	.21

PSI: Defensive Responding subscale score (DR)	18.23 (5.90)	15.44 (5.53)	6.22 (81)	< .001	.69
PSI: Parental Distress subscale score (PD)	30.38 (9.42)	25.91 (9.34)	6.81 (81)	< .001	.75
PSI: Parent-Child Dysfunctional Interaction subscale score (P-CDI)	26.21 (7.82)	23.71 (9.48)	2.91 (81)	.005	.32
PSI: Difficult Child subscale score (DC)	35.05 (10.35)	29.95 (9.16)	6.08 (81)	< .001	.67
PSI: Total Stress score	91.63 (22.37)	79.44 (22.46)	6.51 (81)	< .001	.72
SDQ: Total Difficulties score	15.85 (5.59)	14.33 (6.03)	4.32 (102)	< .001	.43
SDQ: Emotional Symptoms scale score	2.41 (2.13)	2.24 (2.16)	1.02 (102)	.311	.10
SDQ: Behavioural (Conduct) Difficulties scale score	2.76 (1.55)	2.31 (1.70)	3.27 (102)	.001	.32
SDQ: Inattention/Hyper-activity scale score	6.24 (2.13)	5.58 (2.23)	4.16 (102)	< .001	.41
SDQ: Peer Problems scale score	4.50 (2.18)	4.29 (2.15)	1.38 (102)	.170	.14
SDQ: Prosocial Behaviour scale score	4.91 (2.49)	5.66 (2.31)	-4.50 (102)	< .001	-.44
SDQ: Total Impact	3.47 (2.64)	2.11 (2.38)	7.13 (102)	< .001	.70

Note. PS: *Parenting Scale* (*n* = 109); PTC: *Parenting Tasks Checklist* (*n* = 109); DASS: *Depression Anxiety Stress Scales* (*n* = 102); PSI: *Parenting Stress Index –Short Form* (*n* = 82); SDQ: *Strengths and Difficulties Questionnaire* (*n* = 103).

Participant Attrition

Our attrition rate of 15% was relatively low for a large clinical implementation (i.e., only 20/129 lost to follow-up). However, to investigate whether there were any systematic patterns to participants being unable to complete the program, we compared data for those who completed with those who did not. One measure captured differences between sub-groups. Specifically, the

SDQ revealed higher scores for families who completed only pre-intervention questionnaires (i.e., non-completers), compared to those who completed both time points, for the child's total difficulties (M = 19.63, SD = 5.77 vs. M = 15.81, SD = 5.52), emotional symptoms (M = 4.00, SD = 2.87 vs. M = 2.39, SD = 2.10), and behavioural (conduct) difficulties (M = 3.79, SD = 1.78 vs. M = 2.71, SD = 1.54), all p's < .008.

Satisfaction

One hundred and five participants completed the post-intervention satisfaction survey. Mean satisfaction rating across all items was 5.9 out of 7 (SD = .64; range: 4.31 – 7), indicating a high level of satisfaction with the program.

Discussion

Results demonstrate the acceptability, feasibility, and effectiveness of the 9-week group SSTP program when implemented in a large clinical setting with families of children on the autism spectrum. Attrition was relatively low, satisfaction ratings were high (84%), and parents reported gains on behalf of themselves and their children. No significant differences emerged with respect to outcomes as reported by mothers compared to fathers, but this might be partly attributable to the fact that both parents participated in the sessions for approximately half the sample.

With respect to parenting variables, our findings support those of efficacy studies using RCT and wait-time control research designs to evaluate the group model in families of children on the autism spectrum (Schrott et al., 2019; Whittingham et al., 2009). Namely, parents in the current evaluation reported significant improvements in elements of parenting style, stress, and self-efficacy, as well as reductions in child challenging behaviour. Changes emerged in two elements of parenting style (laxness and over-reactivity), both with medium effect sizes. Notably, average scores on both of these domains moved from above, to below, the clinically concerning thresholds, suggesting a clinically meaningful improvement.

Parents reported increased feelings of self-efficacy on both domains of the PTC, also with medium-sized effects. Self-efficacy in managing challenging child behaviours (which approached a large effect size) improved from borderline clinical range at baseline, to well within non-clinical range following the program, indicating a clinically meaningful improvement.

Parents also reported feeling less stressed (with medium-sized effects on both the PSI-SF and DASS). Mean PSI-SF scores went from above, to below, the clinical cut-off (i.e., 85th percentile) for most domains (DR, P-CDI, and DC) as well as for Total Stress; scores on the PD domain were below clinical cut-off at both time points. The reduction in stress, as measured by the DASS, reflected movement from a 'moderate' range of impairment, into the 'normal' range (Khatibi, 2018), indicating a clinically meaningful reduction in stress. The DASS also captured a trend toward reduced feelings of anxiety and depression (with small effect sizes), but significance levels did not survive error correction. This pattern of findings parallels those reported by Schrott et al. (2019), wherein parent stress, but not anxiety or depression, declined

after participation in the group model. This reduction in stress may have been more robust than the changes in anxiety and depression, in part because stress is more likely to be a situation-constrained or transitory (i.e., "state") phenomenon, and thus more amenable to change, whereas depression and anxiety are more likely to be entrenched and resistant to change (i.e., "trait" phenomena). We do note, however, that unlike stress, parent-rated anxiety was only marginally elevated at baseline, and depression was within normal limits at both time points.

Finally, parents reported significant decreases, as measured on the SDQ, in their child's behavioural and hyperactivity/inattention challenges, and a significant increase in prosocial behaviour, all of which are directly targeted by the program. These improvements were modest, with small effect sizes. Notably, group means did not exceed clinical cut-offs on any of the domains at either time-point, with the exception of Peer Problems (which remained above cut-off) and the Total Impact score, which was above the cut-off at baseline, and landed right at the threshold following participation in the program. Children's prosocial behaviour increased from just within the clinical range, into the non-clinical range. Parents did not report improved peer interaction for their children, which is likely to be an issue that cannot be resolved in a unidimensional manner via a relatively brief parent-training program. Challenges with peer relationships are complex and require management from multiple perspectives (i.e., at a system-wide level; Swearer et al., 2010).

Our attrition rate of 15% was well within parameters reported in other evaluations of SSTP, even in well-controlled RCT designs, which range from 0% (Whittingham et al., 2009), to >30% (Roberts et al., 2006). Despite a low attrition rate, we explored which factors might have played a role in parents being unable to complete the program and identified elevated ratings of child behavioural and emotional challenges as potential barriers to program completion. These findings highlight the need for additional supports for families experiencing significant stressors, as the group didactic model may not be an adequate approach to supporting their complex needs. In cases where families identify significant stressors associated with their childrens' marked behavioural challenges, it might be best to offer individualized supports and one-to-one programming, perhaps with direct in-vivo coaching, to ensure that these highest-risk families are not further disadvantaged or disenfranchised.

Strengths and Limitations

Strengths of the study include our large non-selected clinical sample drawn from a culturally diverse urban area, our relatively low attrition rate, the inclusion of a high proportion of fathers as well as mothers, and the community delivery of the program by trained and experienced providers. An additional strength was our comparison of families who completed the program with those who did not, which allowed us to identify variables associated with non-completion.

However, some design limitations challenge our ability to draw firm conclusions about the findings. Our pre-post single group design limits our ability to conclude that changes over time were unequivocally related to the treatment. However, this is an acceptable approach for a program evaluation designed to examine community effectiveness (U.S. Department of Health and Human Services, 2011), particularly when built upon a strong research base demonstrating a program's efficacy through previous rigorous research designs. Another weakness was our exclusive reliance on parents' perception of change in themselves and their child. Consistent with much of the literature on this model, we do not have an objective measure of child or

parenting behaviour. Parents' perceptions of change in their parenting style, or in their child's behaviour may vary from true changes in these areas, reflecting a possible bias in the findings (although, arguably, self-efficacy is an important self-perceived outcome). Another possible threat involves selection bias in terms of families who completed the program compared to those who did not. As noted above, there were some differences across sub-groups, most notably that parents who did not complete the program had reported higher rates of difficult child behaviour and emotional distress prior to intervention. This finding highlights the importance of examining barriers to program adherence to ensure that families' needs are adequately met. Finally, positive findings may be due to a phenomenon known as "reactivity" wherein individuals participating in an intervention program can have a tendency to report positive effects as a result of factors other than the intervention such as getting together with other parents or the rapport and attention from the facilitators. Our limited information about family and child characteristics makes it impossible to tease out some of the demographic variables that may have influenced response to intervention.

Implications

The current findings support the delivery of the 9-week group SSTP program for parents of children on the autism spectrum through a clinical service-delivery model. Given the resource constraints inherent in public social and health service systems, the implementation of this resource-efficient, evidence-based program has the potential to positively impact families on a wide scale. In light of recent global events associated with the COVID-19 pandemic, there is an urgent spike in the need for evidence-based interventions for vulnerable children and families that can be adapted to the virtual space. Stepping Stones Triple P is well suited for adaptation to a virtual delivery model since it does not rely on direct hands-on work with the children, relying instead on psychoeducational strategies that families acquire through group learning. Using the current evidence as a solid foundation, the next logical step would be to adapt the Stepping Stones Triple P program for virtual delivery, with potential for wide-scale access both during the current pandemic, as well as in the future, for families facing other systemic barriers across the country (e.g., those in rural, remote, and first nations communities).

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Key Messages

Community delivery of the 9-week group Stepping Stones Triple P (SSTP) program can support parents in managing behavioural challenges exhibited by their children on the autism spectrum.

Participation in the group SSTP program led to parent-reported improvements in some elements of parenting style (laxness), emotional response to difficult child behaviour (parental over-reactivity), feelings of self-efficacy, and reduced parenting stress.

Following participation in the group SSTP program, parents reported small but significant improvements in their child's behavioural difficulties, hyperactivity/attention problems, and prosocial behaviour.

Extreme levels of challenging behaviour and emotional reactivity in children at program entry may be barriers to successful program completion, indicating a need for additional supports in such cases.

One recommended next step is to adapt the SSTP program for virtual delivery, with potential to increase access for families who are harder to reach and may be under-served.

Messages clés

La dispensation du programme de groupe de 9 semaines « Stepping Stones Positive Parenting » peut soutenir les parents dans la gestion des comportements perturbateurs présents chez leurs enfants ayant un trouble du spectre de l'autisme.

La participation au programme de groupe a mené à des améliorations rapportées par les parents sur certains éléments du style parental (laxisme), la réponse émotionnelle face aux comportements perturbateurs de leur enfant (sur-réactivité parentale), le sentiment d'auto-efficacité et le stress parental.

Suite à leur participation au programme, les parents ont rapporté de légères, bien que significatives, améliorations concernant les difficultés comportementales, les problèmes d'hyperactivité/inattention et les comportements prosociaux de leur enfant.

Des niveaux extrêmes de comportements perturbateurs et de réactivité émotionnelle chez les enfants au début du programme peuvent entraver la complétion et la réussite du programme, indiquant un besoin de soutien supplémentaire dans ces cas.

Une prochaine étape serait d'adapter le programme pour une mise en place virtuelle qui pourrait favoriser l'accès aux familles qui sont difficiles à rejoindre et qui peuvent être moins bien desservies.

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