Parents Plus systemic, solution-focused parent training programs: Description, review of the evidence-base, and meta-analysis.

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ABSTRACT

Parents Plus (PP) programs are systemic, solution-focused, group-based interventions. They are designed as both prevention interventions and as treatment programs for families with clinically significant child-focused problems such as disruptive behavior disorders, emotional disorders, in young people with and without developmental disabilities. PP programs have been developed for families of preschoolers, preadolescent children and teenagers, as well as for separated or divorced families. Seventeen evaluation studies involving over 1000 families have shown that PP programs have a significant impact on child behavior problems, goal attainment, and parental satisfaction and stress. The effect size of 0.58 from a meta-analysis of 10 controlled studies for child behavior problems compares favorably with those of meta-analyses of other well established parent training programs with large evidence bases. PP programs yielded significant (p<.001) effect sizes for goal attainment (d = 1.51), parental satisfaction (d = .78), and parental stress reduction (d = 0.54). PP programs may be facilitated by trained front-line mental health and educational professionals.
INTRODUCTION

Parents Plus (PP) programs are systemic, solution-focused, group-based interventions designed as both treatment programs for families with clinically significant child-focused problems, and as prevention programs. They have been designed to equip families with the skills for dealing mainly with disruptive behavior disorders, but also with emotional disorders. International epidemiological surveys show that such childhood disorders occur in 10-20% of young people (Rahman & Kieling, 2015).

PP programs help families develop (1) positive family relationships, and (2) a constructive approach to discipline issues and conflict management. The current suite of developmentally staged programs evolved from the original PP program (PPP, Sharry & Fitzpatrick, 1997) which was designed for families of children aged 4-11 years. In light of evidence for the effectiveness of PPP (Behan et al., 2001; Quinn, 2005; Quinn et al., 2006, 2007), clinical feedback on ways it could be refined, and the demand for similar programs for preschool children and adolescents, three versions of the intervention were developed. The current suite includes the Parents Plus Early Years Program (PP-EYP, Sharry, Hampson, & Fanning, 2013) for families of young children aged 1-6 years; the Parents Plus Children’s Program (PP-CP, Sharry & Fitzpatrick, 2008) for families of children aged 6-11 years; and the Parents Plus Adolescents Program (PP-AP, Sharry & Fitzpatrick, 2012) for families of teenagers aged 11-16 years. For families of adolescents with emotional disorders, the Working Things Out program (WTO, Brosnan, Beattie, Fitzpatrick, & Sharry, 2011) been specifically designed for teenagers to attend, while their parents concurrently attend PP-AP. For families where separation or divorce has occurred the Parents Plus – Parenting when Separated program (PP-PWS, Sharry, Murphy, & Keating, 2013) has been developed. An outline of these programs is given in Table 1.
All programs include a facilitators manual and printed psychoeducational materials for clients. PPP, PP-EYP, PP-CP and PP-AP each contain a DVD of vignettes illustrating skills for developing positive parent-child relationships and dealing with parent-child discipline issues in a constructive way. The topics covered in these DVDs were identified in collaboration with families attending child and adolescent mental health service (CAMHS) clinics in Ireland. The WTO DVD contains short movies with illustrated graphics, animation and music based on personal stories of adolescents with depression or anxiety disorders who attended CAMHS clinics to deal with a range of problems including loss, trauma, bullying, self-harm, anger management and comorbid neurodevelopmental disorders such as ADHD.

All of these programs involve attending 6-9 small group sessions with 8-12 participants. Group sessions last about 2 hours and programs span 2-3 months. In group sessions skills are learned through psychoeducation, viewing and discussing video vignettes, role-play, practice, and constructive feedback. For PPP, PP-EYP, PP-CP and PP-AP, in each session both a positive parent-child relationship skill and a discipline skill is covered. In PP-PWS in addition to parent-child relationship-building and discipline skills, participants learn skills for co-operative co-parenting, conflict management within the co-parenting relationship, and self-care. In WTO the focus is on adolescents developing self-regulation and relationship building skills. In all of these programs, typically each group session begins with a review of progress since the previous session, and closes with an invitation for participants to practice skills learned during the session in the coming week as homework. Following solution-focused principles, the groups are centered on client goals and there is an emphasis on clients’ strengths and resilience, and on creatively using skills in a solution-focused way.

When these programs are offered in clinical settings, such as CAMHS clinics,
additional ‘individual’ sessions are offered to clients which they may attend conjointly with members of their families. In these sessions clients are helped to implement skills learned in group sessions within their families to achieve specific treatment goals. In PP-CP, PP-AP and WTO, usually two sessions for individual clients and their families are offered. Where parents have attended PP-AP and their teenagers have concurrently attended WTO, these conjoint family sessions provide a forum for young people and their parents to collaboratively use the communication and negotiation skills they have learned in group sessions to address specific issues and areas of conflict. In PP-EYP five sessions for individual clients and members of their families are routinely offered. During some of these sessions child-directed and parent-directed parent-child interaction is video-recorded. Parents and therapists review these videos collaboratively, and parents are given strengths-focused feedback to help them refine their skills for building strong parent-child relationships and directing their children in an assertive and constructive way.

PP programs may be facilitated by a range of professionals who undergo a two-day training program. In clinical settings they have been facilitated by professionals from the disciples of social work, psychology, psychiatry, speech and language therapy, occupational therapy and nursing. In community settings they have been facilitated by teachers and child care workers.

THEORETICAL BASIS FOR PARENTS PLUS PROGRAMS
PP programs have been informed by solution-focused systemic therapy, social learning theory, parent training, cognitive behavior therapy, conflict management and negotiation theory, and developmental psychology. The overarching practice framework is systemic and solution-focused. In line with the central assumption of systemic therapy, family relationships are viewed as a major determinant of both positive and negative behavior
and experiences of individual family members (Sexton & Lebow, 2015). As solution-focused interventions, all PP programs start by collaboratively creating client-centered goals. Progress towards these goals is made by building on existing skills, resources and strengths thus enhancing client resilience (Franklin et al., 2011). A solution-focused groupwork model is employed by facilitators which encourages group members to support one another and to share ideas and strategies thus building on group knowledge (Sharry, 2007). In addition, PP facilitators follow a collaborative quality protocol which requires that systematic feedback is collected from clients after each session (e.g. about what worked and what they want more of) and adaptations to program content are made accordingly. In this way, a collaborative therapeutic process is created and parents are empowered to input into the leadership of the program to ensure it meets their goals.

Many of the skills addressed in PP programs are drawn from the parent training (Briesmeister & Schaefer, 2007), cognitive behavior therapy (Dattilio, 2010) and conflict management and negotiation (Fisher et al., 1981) literature. The collaborative video review process included in the PP-EYP is strongly influenced by the Marte Meo method (Aarts, 2000). Social learning theory provides a framework for conceptualizing the development of both positive and negative habits and new skills (Bandura, 1976, 1985). The programs are informed by developmental psychology, particularly the literature on social and emotional development (Lamb & Lerner, 2015).

**REVIEW OF THE EVIDENCE-BASE FOR PARENTS PLUS PROGRAMS**

Between 2001 and 2015, there have been 17 evaluation studies of PP programs. All have been conducted in Ireland by program developers and their colleagues in Irish health, social service and educational agencies, and universities. In all studies, program fidelity has been maintained by requiring facilitators to follow detailed guidelines in program
manuals, complete integrity checklists after each session, and attend pre-program training and regular supervision with program developers. Study characteristics and a narrative account of key findings are given in Table 2. Effect-sizes based on indices of child behavior problems, therapeutic goal attainment, parental satisfaction and stress are given in Tables 3 - 6.

**Effect size methodology**

For each variable in each study where sufficient data were available, three effect sizes were calculated. The first was an effect size reflecting change in the PP treatment group from pre-treatment (Time 1) to post-treatment (Time 2), referred to as \( d_{T1-T2} \). The second was an effect size reflecting change in the PP treatment group from pre-treatment (Time 1) to follow-up (Time 3), referred to as \( d_{T1-T3} \). The third was an effect size reflecting the difference between the PP treatment and control group after treatment (Time 2), which took account of scores of both groups before treatment (Time 1), referred to as \( d_{PPvC} \). The first two of these effect sizes (\( d_{T1-T2} \) and \( d_{T1-T3} \)) were computed using the Campbell Collaboration calculator (Wilson, n.d.). These are Cohen’s d standardized mean difference effect sizes. The third effect size \( d_{PPvC} \) was computed using Lenhard and Lenhard’s calculator (2015) and Klauer’s (2001) method. All effect sizes were calculated using means and standard deviations in papers listed in Tables 3-6. Mean effect sizes and confidence intervals given in bold in Tables 3-6 are unweighted averages. Following Cohen’s (1977) interpretation guidelines, effect sizes of .2 were considered small, .5 medium, and .8 large.

Child behavior problem effect sizes are based on the total difficulties scale of the parent-report version of the Strengths and Difficulties Questionnaire (SDQ, Goodman, 2001). The total difficulties scale contains 20 items from SDQ conduct problems,
hyperactivity, emotional problems and peer problems subscales. Goal attainment effect sizes are based on the Goals Scale (GS, Sharry & Fitzpatrick, 1998) where parents list up to three child-focused and three adult-focused goals and indicate the extent to which they have achieved each of these using a 10-point response format. Parental satisfaction effect sizes are based on the three-item Kansas Parental Satisfaction Scale (KPS, James et al., 1985). Parental stress effect sizes are based on total scores from either the 18-item Parenting Stress Scale (PSS, Berry & Jones, 1995) or the 36-item short form of the Parenting Stress Index (PSI, Abidin, 1995). The short form of the PSI includes items from the parent–child dysfunctional interactions, parent distress, and difficult child subscales.

**Characteristics of Parents Plus evaluation studies**

From Table 2 it may be seen that in 17 studies 919 parents engaged in PP training and 440 were in waiting list control (WLC) or treatment as usual (TAU) control groups. In two instances, where the same participants were in two studies, these cases have not been ‘double counted’. The 22 treated cases in the Quinn et al. (2007) study were included in the Quinn et al. (2006) study as the ‘developmental disability’ group. The 212 cases in the Gerber et al. (2015) study included the 89 cases in the seven-week PP-EYP treatment group in the Lonergan et al. (2015) study.

The 17 studies were carried out in a range of settings including child and adolescent mental health services (CAMHS), early intervention team (EIT) services for developmental disabilities, preschools, schools, special schools for children with intellectual disability, and community clinics.

Families of children ranging in age from 2 -17 years participated in these studies. Children’s main presenting problems were behavior problems, disruptive behavior disorders (DBD) including oppositional defiant disorder, conduct disorder and attention
deficit hyperactivity disorder), emotional disorders ((ED) including anxiety and depressive disorders), and developmental disabilities ((DD) including intellectual disability, autism spectrum disorder, and language disorder). In all studies the majority of clients in PP groups were mothers. In less than an third of cases, fathers also attended.

Methodological robustness and limitations of Parents Plus evaluation studies

From Table 2 it may be seen that the 17 studies varied in design robustness. There were six randomized controlled trials (RCT), six non-randomized controlled trials ((NRCT) in which sequential block design were used for allocating cases to groups), and five uncontrolled single group outcome studies. In RCTs and NRCTs, cases in control groups received either treatment as usual (TAU) or were place on a waiting list (WLC). In studies conducted in CAMHS settings, TAU typically involved treatment by a multidisciplinary mental health team. All of the studies except Hayes et al. (2013) reported detailed pre- and post-treatment assessment data. In 11 of the 17 studies, follow-up assessments were conducted, and follow-up periods ranged from five months to two years. Attrition occurred in all studies and dropout rates before post-treatment assessment ranged from 2-33%. In two studies groups were not matched at baseline on SDQ total difficulties scores (Hand, McDonnell et al., 2013; Hand, Ni Raghallaigh et al., 2013). In both instances the mean of the treatment group was significantly higher than that of the control group at pre-treatment, thus potentially biasing the results at post-treatment in favor of the control group. To address this problem pre-treatment scores were taken into account in computing between-group post-treatment effect sizes, The Keating et al. (2015) study was the only one in which an intent-to-treat analysis was reported. In the remaining investigations study-completer analyses were conducted, and this may have biased results at post-treatment in favor of the treatment group. Also results of analyses of study-completer cases may not
have been representative of results from all cases assessed at pre-treatment.

Of the 12 controlled studies only 4 had sufficient cases to be adequately powered to detect significant post-treatment differences between treatment and control groups on dependent variables such as the SDQ total difficulties scale (Hayes et al., 2013; Keating et al., 2015; Lonergan et al., 2015; Nitsch, 2015). A power analyses was conducted using G*Power (http://wwwpsychouni-duesseldorfaap/gpower3/download-and-register). This showed that a sample size of between 114 and 278 would be required in order for a one-tailed t-test with a p value of .05 and a power value of .80, to be able to detect an effect size between 0.3 and 0.47 on a dependent variable at post-treatment. The effect sizes of 0.3 and 0.47 used in this power analysis are from meta-analyses of the Incredible Years (Menting et al., 2013) and Triple P (Sanders et al., 2014) parent training programs respectively. Both of these are well established parent training programs with large evidence bases.

**Evaluation studies of the original Parents Plus Program**

Three studies of the original PPP have been conducted (Behan et al., 2001; Quinn, 2005; Quinn et al., 2006, 2007). Participants in all three studies were attending clinical services and had been diagnosed with DBD or DD. In an RCT of families of children with DBD attending CAMHS clinics at two Dublin university hospitals, Behan et al. (2001) found that compared with the TAU control group, after treatment the PPP group showed a near-significant trend (p<.09) for greater improvement on a range of measures with gains maintained at follow-up. In an NRCT of families of children with DD and comorbid DBD attending rural EIT clinics, Quinn and colleagues found that compared with the TAU control group, after treatment the PPP group showed significantly greater improvement on a range of measures with gains maintained at follow-up (Quinn, 2005; Quinn et al., 2007).
In an a further NRCT comparing families of children with DD and comorbid DBD attending rural EIT clinics, and families of children with DBD but without DD attending rural CAMHS, Quinn and colleagues found that both groups showed significant improvement after treatment on a range of measures with gains maintained at follow-up (Quinn, 2005; Quinn et al., 2006).

From Tables 3-6 it may be seen that on indices of child behavior problems, goal attainment, parental satisfaction and parental stress $d_{T1-T2}$, $d_{T1-T3}$, and $d_{PPvC}$ effect sizes in the three studies of the original PPP ranged from small (0.18) to large (2.88). Greatest effect sizes occurred for goal attainment (see Table 4), with the mean $d_{T1-T2}$, and $d_{T1-T3}$ effect sizes being 1.67 and 1.93 respectively. In the single study where there were sufficient goal attainment data to compute a $d_{PPvC}$ effect size, this was between medium and large (0.74). Smallest effect sizes occurred for parental stress (see Table 6). These fell within the small to medium range. The mean $d_{T1-T2}$, $d_{T1-T3}$, and $d_{PPvC}$ effect sizes for parental stress were 0.45, 0.47 and 0.25 respectively. The magnitude of effect sizes for parental satisfaction and child behavior problems fell between those of goal attainment and parental stress. Mean effect sizes for parental satisfaction were large (see Table 5). The mean $d_{T1-T2}$, and $d_{T1-T3}$ effect sizes for parental satisfaction were 0.98 and 0.89 respectively. In the single study where there were sufficient parental satisfaction data to compute a $d_{PPvC}$ effect size, this was between medium and large (0.67). For child behavior problems, mean effect sizes were moderate to large (see Table 3). The mean $d_{T1-T2}$, $d_{T1-T3}$, and $d_{PPvC}$ effect sizes for child behavior problems were 0.49, 0.91 and 0.62 respectively.

**Evaluation studies of the Parents Plus Early Years Program**

Six evaluation studies of PP-EYP have been conducted (Gerber et al., 2015; Griffin et al., 2006, 2010; Hayes et al., 2013; Kilroy et al., 2011; Lonergan et al., 2015; Sharry et al.,
Two have been run in clinical settings to treat children diagnosed with DBD and DD (Griffin et al., 2006, 2010; Sharry et al., 2005), and four were conducted as prevention programs in community settings where more than half of the families had children without clinically significant behavior problems (Gerber et al., 2015; Hayes et al., 2013; Kilroy et al., 2011; Lonergan et al., 2015). In an uncontrolled single group pilot study of families of children with DBD and DD attending a Dublin university hospital CAMHS clinic, Sharry et al. (2005) found that a 12 session clinical version of PP-EYP led to significant improvements on a range of variables. This provided the impetus for conducting a larger controlled trial in the same setting with similar cases. Griffin et al., (2006) obtained similar positive results in this NRCT as were found in the pilot study. In qualitative interviews of participants in this study, Griffin et al. (2010) found that 47% of parents highlighted the value of the PP-EYP group setting as both a source of support and a forum for skills development.

In a small uncontrolled single group pilot study of families of non-referred children in the community, Kilroy et al. (2011) found that a six-session prevention version of PP-EYP led to significant improvements on a range of variables, and greatest improvement occurred for a subgroup of cases with particularly severe behavior problems on the SDQ. These positive results justified conducting a large scale community-based prevention study involving over 200 families. In this single group outcome study, Gerber et al. (2015) obtained similar positive results to those found in the Kilroy et al. (2011) pilot study. Lonergan et al., (2015) compared the outcome for a subgroup of cases from the Gerber et al. (2015) study, with that of a group of matched cases who attended a half-day workshop based on material from PP-EYP. They found that both programs led to significant improvements on a range of variables, but that the seven-week prevention version of PP-EYP led to greater improvements than the half-day workshop. In a large two-year multisite
community-wide RCT, Hayes et al. (2013) included the seven-week prevention version of PP-EYP as one element in a multicomponent intervention for families of preschool children. They found that parents who attended more PP-EYP sessions created better home learning environments by engaging their children in more learning activities. Unfortunately, pre- and post-treatment data for the PP-EYP group and TAU control group were not reported in a way to permit determining the comparative effectiveness of PP-EYP in this study or to compute effect sizes.

From Tables 3-6 it may be seen that on indices of child behavior problems, goal attainment, parental satisfaction and parental stress $d_{T1-T2}$, $d_{T1-T3}$, and $d_{PPvC}$ effect sizes in 5 studies of all versions of the PP-EYP ranged from small (0.13) to large (2.63). Greatest effect sizes occurred for goal attainment (see Table 4), where the mean $d_{T1-T2}$ effect size was 2.40. In the single study where there were sufficient goal attainment data to compute a $d_{PPvC}$ effect size, this was also large (1.56). There were insufficient goal attainment data to calculate a $d_{T1-T3}$ effect size. For child behavior problems, mean effect sizes ranged from small to large (see Table 3). The mean $d_{T1-T2}$, $d_{T1-T3}$, and $d_{PPvC}$ effect sizes for child behavior problems were 0.55, 0.87 and 0.41 respectively. For parental stress, mean effect sizes ranged from small to large (see Table 6). The mean $d_{T1-T2}$, $d_{T1-T3}$, and $d_{PPvC}$ effect sizes for parental stress were 0.59, 1.02 and 0.41 respectively. The mean $d_{T1-T2}$ effect size for parental satisfaction was medium to large (0.64, see Table 5). In the single study where there were sufficient parental satisfaction data to compute a $d_{PPvC}$ effect size, this was between small and medium (0.32). There were insufficient parental satisfaction data to calculate a $d_{T1-T3}$ effect size.

**Evaluation studies of the Parents Plus Children’s Program**

There have been three studies of PP-CP, one of which was conducted in a CAMHS setting.
(Coughlan et al., 2009a, 2009b); another was run in a school for children with intellectual disability (Hand, Ní Raghallaigh et al., 2013); and a third was carried out as a prevention intervention in regular primary schools in the community (Hand, McDonnell et al., 2013). In an NRCT of families of children with DBD and DD attending CAMHS clinics at two Dublin university hospitals, Coughlan et al. (2009a) found that compared with the TAU control group, after treatment the PP-CP group showed significantly greater improvement on a range of measures, with gains maintained at follow-up. In qualitative interviews parents said group support was the main benefit of participating in PP-CP, and the most useful skills covered were advice on how to ‘tune in’ to their children, play with them, use planned sanctions to discipline them, and stepping back from conflict situations (Coughlan, 2009b).

In an RCT of families of children with DD attending a school for children with intellectual disability, Hand, Ní Raghallaigh et al. (2013) found that compared with the WLC group, after treatment the PP-CP group showed significantly greater improvement on a range of measures. In this study PP-CP was adapted to address specific concerns of parents of children with DD, and also for parents with mild intellectual disability. In an RCT of families of non-referred children attending regular primary schools in the community, Hand, McDonnell et al. (2013) found that compared with the WLC group, after treatment the PP-CP group showed significantly greater improvement on a range of measures and these improvements were maintained at follow-up.

From Tables 3-6 it may be seen that on indices of child behavior problems, goal attainment, parental satisfaction and parental stress $d_{T1-T2}$, $d_{T1-T3}$, and $d_{PPvC}$ effect sizes in 3 studies of PP-CP ranged from small (0.25) to large (3.01). Greatest effect sizes occurred for goal attainment (see Table 4). The mean $d_{T1-T2}$, $d_{T1-T3}$, and $d_{PPvC}$ effect sizes for goal attainment, were 2.51, 2.39 and 2.09 respectively, and were all large. For child behavior problems, mean effect sizes ranged from medium to large (see Table 3). The
mean $d_{T1-T2}$, $d_{T1-T3}$, and $d_{PPvC}$ effect sizes for child behavior problems were 0.67, 0.67 and 0.68 respectively. For parental stress, mean effect sizes ranged from medium to large (see Table 6). The mean $d_{T1-T2}$, $d_{T1-T3}$, and $d_{PPvC}$ effect sizes for parental stress were 0.91, 1.39 and 0.65 respectively. The mean $d_{T1-T2}$ effect size for parental satisfaction was large (1.54, see Table 5). In the single study where there were sufficient parental satisfaction data to compute $d_{T1-T3}$ and $d_{PPvC}$ effect sizes, these were both large and were 1.95 and 1.16 respectively.

**Evaluation studies of the Parents Plus Adolescents Program and Working Things Out program**

Four studies of PP-AP have been conducted. In two of these adolescents attended the WTO program, while their parents concurrently attended PP-AP (Rickard et al., 2015; Wynne et al., 2015). There were also conjoint family sessions held midway through these programs and at the end of treatment. Two studies were run in CAMHS settings with families of adolescents with psychological disorders (Beattie et al., 2011; Wynne et al., 2015), and two were conducted in schools where PP-AP was offered as a preventative intervention (Nitsch et al., 2015; Rickard et al., 2015). In an NRCT of families of adolescents with DBD, ED and DD attending CAMHS clinics at two Dublin university hospitals, Beattie et al. (2011) found that compared with the TAU control group, after treatment the PP-AP group showed significantly greater improvement on a range of measures, with gains maintained at follow-up. In an RCT of PP-AP offered as a preventative intervention to families of normal adolescents attending regular secondary schools in a rural community, Nitsch et al. (2015) found that compared with the WLC group, after treatment the PP-AP group showed significantly greater improvement on a range of measures. These gains were maintained at follow-up. In a single group outcome
study in public health service CAMHS clinics, Wynne et al. (2015) evaluated the combined effectiveness of PP-AP and WTO for families of adolescents with DBD and ED. After treatment there was significant improvement on a range of parent and adolescent-completed measures of adjustment. In another single group outcome study conducted in eight high schools, Rickard et al. (2015) evaluated the combined effectiveness of PP-AP and WTO. The programs were offered as preventative interventions for families of adolescents, a significant proportion of whom were at risk of developing psychological disorders. On a range of parent and adolescent-completed measures of adjustment significant improvement occurred after treatment and gains were maintained at five months follow-up.

It is noteworthy that two further studies, an RCT and a NRCT of the WTO program offered to adolescents with ED and DBD attending CAMHS clinics without parents concurrently attending PP-AP led to positive results (Fitzpatrick et al., 2014; Brosnan, 2015). These studies are not listed in Tables 2-6, since they did not involve an evaluation of PP. In the RCT conducted by Fitzpatrick et al., (2014) there were 14 completers in the WTO group and 14 in the TAU group who received multidisciplinary intervention. Both group showed significant improvement in global functioning after treatment and at three months follow-up on the Children’s Global Assessment Scale (Shaffer et al., 1983) and in adaptive coping on the Adolescent Coping Scale (Frydenberg & Lewis, 1993). In the NRCT conducted by Brosnan et al. (2015) there were 30 completers in the WTO group and 27 in the TAU group who received multidisciplinary intervention. At post-treatment, the WTO group showed significantly greater improvement on the clinician-completed Child Global Assessment Scale (Shaffer et al., 1983) compared with the TAU group. Both groups improved from pre-treatment to follow-up on the parent and adolescent completed SDQ total difficulties and emotional problems scales, the adolescent-completed SDQ peer
problem scale, and depression on the adolescent-completed Adolescent Well-being Scale (Birleson, 1980).

From Tables 3-6 it may be seen that on indices of adolescent behavior problems, goal attainment, parental satisfaction and parental stress $d_{T1-T2}$, $d_{T1-T3}$, and $d_{PPvC}$ effect sizes in four studies of the PP-AP ranged from small (0.12) to large (2.02). Greatest effect sizes occurred for goal attainment (see Table 4). The mean $d_{T1-T2}$ and $d_{PPvC}$ effect sizes were 1.24 and 1.30 respectively, and were large. In the single study where there were sufficient goal attainment data to compute a $d_{T1-T3}$ effect size, this was also large (1.34). For adolescent behavior problems, mean effect sizes ranged from medium to large (see Table 3). The mean $d_{T1-T2}$, $d_{T1-T3}$, and $d_{PPvC}$ effect sizes for adolescent behavior problems were 0.59, 0.73 and 0.80 respectively. For parental stress, mean effect sizes ranged from small to large (see Table 6). The mean $d_{T1-T2}$, $d_{T1-T3}$, and $d_{PPvC}$ effect sizes for parental stress were 0.65, 0.40 and 0.78 respectively. The mean $d_{T1-T2}$ and $d_{T1-T3}$ effect sizes for parental satisfaction were 0.78 and 0.67 respectively, and were medium to large (see Table 5). In the single study where there were sufficient parental satisfaction data to compute a $d_{PPvC}$ effect size, this was large (1.08).

**Evaluation study of the Parents Plus – Parenting when Separated Program**

Only one study of the PP-PWS has been conducted (Keating et al., 2015). In this community-based study cases were recruited through a national organization for separated families. Compared with the WLC group, after treatment Keating et al. (2015) found that the PP-PWS group showed significantly greater improvement on a range of child and adult adjustment variables, notably interparental conflict.

From Tables 3-5 it may be seen that on indices of child behavior problems, goal attainment, and parental satisfaction $d_{T1-T2}$ and $d_{PPvC}$ effect sizes in the Keating et al.
(2015) study of the PP-PWS program ranged from small (0.31) to large (1.51). Greatest effect sizes occurred for goal attainment where the mean \(d_{T1-T2}\) and \(d_{PPvC}\) effect sizes were 1.51 and 1.13 respectively and were large (see Table 4). The mean \(d_{T1-T2}\), and \(d_{PPvC}\) effect sizes for child behavior problems were 0.89 and 0.31 respectively, and ranged from small to large and (see Table 3). The mean \(d_{T1-T2}\), and \(d_{PPvC}\) effect sizes for parental satisfaction were both 0.37 and were small (see Table 5).

**META-ANALYSIS OF CONTROLLED STUDIES OF PARENTS PLUS PROGRAMME**

To evaluate the overall effectiveness of PP programs after treatment a series of meta-analyses were conducted on Time 2 data from 10 controlled trials. These included five RCTs (Behan et al., 2001; Hand, McDonnell et al., 2013; Hand, Ní Raghallaigh et al., 2013; Keating et al., 2015; Nitsch., 2015) and five NRCTs (Beattie et al., 2011; Coughlan et al., 2009; Griffin et al., 2010; Lonergan et al., 2015; Quinn et al., 2005, 2007). In line with PRISMA guidelines for the reporting meta-analyses, results for RCTs and NRCTs are given separately, along with overall results for all studies (Moher et al., 2009). Indices of child behavior problems (k =10), goal attainment (k = 8), parental satisfaction (k = 6) and parental stress (k = 9) were analyzed separately. The Comprehensive Meta-Analysis (CMA; Borenstein et al., 2005) software package was used to assess the heterogeneity of effect sizes amongst studies and pool effect sizes. A random effects model was used where there was high heterogeneity of effect sizes, otherwise a fixed effects model was used (Borenstein et al. 2009). Forest plots are given in appendix A.

**Child behavior problems**

For ten studies, individual effect sizes for child behavior problems based on SDQ total difficulties scale data ranged from small \((d = .25)\) to large \((d = 1.28)\). A random effects effect model was used for this meta-analysis because homogeneity of effect sizes was not
present \((Q(9) = 20.43, p < .05, \hat{I} = 55.95)\). There was a significant medium to large pooled effect size \((d = .58, p < .001)\), indicating that for child behavior problems, clients who engaged in PP programs fared better than approximately 73\% of those in control groups. A similar result was obtained in a random effects meta-analysis of RCTs \((k = 5; Q(4) = 15.51, p < .05, \hat{I} = 74.21; d = 0.74, p < .001)\). The fixed effects meta-analysis of NRCTs yielded a medium effect size \((k = 5; Q(4) = , p = .72, \hat{I} = .000; d = 0.41, p < .001)\).

**Goal Attainment**

For eight studies where data were available, individual effect sizes for goal attainment based on GS data ranged from medium \((d = .59)\) to large \((d = 2.44)\). A random effects effect model was used for this meta-analysis because homogeneity of effect sizes was not present \((Q(7) = 34.81, p < .001, \hat{I} = 79.89)\). There was a significant large pooled effect size \((d = 1.51, p < .001)\), indicating that for goal attainment clients who engaged in PP programs fared better than approximately 94\% of those in control groups. Similar results were obtained in random effects meta-analyses of RCTs \((k = 5; Q(4) 24.15, p < .001, \hat{I} = 83.44; d = 1.64, p < .001)\) and NRCTs \((k = 3; Q(2) = 10.06, p < .05, \hat{I} = 80.11; d = 1.31, p < .001)\).

**Parental satisfaction**

For six studies where data were available, individual effect sizes for parental satisfaction based on KPS data ranged from small \((d = .32)\) to large \((d = 1.35)\). A random effects effect model was used for this meta-analysis because homogeneity of effect sizes was not present \((Q(5) = 16.86, p < .05, \hat{I} = 70.35)\). There was a significant large pooled effect size \((d = 0.78, p < .001)\) indicating that for parental satisfaction, clients who engaged in PP programs fared better than approximately 80\% of those in control groups. A similar result
was obtained in a random effects meta-analyses of RCTs (k = 4; Q(3) = 12.68, p < .05, \( \hat{\eta} = 76.34; d = 0.94, p < .001 \)). Results from the fixed effects meta-analysis of NRCTs yielded a medium effect size (k = 2; Q(1) = .86, p = .35, \( \hat{\eta} < .001; d = 0.43, p < .05 \)).

**Parental stress**

For 9 studies where data were available, individual effect sizes for parental stress based on PSI and PSS data ranged from small (d = .15) to large (d = 0.81). A fixed effects effect model was used for this meta-analysis because homogeneity of effect sizes was present (Q(8) = 6.2, p = .63, \( \hat{\eta} < .001 \)). There was a significant medium pooled effect size (d = 0.54, p < .001) indicating that for parental stress, clients who engaged in PP programs fared better than approximately 70% of those in control groups. Similar results were obtained in fixed effects meta-analyses of RCTs (k = 4; Q(3) = 3.03, p = .39, \( \hat{\eta} = 1.01; d = .65, p < .001 \)) and NRCTs (k = 5; Q(4) = 1.98, p = .74, \( \hat{\eta} = < .001; d = 0.47, p < .001 \)).

**CONCLUSIONS AND DISCUSSION**

This review of 17 evaluation studies involving over 1000 families has shown that PP programs have a significant impact on child behavior problems, parental satisfaction, parental stress reduction and therapeutic goal attainment. They are effective both as prevention programs and in the treatment of families with clinically significant child-focused problems, including DBD, ED and DD. They are effective for families of preschoolers, school-aged children and adolescents. They are also helpful for separated or divorced families, where they have a significant effect on co-parental cooperation.

The effect size of 0.58 from our meta-analysis of 10 controlled studies for child behavior problems compares favorably with those of 0.3 and 0.47 from meta-analyses of the Incredible Years (Menting et al., 2013) and Triple P (Sanders et al., 2014) parent
training programs respectively. Both of these are well established parent training programs with large evidence bases.

Studies contained in the evidence-base for PP programs have methodological limitations. Of 17 studies, there have been only 6 RCTs. Most studies have been underpowered. Treatment and control groups have not always been matched on critical baseline variables. Intent-to-treat analyses have been the exception rather than the rule. Father involvement in PP programs is relatively low. However, studies contained in the evidence base for PP have important strengths which deserve mention. Treatment and prevention studies were conducted by facilitators in settings and that are representative of ‘real world’ contexts in which PP programs are intended to be widely implemented, i.e. by frontline professionals in CAMHS clinics, EIT DD services, preschools, schools and community agencies. Frontline professionals were trained and supervised (in a relatively brief time period) to facilitate PP programs with sufficient fidelity to make implementation clinically effective. Pre- and post-treatment assessments were conducted with brief, reliable and valid psychometric instruments. Despite small sample sizes and low statistical power, statistically significant effects were found. In most studies follow-up assessments were conducted which showed that gains made during treatment were maintained a number of months later. PP programs and assessment procedures were acceptable to most clients and attrition rates were relatively low.

The next critical steps in developing the evidence-base for PP programs is for large multisite methodologically robust RCT evaluations to be conducted by both the program developers and independent investigators.

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