

A controlled clinical evaluation of the Parents Plus Children's Programme for parents of children aged 6–12 with mild intellectual disability in a school setting

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Abstract

The aim of this study was to evaluate the effectiveness of the parent training, Parents Plus Children's Programme (PPCP) as an intervention for parents of children with mild intellectual disabilities. Participants were parents of children, aged six to 12, attending a special school for children with mild general learning disability ($n = 29$). Minor programme adaptations were made. Pre and post-assessment included the Strengths and Difficulties Questionnaire, the Parenting Stress Index, the Kansas Parent Satisfaction Scale and parent identified personal and child-related goals. A significant reduction in clinical range scores for treatment group participants ($n = 16$) was observed. Conversely, clinical range scores for control group participants ($n = 13$) increased, or remained elevated. These preliminary results suggest that PPCP may be successfully delivered as a routine community-based intervention and aid to prevent and reduce behavioural problems, reduce parent stress and increase parent confidence and satisfaction. Further investigation of programme effectiveness for parents of children with developmental disability is warranted.

Keywords

Behavioural problems, intellectual disability, parent training, developmental difficulties, strengths and difficulties questionnaire, Kansas Parent Satisfaction Scale, Parent Stress Index, Parent Plus Children's Programme (PPCP), Randomised Controlled Trial

Background

Introduction

Epidemiological surveys show that approximately 40% of children with an intellectual disability develop significant mental health problems. This represents three to four times the

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level of risk for these children compared to their non-disabled peers (Emerson, 2003; Mazzucchelli & Sanders, 2011; Tonge & Einfeld, 2000). The consequences of emotional and behavioural problems in children with developmental disabilities are substantial and are one of the best predictors of whether or not parents will seek an out of home placement for their son or daughter (McIntyre, Blacher, & Baker, 2002; Plant & Sanders, 2007a). Persistence of conduct difficulties across childhood is strongly associated with poor health, social exclusion, anti-social behaviour and incarceration (Farrington & Welsh, 2007; Tremblay, 2006). While patterns of behaviour characterise some genetic disorders, family and environmental factors also interact with behaviour and contribute to the development and maintenance of emotional and behavioural problems (Baker et al., 2003; Mazzucchelli & Sanders, 2011; Tonge & Einfeld, 2003).

Parenting children with intellectual disability

Raising a child with an intellectual disability impacts parent well-being and is associated with increased parent-related stress (e.g. Donenberg & Baker, 1993; Eisenhower, Baker, & Blacher, 2005; Hauser-Cram et al., 2001; Rodrigue, Morgan, & Geffken, 1990). For example, Oelofsen and Richardson (2006) reported that 84% of mothers and 67% of fathers of children with a developmental disability had stress scores that fell within the clinical range. Baker, Blacher, Crnic, and Edelbrock (2002) also found this negative impact on parents was manifested by the time their child reached three. Interestingly, Baker et al. (2003) found greater stress and negative interactions to be more attributable to the increased levels of behaviour problems rather than to the presence of developmental delay itself. The challenges faced by these children includes increased risk of school-related problems, significantly greater risk of behavioural difficulties, less resilience when exposed to environmental risk factors, health problems, exclusion, increased possibility of problems in the workplace and increased likelihood of engaging in later violent or anti-social behaviour (Borthwick-Duffy & Eyman, 1990; Emerson, Einfeld, & Stancliffe, 2011; McIntyre et al., 2002; Taanila, Ebeling, Heikura, & Järvelin, 2003).

In an analysis of data from the Longitudinal Study of Australian Children, Emerson et al. (2011) found that compared to their more intellectually able peers, children with an intellectual disability were significantly more likely to exhibit persistent conduct difficulties only when exposed to multiple environmental risks. The independent factors associated with conduct difficulties included living in a low income household, living in a more deprived neighborhood, having poorer pro-social behaviours, having communication difficulties, poorer maternal health, greater exposure to harsh parenting practices and inconsistent parenting. Webster-Stratton, Rinaldi, and Reid (2011) carried out an interesting analysis of the long-term outcomes of children whose parent(s) had received parent training eight to 12 years previously. They found that for the most part, these children had less severe conduct problems as adolescents than might have been expected (e.g. limited criminal justice system involvement) given their early clinical scores. Similar to Emerson et al. (2011) they found that parent-child coercion was associated with poorer adolescent outcomes.

The problems faced by parents of a child with a disability are compounded when families are headed by a parent who also has an intellectual disability. These families are among the most vulnerable in the community (Llewellyn, McConnell, Honey, Mayes, & Russo, 2003). International research reports major difficulties for health, welfare and education systems in meeting the special learning needs of these parents (Tymchuk, Llewellyn, & Feldman, 1999). Service providers report a lack of confidence and of necessary skills and training that would enable them to work effectively

with these parents (Llewellyn, McConnell, & Bye, 1998; Llewellyn, Thompson, & Proctor, 1999; McConnell, Llewellyn, & Bye, 1997). These difficulties seem to be exacerbated by practitioner pessimism regarding the ability of these parents to learn, and overcome parenting problems. This pessimism endures despite research demonstrating that parents with intellectual disability do learn to apply and maintain their new knowledge and skills (Budd & Greenspan, 1985; Feldman, 1994; Tymchuk, 1990; Tymchuk & Feldman, 1991). In fact, international research indicates that between one third and just less than half of all children of parents with intellectual disability are removed into care (Llewellyn, McConnell, & Ferronato, 2003).

Although parent training has a long history in the field of intellectual and developmental disability (e.g. Baker, 1989), few programmes focus on problem prevention and parent support. In fact, parenting programmes are frequently only delivered to parents of children where significant behaviour problems are already established (e.g. Plant & Sanders, 2007b). It is important to provide parents of children with an intellectual disability training in effective parenting strategies to help them prevent and reduce child behavioural and emotional problems, before these problems reach crisis point (Biglan, Duncan, Ary, & Smolkowski, 1995).

Parent training

Parent training is the most commonly used mode of intervention for addressing behavioural problems in children (Carr, 1999) and follow-up studies indicate that gains are maintained over time, when tested up to three years post treatment (e.g. Coughlin, Sharry, Fitzpatrick, Guerin, & Drumm, 2009; Long, Forehand, Wierson, & Morgan, 1994; Webster-Stratton, Hollinsworth, & Kolpacoff, 1989; Webster-Stratton et al., 2011). These gains include significant decreases in conduct problems, increases in pro-social behaviour, reduction in parental stress and improvement in parent-child interactions (Hutchings et al., 2007; Kazdin, 1997; Lundahl, Risser, & Lovejoy, 2006; Nixon, 2002; Serketich & Dumas, 1996; Taylor & Biglan, 1998). Overall, the literature on outcomes attests to the clinical utility of parent training as a treatment for children who exhibit externalising behavioural problems (Brestan & Eyberg, 1998; Griffin, Guerin, Sharry, & Drum, 2010; Coughlin, et al., 2009; Sharry, Guerin, Griffin, & Drumm, 2005; Webster-Stratton et al., 2011). In particular, the effectiveness of video-modelled group-assisted parent training is well documented (Behan & Carr, 2000; Webster-Stratton & Reid, 2003). A meta-analysis by McCart, Priester, Davies, and Azen (2006) of 30 parent training programmes and 41 child focussed programmes found that for children under 12 years, parent training was significantly more effective than child focussed programmes. However, in a meta-analysis of 31 studies carried out by Reyno and McGrath (2006), poverty, mental ill health and single parent status predicted poorer responses to parent behavioural training. Traditionally, parent training programmes have been delivered individually to families, thus reaching relatively few parents. Because of this, many children develop potentially preventable problems (Biglan et al., 1995; Einfeld, et al., 2006).

To achieve a wider reach and prevent development and escalation of avoidable emotional and behavioural problems among children with developmental disabilities, a public health model of parent behavioural training is essential. Parenting programs, based on social learning models, are an efficient model of intervention and are known to be effective in the management of early onset behavioural problems, particularly for children with developmental disabilities (Ducharme, Popynick, Pontes, & Steele, 1996; Hudson et al., 2003; Koegal, Bimbela, & Schriebman, 1996; Matson, Mahan, & Matson, 2009; Reid, Webster-Stratton, & Hammond, 2007; Roberts, Mazzucchelli, Taylor, & Reid, 2003).

Parents Plus

The Parents Plus Programmes are evidence-based parenting programmes. They follow international best-practice guidelines such as those described by the National Institute for Clinical Excellence in the United Kingdom. Developed in partnership with Irish parents and children, the Parents Plus Programmes aim to reduce behavioural problems and promote learning and attachment in children. The programmes are relevant for both clinical and community settings. The current Parent Plus syllabus is targeted at three distinct developmental categories. The Parents Plus Early Years Programme (PPEY) is designed for parents of children aged one to six years (Sharry, Hampson, & Fanning, 2003); the Parents Plus Children's Programme (PPCP) is designed for parents of children aged six to 11 years (Sharry & Fitzpatrick, 2007); and the Parents Plus Adolescents Programme is designed for parents of adolescents aged 11 to 16 years (Sharry & Fitzpatrick, 2001). Several studies attest to the effectiveness of the programmes in a variety of settings (e.g. Behan, Fitzpatrick, Sharry, Carr, & Waldron, 2001; Coughlin et al., 2009; Griffin et al., 2010; Kilroy, Sharry, Flood, & Guerin, 2011; Quinn, Carr, Carroll, & O'Sullivan, 2007; Sharry et al., 2005, 2009).

Parents Plus Children's Programme

The PPCP is a positive and practical video-modelled programme, delivered mainly in group settings, with the aim of helping parents build a positive relationship with their child. The programme equips parents with the skills to promote pro-social behaviour, assist with their child's learning and teach non-coercive approaches to discipline (Coughlin et al., 2009). Video footage of actual families is used to illustrate some of the subtle and complex issues of parenting principles in action in real homes (e.g. homework, problem solving and play).

These video scenes were recorded with families who had previously participated in the PPCP. Positive comments and stories are related by parents who have experienced the programme, in addition to comments by their children. The comments provide convincing evidence regarding how the ideas apply and positively impact family life and relationships of real parents and their children. Parents who are participating in training, role play and reflect on how the techniques viewed can be applied in their own situation. Coughlin et al. (2009) examined the effectiveness of the PPCP among parents of children with behavioural and developmental problems in the six to 11 age group. Compared to the Treatment as Usual Group, significant reductions were recorded in parent stress, and conduct problems. Other benefits observed were decreased parental stress, increased parental confidence and significant improvements in parent-defined problems and goals. These positive changes were maintained at five-months follow-up. However, for families of children with developmental delay, there were no significant gains.

Current study

The current study seeks to further the work of Coughlin et al. (2009) by examining the effectiveness of the PPCP as an intervention for parents of children with mild general learning disabilities (aged six to 12 years) in a community setting. The study aims to explore the effectiveness of the programme in overcoming the many additional problems of parenting children with intellectual disabilities such as emotional difficulties, speech and language disorders, behaviour problems, sensory difficulties and medical conditions. It is hoped it will add to our understanding of the effectiveness of the PPCP in meeting the needs of parents of children with a diagnosed intellectual

disability while also addressing the needs of some parents who themselves have an intellectual disability.

Method

Participants

The focus of the current study was a specialist school providing for the academic, personal and social needs of pupils diagnosed with developmental delay and ranging in age from five to 12 years. Recruitment took place at an information evening provided by PPCP facilitators at the school and was attended by 42 parents. The programme was open to all parents of children aged six to 12 who were attending the school. No exclusionary criteria were applied. Thirty-eight parents volunteered to take part in the study, ranging in age from 26 years to 49 years. Twenty-one parents were randomly allocated to the Treatment group; four withdrew before the programme commenced and one withdrew during the programme, leaving 16 parents who completed the intervention. Eighteen parents were randomly allocated to the Control group; five parents withdrew before commencement of the intervention four months later. Therefore, 13 parents from the Control group completed the PPCP intervention. Participants included eight fathers and 21 mothers. Two of the parents attending the course had a mild intellectual disability, two parents had self-reported literacy difficulties and five parents had English as a second language. All participants had one child attending the Speech and Language service for mild intellectual disability. Couples and friends who wished to attend the course together were facilitated to attend the same group and were matched by similar allocations to the alternative group. The primary diagnoses of the children included learning disability ($n = 16$), autism ($n = 2$), Down syndrome ($n = 3$), dyspraxia ($n = 2$), Prader–Willi syndrome, Williams–Beuren syndrome, epilepsy and speech delay ($n = 5$).

Study design

This study employed a randomised controlled trial design to evaluate the impact of the PPCP by comparison of the responses of parents in the treatment group with responses of parents who did not undergo the treatment. An independent research assistant randomly assigned participants to the Treatment or Control groups. The independent variables were Group and Time. The levels of the group variable were Treatment and Control. Levels of the Time variable were Time 1 (pre-intervention) and Time 2 (post-intervention). The dependent variables included standardised measures of parent psychological distress and difficulty, assessed pre-treatment (Time 1) and post-treatment (Time 2).

The study was approved by the Ethics Committees at the Mater Hospital, Dublin and Trinity College, Dublin.

Measures

Strengths and Difficulties Questionnaire. The 25-item inventory Strengths and Difficulties Questionnaire (SDQ) (Goodman, 1997) was used. The SDQ contains descriptions of traits, 10 of which would be generally regarded as strengths, 14 of which would be regarded as difficulties and one neutral trait. The scale yields a 'total difficulties score' and contains descriptions of children's positive and negative behaviours. Each participant parent completes the questionnaire, which has a three-point response format for each item from zero to two. The instrument yields

scores on five subscales (i.e. Hyperactivity, Emotional symptoms, Conduct problems, Peer problems and Prosocial behaviour). Subscale scores range from zero to 10 and are obtained by summing scores for each of the five sub-scales. Scores from the four difficulties subscales are combined to yield a total difficulty score, which ranges from zero to 40. The psychometric properties of the SDQ are well established with a high internal consistency and test-retest reliability (Goodman, 2001). The measure also has strong criterion validity for predicting psychological disorders (Goodman, 2001) and good reliability and validity when used with people with intellectual disabilities (Emerson, 2005).

Parent Stress Index. The Parent Stress Index (PSI) (Abidin, 1995) is a 36-item self-report measure assessing perceptions of the difficulties and stress experienced as a parent. Each item is scored on a five-point response format with the instrument yielding a total score for parental stress. This instrument yields scores for several subscales (i.e. parent-child dysfunctional interactions, parent distress and difficult child) in addition to a total stress score (Abidin, 1995; Reitman, Currier, & Stickle, 2002). Some methodological issues have been raised with regard to content validity of the PSI tool for assessing parental stress among parents of children with autism (e.g. Zaidman-Zait et al., 2010). Cautious interpretation is advised pending further evaluation among parents of children with intellectual disability.

Kansas Parental Satisfaction Scale. The Kansas Parental Satisfaction Scale – Short Form (KPS) (James et al., 1985) is a brief (three-item) instrument designed to measure parents' satisfaction with themselves as a parent, satisfaction with the behaviour of their children and satisfaction with their relationship with their children. Parents respond on a seven-point scale ranging from 'extremely dissatisfied' to 'extremely satisfied'. The scale is reported to have good concurrent validity. Significant correlations have been found with the Kansas Marital Satisfaction Scale and the Rosenberg Self Esteem Scale (0.23 to 0.55) (James et al., 1985). Scores of 15 or less fall one SD below the mean and indicate low parental satisfaction (DeCato Murphy, Donohue, Azrin, Teichner, & Crum, 2003).

Parent defined goals. At Time 1 parents identified two personal parenting-related goals and two goals related to their child as their desired principal outcome from participation on the course. Goals were framed in clear and positive terms. Parents were invited to indicate how close they were to achieving their goal by marking on a line from zero to ten, where zero represented 'very far away from goal' and ten represents 'goal has been reached'. At Time 2, parents from both Treatment and Control groups rated their identified parent and child goals again on the same scale.

Procedure

At the information session for the programme, parents provided informed consent and completed the survey instruments. At the final training session the same measures were administered again. Parents attended the PPCP for 2.5 hours weekly for a period of eight sessions. During each session, one positive parenting and one positive discipline topic were introduced from the videos and were followed by discussion, role play/practice and weekly planning. The PPCP was adapted to suit the needs of the parents and children by using some of the videos from the PPEY containing children with Special Educational Needs (SEN). Facilitators aligned programme content to the goals and needs expressed by parents, with a focus on building on parents' strengths from their successes and through modelling an encouraging style of parenting. See Table 1 for a sample course plan.

Table 1. Parent Plus Children's Programme plan with indicated modifications.

Session	Positive discipline	Positive parenting
1	Solving children's problems	Dealing with special needs
2	Positive instruction	Importance of play and special time
3	Establishing routines	Best way to play ^a
4	Using consequences	The power of encouragement ^a
5	Supporting homework and using sanction system	Encouraging self-esteem
6	Assertive parenting/dealing with disrespect	Prevention plans
7	Solving children's problems	Problem solving with children
8	Special interest topics chosen by families	Review and sharing of information

^aVideo clips used from the Parents Plus Early Years Programme.

Modifications to the Parents Plus Children's Programme

Delivery of the programme was adapted using Mayer-Johnson Boardmaker, Version 6. Symbols were used to give a visual representation of material and reduce the language and literacy load for families. A picture stimulus was used for each question on the relevant PPCP topic (e.g. play skills). Each statement on the 'play skills' question sheet was numbered to correspond with a relevant Boardmaker picture. Play skills statements from the PPCP were read aloud and parents awarded themselves marks out of five in response to how well they facilitated their child's play skills, where zero represented not at all and five represented very well. Families with literacy difficulties were given one-to-one support by speech and language therapy students. Selected videos from the PPEY programme of children with special education needs were included to make material more relevant to the parents of the children in this study (see Table 1). The substituted video material was delivered in response to requests from parents for modelled examples that included children with disabilities as they found that children without an intellectual disability were too verbally able to be representative.

Results

A series of 2×2 mixed factorial ANOVAs were conducted on all of the measures of interest (with alpha initially set at 0.5). The Statistical Package SPSS 19 was used to analyse the data. Each analysis compared results between the Control group and the Treatment group (between subjects). The measures were repeated for Time 1 (T1) and Time 2 (T2) (within subject). Table 2 displays the means and standard deviations of the different measures, the main effects for Time and Group \times Time interaction effects and their associated *p*-values.

Generally, in a multiple comparison problem when the question is whether to recommend a new treatment, the overall decision is based on the benefits of the different aspects of the treatment. To control for Type 1 error, Benjamini and Hochberg (1995) recommend reducing alpha by multiplying it by $(n+1)/2n \times 0.05$, where *n* is the number of the treatment aspects (variables) being studied. In this study, therefore, alpha is set at $14/26 \times 0.05 = 0.027$.

In a mixed factorial study the within-subject outcomes (i.e. Time factor in this study) are the most interesting. As there are only two levels for the Time factor, a set of paired-samples *t*-tests were performed to verify the changes in measures, between Time 1 and Time 2, for the Treatment and for the Control group. The results for these paired-samples *t*-tests are shown in Table 3.

Table 2. Mean scores and Standard Deviations and ANOVA results across all measures.

Measure	Control group (n = 13)		Treatment group (n = 16)		Time effect		Cohen's d
	Time 1	Time 2	Time 1	Time 2	F (p)	F (p)	
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)			
SDQ total difficulties	15.62 (3.28)	16.15 (5.13)	20.56 (3.95)	16.44 (3.78)	5.09 (0.032) ^a	8.61 (0.007) ^b	0.07
Hyperactivity	4.46 (1.39)	4.85 (2.23)	6.31 (2.21)	4.94 (1.98)	1.47 (0.235)	4.65 (0.040) ^a	0.04
Conduct problems	3.77 (1.42)	3.85 (1.52)	3.81 (1.87)	2.56 (1.32)	4.34 (0.048) ^a	5.51 (0.027) ^a	0.95
Emotional symptoms	2.46 (2.15)	2.54 (2.79)	4.75 (2.38)	3.94 (1.81)	1.03 (0.318)	1.51 (0.230)	–
Peer problems	4.92 (1.12)	4.92 (2.10)	5.69 (2.12)	5.00 (1.75)	0.94 (0.341)	0.94 (0.341)	–
Pro-social behaviour	7.62 (1.71)	7.62 (1.71)	7.50 (1.71)	7.81 (1.83)	0.22 (0.646)	0.22 (0.646)	–
Parent Stress Index total	94.92 (16.11)	94.38 (23.85)	109.6 (33.54)	90.44 (28.24)	9.15 (0.005) ^b	8.18 (0.008) ^b	0.15
Parental distress	30.92 (6.97)	27.46 (9.47)	34.25 (9.04)	26.25 (10.92)	14.85 (0.001) ^b	2.33 (0.139)	–
Parent-child relationship difficulties	28.46 (6.59)	27.54 (7.95)	34.69 (10.28)	29.69 (9.95)	8.46 (0.007) ^b	4.01 (0.055)	–
Difficult child	35.54 (5.25)	39.38 (12.82)	40.63 (17.19)	34.50 (9.41)	0.226 (0.638)	4.32 (0.047) ^a	0.46
Kansas Parent Satisfaction total	12.85 (8.57)	12.62 (3.12)	9.81 (1.83)	16.06 (4.78)	4.20 (0.050)	4.87 (0.036) ^a	0.86
Child-related goal attainment	3.08 (1.98)	4.23 (2.13)	2.87 (2.78)	7.75 (1.57)	78.70 (0.000) ^c	29.98 (0.000) ^c	1.98
Personal goal attainment	3.38 (1.85)	4.15 (1.91)	3.00 (2.28)	8.13 (1.41)	61.13 (0.000) ^c	33.38 (0.000) ^b	2.50

^ap < 0.05.

^bp < 0.001.

^cp < 0.01.

Table 3. Paired-samples *t*-test for the types of difficulty with significant Time \times Group interaction effect ($\alpha = 0.027$).

Measure	Treatment Group (<i>n</i> = 16)		Control Group (<i>n</i> = 13)	
	<i>t</i>	<i>p</i>	<i>t</i>	<i>p</i>
SDQ total difficulties	3.509	0.003	-0.536	0.602
Conduct problems	3.024	0.009	-0.210	0.837
Parent Stress Index total	4.560	0.000	0.107	0.917
Parent distress	3.796	0.002	1.699	0.115
Parent-child relationship difficulties	3.350	0.004	0.706	0.494
Child-related goal attainment	-9.459	0.000	-2.843	0.015
Personal goal attainment	-8.289	0.000	-2.245	0.044

SDQ: Strengths and Difficulties Questionnaire.

Table 4. Independent-samples *t*-test on the change of measures over Time for Control group ($\alpha = 0.027$).

Measure	<i>t</i>	<i>p</i>
Child-related goal attainment	5.48	0.000
Personal goal attainment	5.78	0.000

Where the Time factor was significant for both the Treatment and Control groups, independent-samples *t*-test were performed to identify the difference between the observed changes over time for Control and Treatment groups. The results for independent-samples *t*-tests are shown in Table 4.

Strengths and Difficulties Questionnaire (SDQ)

As can be seen from Table 2, there was a significant Time \times Group interaction effect observed for the SDQ total difficulties ($F(1, 27) = 8.61, p = 0.007$) and the Conduct problems subscales ($F(1, 27) = 5.51, p = 0.027$). The interaction effect was not significant for Hyperactivity ($F(1, 27) = 4.65, p = 0.040$), Emotional problems ($F(1, 27) = 1.51, p = 0.23$), Peer problems ($F(1, 27) = 0.94, p = 0.34$) and Pro-social behaviour ($F(1, 27) = 0.22, p = 0.646$).

The Time effect was not significant for the SDQ Total Difficulties ($F(1, 27) = 5.09, p < 0.05$) and Conduct problems ($F(1, 27) = 4.34, p < 0.05$). However, further analysis revealed that the Time factor was significant for the Treatment group only and not for the Control group on both the SDQ total difficulties ($t(15) = 3.51, p = 0.003$) and the Conduct problems ($t(15) = 3.02, p = 0.009$) subscales as shown in Table 3. Significant results are plotted on Figure 1(a) and (b).

Parent Stress Index (PSI)

A significant interaction effect was observed on the PSI total score ($F(1, 27) = 8.18, p < 0.01$). A significant main effect for Time on the PSI Total was also observed ($F(1, 27) = 9.15, p < 0.01$). As shown in Table 3, the Time factor was significant for the PSI Total score for the Treatment group ($t(15) = 4.56, p < 0.001$) but not for the Control group ($t(15) = 0.107, p = 0.917$).

The effect of the Time factor was significant for both Parent Distress ($F(1, 27) = 14.85, p = 0.001$) and Parent-child relationship difficulties ($F(1, 27) = 8.46, p < 0.01$), while the interaction effect was not significant. Further analysis shown in Table 3 reveals that the Time effect was significant for Parent distress ($t(15) = 3.796, p = 0.002$) and Parent-child relationship difficulties ($t(15) = 3.35, p = 0.004$) for the Treatment group only and not for the Control group. There was no significant interaction effect ($F(1, 27) = 4.32, p = 0.047$) or Time effect ($F(1, 27) = 0.226, p = 0.638$) for the Difficult child measure. Significant results are plotted on Figure 2(a), (b) and (c).

Kansas Parent Satisfaction Scale (KPS)

The interaction effect was not significant for the KPS Total score ($F(1, 27) = 4.87, p = 0.036$) and the main effect of the Time factor was not significant ($F(1, 27) = 4.20, p = 0.05$).

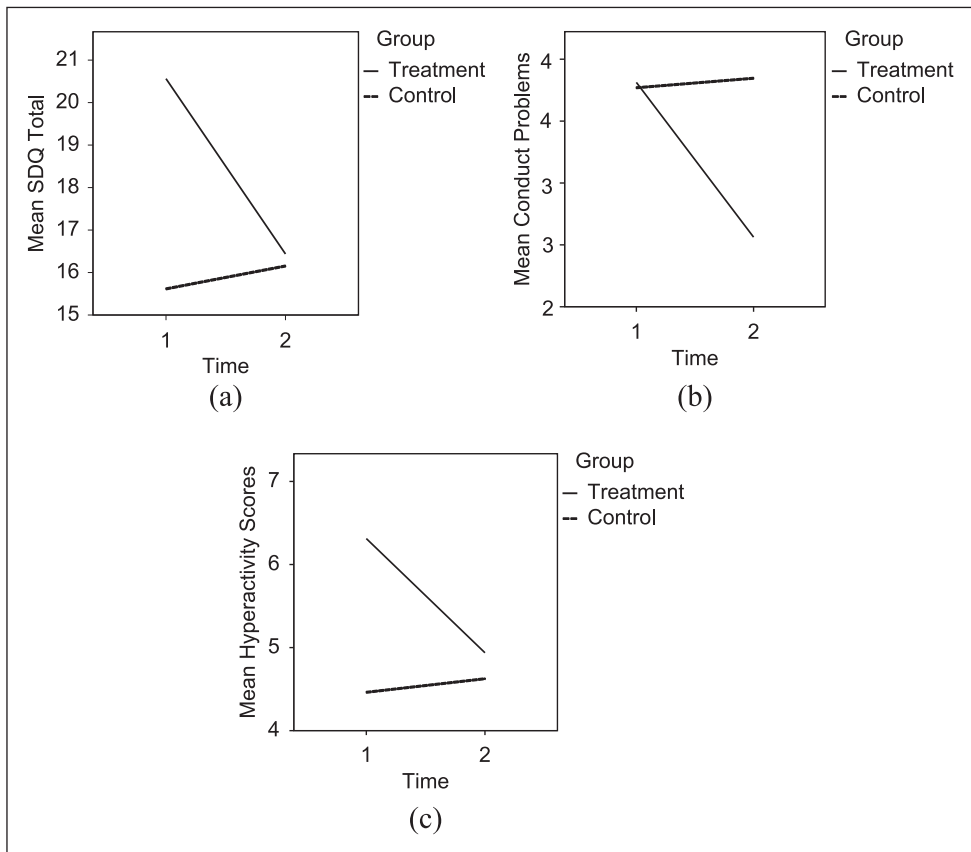


Figure 1. (a) SDQ total score; (b) Conduct score; and (c) Hyperactivity score for Treatment ($\alpha = 0.05$) and Control groups pre- and post-intervention. SDQ: Strengths and Difficulties Questionnaire.

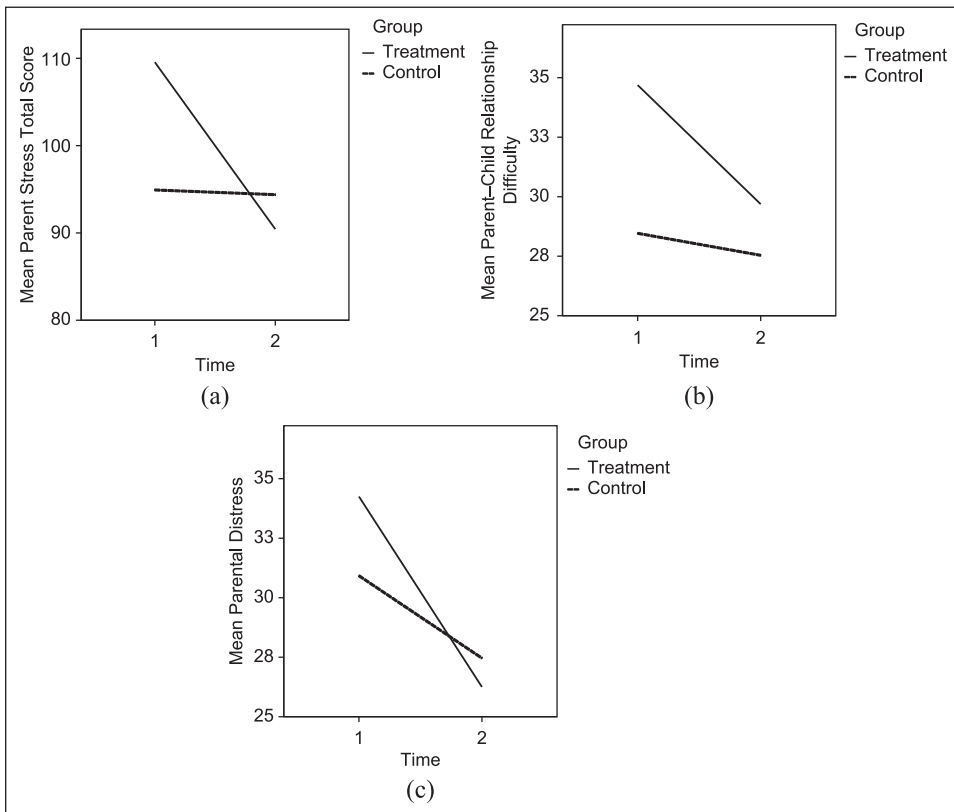


Figure 2. Parent Stress Index (a) Total score; (b) Parent-child interaction difficulties; (c) Parent distress for Treatment and Control groups pre- and post-intervention.

Parent defined child-related goals

As can be seen in Table 2, there was a significant Time \times Group interaction effect observed for child-related goals ($F(1, 27) = 29.98, p < 0.001$). There was also a significant Time effect on child-related goals. The paired-samples t -test result in Table 3 shows a significant Time effect for both Control ($t(12) = -2.84, p = 0.015$) and Treatment groups ($t(15) = -9.46, p < 0.001$). However, further inspection of mean scores using an independent samples t -test (see Table 4) reveals a significant difference between the mean effect of the Time on the Control and Treatment groups ($t(27) = 5.48, p < 0.001$). Figure 3 presents a summary of the results which shows that the difference between Time 1 and Time 2 is significantly greater for the Treatment group.

Parent personal goal

As can be seen in Table 2, there was a significant Time \times Group interaction effect observed for Parent personal goal ($F(1, 27) = 33.38, p < 0.001$). The main effect of the Time factor was also significant ($F(1, 27) = 61.13, p < 0.001$). The paired-samples t -test presented in Table 3 shows a significant Time effect for both Control ($t(12) = -2.25, p = 0.044$) and Treatment groups ($t(12) = 8.29, p = 0.000$). However, the result of further inspection for mean scores using an independent

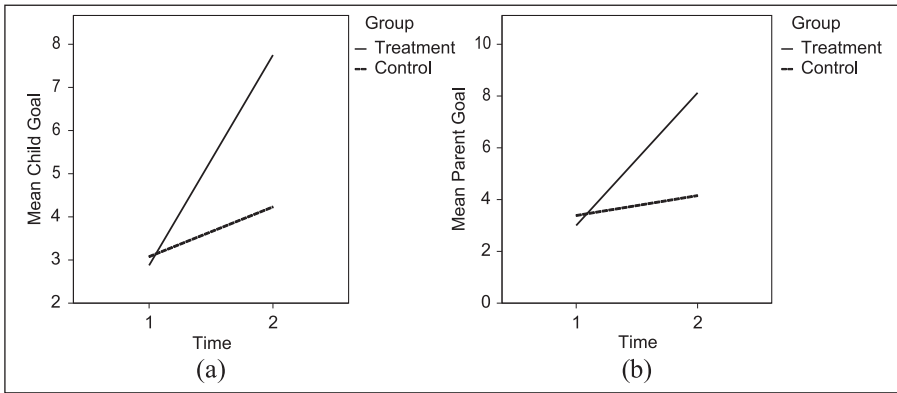


Figure 3. (a) Child-related goal attainment; (b) Parent personal goal attainment for Treatment and Control groups pre- and post-intervention.

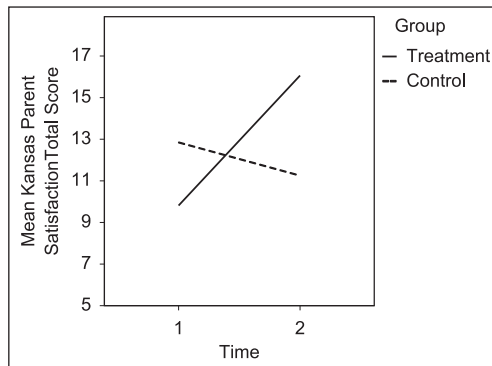


Figure 4. Kansas Parent Satisfaction (alpha = 0.05) for Treatment and Control groups pre- and post-intervention.

samples *t*-test presented in Table 4 reveals a significant difference between the mean effect of the Time for the Control and Treatment groups ($t(27) = 5.48, p < 0.001$). Figure 4 presents a summary of the scores and shows that the difference between scores on Time 1 and Time 2 is significantly greater for the Treatment group.

It is worth mentioning that if an alpha of 0.05 was applied for all tests performed as per Coughlin et al. (2009) and Kilroy et al. (2011), the interaction effects for Hyperactivity ($F(1, 27) = 4.65, p = 0.040$), Difficult child ($F(1, 27) = 4.32, p = 0.047$) and the KPS total ($F(1, 27) = 4.87, p = 0.036$) would also be significant.

Further analysis using paired-samples *t*-tests, reveals that while the Time effect was not significant for all participants on Hyperactivity ($F(1, 27) = 1.47, p = 0.235$), Difficult child ($F(1, 27) = 0.226, p = 0.638$) and KPS total ($F(1, 27) = 4.20, p = 0.050$), Table 5 shows that there was a significant difference in the scores of the Treatment group only, from Time 1 to Time 2 for Hyperactivity ($t(15) = 2.711, p = 0.016$) (see Figure 1(c)) and KPS total ($t(15) = -5.243, p < 0.001$) (see Figure 4) but not for the Control group (See Table 5). Given the variation in mean scores between Treatment and Control groups across time as shown in Table 2, it is reasonable to expect this result.

Table 5. Paired-samples *t*-test for the types of difficulty with significant Time \times Group interaction effect ($\alpha = 0.05$).

Measure	Treatment Group (<i>n</i> = 16)		Control Group (<i>n</i> = 13)	
	<i>t</i>	<i>p</i>	<i>t</i>	<i>p</i>
Hyperactivity	2.711	0.016	-0.587	0.568
Kansas Parent Satisfaction total	-5.243	0.000	0.079	0.938

It is clear that significant Group \times Time effects occurred for SDQ Total difficulties, Hyperactivity and Conduct problems scales; the PSI total scale; Parent-child interaction difficulties and Parent distress; Kansas Parent Satisfaction and both the Child-related and Personal goal attainment scales. These results indicate that compared with the Control group, the Treatment group showed significant improvement on all of these variables from Time 1 to Time 2. Results are presented in Figures 1, 2, 3 and 4.

Discussion

The aim of the current study was to evaluate the effectiveness of the PPCP for parents of children with a range of behavioural and developmental difficulties, between the ages of six and 12, in a community setting. In particular the study sought to explore the utility of the PPCP in meeting the needs of parents with an intellectual disability and/or parents of a child with an intellectual disability. Initial results suggest that the modified PPCP is an effective treatment for this population. Participants in the Treatment group showed significant improvements in child problem behaviour and decreases in parent stress scores, compared to the Control group following intervention. It is worth noting that this study took place in the real world setting of a special school for pupils with mild generalised disabilities and that no exclusionary criteria were applied to participating parents. This suggests that the PPCP, with some minor population-appropriate adaptations, could be suitable as a preventative and supportive intervention for the parents of a majority of children with mild generalised disability. Importantly, significant positive changes were observed for all participating parents in the Treatment group, including two parents with a mild intellectual disability.

Significant improvements were observed in child behaviour (SDQ measures), level of parental stress (PSI measures), Parent Satisfaction (KPS measure) and parent and child-related Goal attainment following the programme. Compared to the Control group, parents in the Treatment group achieved a significant level of improvement on the SDQ Hyperactivity and Conduct problems scales. Notably, pre-intervention scores were in the borderline range for Hyperactivity and Conduct problems. A similar improvement in scores was observed in the SDQ total problems score. Post-intervention, the Treatment group scores reduced to within the low need range, while at the same time scores for the Control group increased between Time 1 and Time 2. It is not surprising to find that without intervention, children in this population show a trend towards increases in behavioural problems. The prevalence of behavioural problems among children with intellectual disabilities has been well documented (Emerson, 2003; Mazzucchelli & Sanders, 2011).

Parent stress scores as measured on the PSI scale also responded to the PPCP training with a significant decrease in scores from pre- to post-treatment for the Treatment group. A small but

non-significant decrease in stress score was observed on the Control group PSI measure. Although these results are encouraging, data in this field are often inconsistent, most likely due to methodological issues.

More adequate tools are needed for assessing the stress experiences of parents of children with an intellectual disability, as recommended by Zaidman-Zait et al. (2010).

For both Treatment group and Control group measurements on the Kansas Parent Satisfaction Scale for satisfaction as a parent fell within the low range pre-intervention. This finding is to some extent predictable, corresponding with numerous previous studies reporting increased parenting-related stress for parents raising a child with an intellectual disability (e.g. Eisenhower et al., 2005; Oelofsen & Richardson, 2006). Significantly, scores for the Treatment group were increased post-intervention to the extent that they were no longer within the low parental satisfaction range. However, scores for the Control group showed a slight decline in satisfaction and remained within the low satisfaction range. These results add to the existing body of compelling evidence demonstrating the great need of these parents and the substantial low cost rewards to be gained by providing a community-based parenting intervention for parents of children with intellectual disability.

An interesting result emerged from measures on Goal attainment for both parent and child-related goals. Both the Treatment group and Control group were observed to significantly increase their scores on goal attainment form pre- to post-intervention. Although the increase in scores was markedly larger for the Treatment group, it is noteworthy that the Control group also made significant changes without intervention. One possible explanation is that the act of considering personal and child-related goals may have focussed parents on their own goal achievement and positive strategies for achieving their goal, resulting in an improved outcome. Further investigation is recommended.

The relatively low dropout rate for participating parents (3.4%) is also of interest. This result may have been influenced by the absence of opportunities for parents and guardians of children who have special needs to meet and share experiences. Children who attend special needs schools are provided with school transport and it is likely that their families seldom have an opportunity to meet, share experiences and support one another. Male participants in the current study (27%) represented a sample size that was proportionately not large enough to consider as a separate group or to explore comparative outcomes where both parents attended parent training. These are questions worthy of investigation in future larger studies.

The lower participation rates of fathers in the current study highlights the need to consider ways of supporting and encouraging father attendance. In a previous study of the Parents Plus Programme, targeted at parents of older children, the attendance rate of fathers was 43% (Behan et al., 2001). Factors potentially influencing father attendance include the tendency to associate childcare with mothers as the primary carers of younger children. Daytime scheduling of parent training courses may also be a factor.

Perhaps the most important finding in the current study is that the PPCP (with some minor adaptations) has significant utility for providing parent training to parents with an intellectual disability and for parents of children with a mild to moderate intellectual disability. Pessimism regarding the ability of parents with intellectual disability to parent has been well documented, with a noted tendency to regard parent behaviours as permanent and not amenable to remediation (see Feldman, 1994; Tymchuk, 1990; Tymchuk & Feldman, 1991). However, as reported by Wade, Llewellyn, and Matthews (2011), access to social support has an important and significant influence on parenting practices, resulting in increased child wellbeing. Results from the current study provide support for the suggested importance and effectiveness of parent training with this group

of parents. However, given the small number of parents with an intellectual disability in the current study, further research is indicated most likely due to methodological issues.

The current findings are at odds with the findings of Coughlin et al. (2009), who found no significant differences on related measures following a PPCP intervention with children with developmental problems. It seems likely that adaptations used in delivery of the current study to address verbal and literacy difficulties may be responsible for the marked difference in results, although such an interpretation is tentative given the limitations of the current study. The use of selected video examples from the PPEY programme may also have provided more developmentally appropriate material to these parents. Although Coughlin et al. (2009) provided one or two individual sessions to assist parents apply the ideas of the PPCP at home, the one-to-one support provided by trainee speech and language therapists during training may have been a more effective instrument and warrants further enquiry.

Limitations

These preliminary findings, while promising, must be considered in the context of some limitations. First, although cases were randomly assigned, couples or friends were facilitated to attend together and matched where possible with a similar grouping in the alternative group. While this may have led to a bias in samples, tests of group homogeneity were non-significant. A second limitation was the small sample size, as this does compromise the power of statistical tests to detect real intergroup differences on dependent variables; consequently real treatment changes may have gone undetected. This impedes the generalisability of the current study, although it is worth noting that small sample sizes are not unusual for this type of study (e.g. Chadwick, Momcilovic, Rossiter, Stumbles, & Taylor, 2001; Prieto-Bayard & Baker, 1986; Quinn et al., 2007). Another limitation is the absence of a follow-up measurement to establish if improvements in measures were retained over time.

Conclusions

It is well established that children with developmental disabilities are at substantially greater risk of developing emotional and behavioural problems compared to their typically developing peers, and that parenting these children successfully has added challenges and stresses. While the quality of parenting that children receive has a significant effect on their development, empirically supported parenting programmes reach relatively few parents. The requirement for a parent training intervention is evident from current initial findings. These show a significant reduction in clinical levels of child behavioural problems, decreased parent stress and increased parent satisfaction for parents with and without an intellectual disability. These findings are further highlighted by the concurrent increases in measures of child behavioural problems, maintenance of elevated stress levels and reductions in parent satisfaction within the Control group. It is worth noting that parents in the current study requested video modelled examples containing children with disabilities as they found that children without an intellectual disability were too verbally able as exemplars. A population-based intervention of an empirically supported parenting programme can have a positive impact on parents, both with and without an intellectual disability, who are parenting a child with an intellectual disability. This is the first trial of the PPCP to be conducted with parents of children with an intellectual disability. It therefore makes an important contribution to knowledge regarding the application of this and other parent training programmes to this population. Further investigation of PPCP among this population is indicated.

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