Help When It’s Needed First: A Controlled Evaluation of Brief, Preventive Behavioral Family Intervention in a Primary Care Setting

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Evidence from randomized controlled trials clearly shows that behavioral family intervention programs (BFIs) based on social learning models (e.g., Patterson, 1982) are the most extensively evaluated form of psychosocial intervention for children, and are effective in reducing family risk factors associated with child behavior problems (e.g., Kazdin, 1991, McMahon & Wells, 1998 and Patterson et al., 1992). Despite research attesting to the efficacy of BFIs, only a minority of parents participate in any form of parenting intervention (Sanders et al., 1999). Of particular concern is the generally low participation by parents of children who have significant disruptive behavior problems (Zubrick et al., 1995) or whose children are believed to be at greatest risk of developing serious behavioral or emotional problems such as conduct disorder or substance abuse (Harachi, Catalano, & Hawkins, 1997). Many service systems that are in a position to provide parenting assistance rely on nonevaluated parent education and family support programs and other interventions of unknown efficacy and, consequently, BFIs have had little impact on population prevalence rates of childhood behavioral and emotional problems (Taylor & Biglan, 1998).

To address the problem of poor dissemination and limited access to evidence-based parenting programs, a multilevel parenting and family support initiative known as the Triple P–Positive Parenting Program has been developed at The University of Queensland (see Sanders, 1999). The system of intervention, based on a social learning approach to family intervention, targets known risk factors and aims to prevent behavioral, emotional, and developmental problems in children by enhancing the knowledge, skills, and confidence of parents. The aim is to determine the minimally sufficient intervention a parent requires in order to deflect a child away from a trajectory of more serious problems.

Triple P has five levels of intervention strength designed to cater to the differing levels of support parents require and to improve access by involving professionals from different disciplines (Sanders, Turner, & Markie-Dadds, 2002). The rationale for this tiered, multilevel strategy is that there are differing levels of dysfunction and behavioral disturbance in children, and parents have differing needs and desires regarding the type, intensity, and mode of assistance they access. The system operates within a health-promotion framework and is designed to maximize efficiency and avoid overservicing by providing the minimum amount of assistance required to effect change at the earliest point of contact. The multidisciplinary nature of the system aims to promote optimal use of the existing professional work force in the task of promoting competent parenting and to ensure the program has wide reach in the community.

Primary care settings such as general medical practices, community child health clinics and home visiting services are useful settings for detection and early intervention for child and adolescent mental health problems (Bower, Garralda, Kramer, Harrington, & Sibbald, 2001). The high prevalence of psychological problems in the
community (Giel et al., 1990 and Vasquez-Barquero, 1990), inadequate resourcing of specialist mental health services (Taylor & Biglan, 1998 and Zubrick et al., 1995), and resistance to attending mental health services due to perceived social stigma and lack of service availability (Nicholson, Ffrench, Oldenberg, & Connelly, 1997) point to the importance of primary care in delivering mental health services for children.

Some evidence shows that nurses can be effective change agents through home visitation services for health-related behavior and psychosocial adjustment (for a review see Olds & Kitzman, 1993), and can improve parenting confidence and knowledge of a disorder such as ADHD through brief individual BFI programs (Odom, 1996). Large-scale population trials of Triple P have shown that nurses can facilitate positive change in parenting skills and child adjustment through a group format BFI (Leung et al., 2003 and Zubrick et al., 2006). However, other studies have shown little change in outcomes for families following implementation of behavioral interventions by primary care staff (Bower et al., 2001), and there is a dearth of research in the area.

This study aimed to evaluate the effectiveness of Primary Care Triple P, a brief, preventive behavioral family intervention program administered by child health nurses, within a typical work setting and normal restrictions, with parents requesting help for child behavior problems. It was hypothesized that in comparison to a wait-list control group, families receiving the primary care intervention would show: (a) a greater decrease in targeted child behavior problems; (b) a greater reduction in dysfunctional parenting practices and increased use of appropriate discipline and positive parenting strategies; (c) greater self-efficacy or confidence in being a parent; (d) improvement in parents’ adjustment, particularly a reduction in parenting stress; and (e) intervention gains maintained at 6-month follow-up. The study also sought to assess the acceptability of the intervention and its outcomes for participating families.

Method

Participants

Participants were 30 families presenting to three community child health clinics, requesting advice about child behavior problems or developmental issues. The participating clinics were located in low-income areas of Brisbane, Australia, with a high proportion of families with young children and high rates of unemployment (Australian Bureau of Statistics, 2002). Each family met the following inclusion criteria: the target child was between 2 and 6 years of age and had not yet started primary school; the primary caregiver had one or more concerns about their child’s behavior or their own parenting skills; the child had not received a diagnosis of developmental delay, developmental disorder (e.g., autism), conduct disorder or ADHD; the child was not currently taking medication or in regular contact with another professional for behavioral problems; the parents were not currently in therapy for psychological or relationship problems; and the parents were able to read English.

Measures

Family background

Family Background Questionnaire (FBQ)

Family demographic data were collected using the FBQ adapted from the Western Australian Child Health Survey (Zubrick et al., 1995).

Child behavior

Parent Daily Report (PDR; Chamberlain & Reid, 1987). The PDR is a checklist of 33 problem child behaviors and one item referring to the use of physical punishment by the parent. This was completed over a 7-day period via daily telephone calls in which the primary caregiver noted whether the listed behaviors had occurred in the previous 24 hours. Two scores were generated: the daily mean total behavior score (all occurrences of problem behaviors) and the daily mean target behavior score (behaviors previously identified as problematic). The total behavior score has good temporal reliability (with the exception of inflated recall of problem behaviors on the first day, which should be interpreted with caution; $r = .19$, ns; Chamberlain & Reid, 1987). The target behavior score shows high interparent reliability ($r = .89$) and adequate validity ($r = .48$) when compared to home observation data. To account for the “first day effect,” mean scores were computed across days 2 to 7 of the
monitoring. A total behavior score above 8.43 and a target behavior score above 4.48 indicate clinically significant problem behavior.

Eyberg Child Behavior Inventory (ECBI; Eyberg & Pincus, 1999). The ECBI is a 36-item measure of parental perceptions of disruptive behavior in children aged 2 to 16 years, including frequency of behaviors (intensity score) and the number of behaviors parents list as problematic (problem score). The ECBI has been shown to have high internal consistency for both the intensity ($r = .95$) and problem ($r = .94$) scores, and has good test-retest reliability (across a 12-week interval, $r = .80$ and .85, respectively: Funderburk & Eyberg, 1989). Recommended clinical cutoff scores are greater than or equal to 131 on the intensity scale and greater than or equal to 15 on the problem scale.

Home and Community Problem Checklist (HCPC; Sanders & Dadds, 1993). A measure of the number of settings at home and in the community in which child behavior problems currently occur. The HCPC was developed from an event record of the different settings where behavior problems occurred. The record was used to determine generalization of behavior change to contexts outside of directly observed settings in recorded observation tasks (Sanders & Dadds, 1982 and Sanders & Glynn, 1981). As these measures are of discrete settings where problems occur, internal consistency has not been reported. The adapted form used here was a checklist of 15 home settings and 14 community settings, with allowance for parents to include other nonlisted settings.

Parenting behavior

Parenting Scale (PS; Arnold, O’Leary, Wolff, & Acker, 1993). The PS is a 30-item questionnaire measuring three dysfunctional discipline styles: laxness (permissive discipline), overreactivity (authoritarian discipline, displays of anger and irritability), and verbosity (long reprimands or reliance on talking). The scale has adequate internal consistency for the total score ($\alpha = .84$), Laxness ($\alpha = .83$) and Overreactivity Scales ($\alpha = .82$), and modest internal consistency for the Verbosity Scale ($\alpha = .63$). It has good test-retest reliability (across a 2-week interval, $r = .84, .83, .82, \text{and } .79$, respectively); and has been found to discriminate between parents of children referred to clinic settings and children in the general population.

Parent-child interaction

Observation settings. The primary caregiver and target child were observed using a 15-minute videotaped home observation recording three 5-minute tasks: joint free-play, independent activity, and a compliance task (i.e., the parent was prompted to give five set instructions to the target child). Observation settings like these replicate a number of experiences that occur regularly in family life (Sanders, Markie-Dadds, Tully, & Bor, 2000) and similar tasks (of 30-minute duration) have been shown to differentiate children with and without conduct problems (Sanders, Dadds, & Bor, 1989).

Family Observation Schedule (FOS; Sanders, Waugh, Tully, & Hynes, 1996d). The observation tasks were coded in 10-second intervals using the FOS, which measures nine categories of child behavior (two appropriate behaviors and seven problem behaviors) and 12 categories of parent behavior (six positive behaviors, five aversive behaviors, and noninteraction). Three summary measures are derived: percentage of intervals of disruptive child behavior, and percentage of intervals of parental positive and aversive behavior. Videotaped observation sessions were coded by three trained research assistants who were naïve to participating families’ allocation to intervention condition, the intervention phase, and the specific hypotheses being tested. Interrater reliability assessed on a randomly selected 20% of observation sessions was 0.76 for child codes and 0.71 for parent codes, indicating a satisfactory level of reliability between coders.

Parent confidence and adjustment

The Parenting Sense of Competence Scale (PSOC; Gibaud-Wallston & Wandersman, 1978). The PSOC is a 16-item measure assessing parents’ views of their competence on two dimensions: satisfaction with their parenting role (reflecting the extent of parental frustration, anxiety, and motivation), and feelings of efficacy as a parent (reflecting competence, problem-solving ability, and capability in the parenting role). The total score, satisfaction score, and efficacy score show a satisfactory level of internal consistency ($r = .79, .75, \text{and } .76$ respectively; Johnston & Mash, 1989).
Depression-Anxiety-Stress Scales (DASS; Lovibond & Lovibond, 1995). A 42-item questionnaire that assesses symptoms of depression, anxiety and stress in adults, the DASS has high reliability for the depression ($\alpha = .91$), anxiety ($\alpha = .84$), and stress ($\alpha = .90$) scales, and good discriminant and concurrent validity.

**Intervention acceptability**

Goal Achievement Scales (GAS; Hudson, Wilken, Jauernig, & Radler, 1995). GAS were developed to evaluate the comparative impact of interventions for reducing problem behavior or increasing prosocial behavior for individual clients with unique behavioral goals. The scales produce an estimate of the amount of success achieved in changing a targeted behavior and allow comparison of change across target behaviors. At the completion of the program, monitoring data were collected over the same time period as baseline monitoring. The percentage of goal achievement was calculated as follows for behaviors where the desired goal was an increased rate:

$$\frac{\text{final rate} - \text{baseline rate}}{\text{target rate} - \text{baseline rate}} \times 100$$

and for behaviors where the desired goal was a decreased rate:

$$\frac{\text{baseline rate} - \text{final rate}}{\text{baseline rate} - \text{target rate}} \times 100.$$  

The Parenting Experience Survey (PES) is a brief screen drawn from the Queensland Parenting Survey ($n = 1,218$; Sanders et al., 1999), providing descriptive information about the perceived difficulty of the child’s behavior and parents’ subjective experience of their parenting role (e.g., how rewarding, demanding, stressful); how confident and supported they feel as a parent; and for two-parent families, the extent of agreement over discipline and how supportive their partner has been in their role as parent.

The Client Satisfaction Questionnaire (CSQ) is an adaptation of the Therapy Attitude Inventory developed by Eyberg (1993). This 13-item survey measures consumer satisfaction with the quality of service; how well the program met the parent’s needs, increased the parent’s skills and decreased the child’s problem behaviors; and whether the parent would recommend the program. The CSQ has high internal consistency ($\alpha = .96$) in a clinic sample receiving behavioral family interventions (Sanders et al., 2000).

**Design**

A randomized repeated-measures design was employed, using a group comparison methodology. Families were randomly assigned to the brief Primary Care Triple P intervention or a wait-list control condition. On completion of the wait-list phase, families in this condition were offered the opportunity to participate in Primary Care Triple P. All families were assessed at two time periods (pre- and postintervention). Families in the intervention condition were also assessed at 6-month follow-up to assess maintenance of intervention effects. Measures were completed by the primary caregiver, which was the mother in all except one family where the father was the sole parent and primary caregiver.1

**Procedure**

Intervention condition. The primary care intervention involved three to four brief (30-minute) individual family consultations, following the Primary Care Triple P protocol outlined by Turner, Sanders, and Markie-Dadds (1999). Sessions were conducted once per week, with a break of 3 to 4 weeks before the fourth session if it was required. Both parents were encouraged to attend sessions; however, with the exception of one family in which the father was sole parent, sessions were attended by mothers only.

Advice on managing problem behaviors was provided to the parents, assisted by selective use of parenting tip sheets and video resources covering common developmental and behavioral problems. A consultation flip chart
(Turner, Markie-Dadds, & Sanders, 1999) was used as a visual aid to demonstrate the key steps in parenting strategies introduced.

Parent resource materials included an introductory booklet explaining positive parenting principles and strategies (Sanders, Markie-Dadds, & Turner, 1996b) and 26 parenting tip sheets on common behavior problems and developmental issues for toddlers (Turner, Markie-Dadds, & Sanders, 1996a) and preschoolers (Turner, Sanders, & Markie-Dadds, 1996b), and general parenting issues (Markie-Dadds, Turner, & Sanders, 1998). Other parenting materials included three videotapes demonstrating solutions to common parenting concerns in the same age groups (Sanders et al., 1996a, Sanders et al., 1997 and Sanders et al., 1996c).

In the first session, the history and nature of the presenting problem(s) were clarified (through interview and direct observation), goals for the intervention negotiated, and a baseline monitoring system set up to track the occurrence of problem behaviors. Session 2 involved a review of the initial problem to determine whether it was still current; discussing the results of the baseline monitoring and the parent’s perceptions of the child’s behavior; sharing conclusions about the nature of the problem and its possible etiology; and negotiating a parenting plan. This session also involved identifying and countering any obstacles to implementation of the new routine by developing a personal coping plan for each parent. Parents were then asked to implement the parenting plan. Session 3 involved reviewing the family’s progress and discussing any implementation problems. It may also have involved further skill rehearsal or introduction of additional parenting strategies. Contact was either terminated at this point or a fourth session negotiated according to the family’s progress. If required, Session 4 involved a progress review, troubleshooting for any difficulties the parents may be experiencing, positive feedback and encouragement, and termination of contact.

Intervention integrity. Five nurses delivered the intervention. They each attended a training program and met competency-based accreditation criteria for the delivery of Primary Care Triple P. Practitioners completed brief protocol adherence checklists to document the information covered in each consultation session, program materials used, and length of the consultation sessions. Supervision sessions were provided to the nurses for case discussion, review of session content and process issues, and skill development through role-play of specific consultation tasks.

Analysis of the session summary checklists indicated 100% self-reported compliance with the intervention protocol. Each nurse reported covering all session content, providing access to appropriate parent resource materials and setting appropriate homework tasks. In all, 29 tip sheets were given out (on average, two per family). The most common topics were for problem behavior (e.g., tantrums, disobedience, hurting others), and for developing daily routines (e.g., bedtime, toilet training). Recorded session length was longer than the recommended 30-minute consultation, with a mean length of 40 minutes across the four sessions. All families completing three (12.5%) or four (68.7%) sessions were viewed as completers and were contacted for postintervention assessment.

Results

Preliminary analyses

Sociodemographic characteristics of the sample are summarized in Table 1, along with participants’ exposure to 10 family risk factors implicated in the development of children’s conduct problems. Families were predominantly two-parent families (80%), most fathers were working (92%) and many mothers were in part-time (55%) or full-time (10%) employment. On average, participating families reported the presence of three or more risk factors indicating a sample of children at moderate to high risk of developing conduct problems. No significant differences were found between conditions on demographic or risk status variables, indicating that the randomization resulted in comparable groups on these sociodemographic measures.

To confirm that random assignment resulted in groups comparable on the intensity of presenting problems, a series of one-way ANOVAs conducted on all dependent variables showed no significant group difference on any measure at preintervention assessment.
<table>
<thead>
<tr>
<th>Demographic characteristics</th>
<th>Primary care</th>
<th>Waitlist</th>
<th>F (df)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>M (SD)</td>
<td>M (SD)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child’s age (months)</td>
<td>37.38 (10.27)</td>
<td>43.07 (10.77)</td>
<td>2.20 (1,28)</td>
<td>.149</td>
</tr>
<tr>
<td>Mother’s age (years)</td>
<td>33.67 (5.49)</td>
<td>34.62 (3.88)</td>
<td>2.71 (1,26)</td>
<td>.607</td>
</tr>
<tr>
<td>Father’s age (years)</td>
<td>35.27 (5.96)</td>
<td>35.09 (3.05)</td>
<td>0.01 (1,24)</td>
<td>.930</td>
</tr>
<tr>
<td>Number of children in family</td>
<td>1.88 (0.81)</td>
<td>1.71 (0.83)</td>
<td>0.29 (1,28)</td>
<td>.594</td>
</tr>
<tr>
<td>Risk status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sole parent</td>
<td>2 (12.5)</td>
<td>4 (28.6)</td>
<td>1.20</td>
<td>.378</td>
</tr>
<tr>
<td>Male child</td>
<td>7 (43.8)</td>
<td>9 (64.3)</td>
<td>1.26</td>
<td>.261</td>
</tr>
<tr>
<td>Financial difficulty (pension/benefit)</td>
<td>11 (68.8)</td>
<td>8 (57.1)</td>
<td>.43</td>
<td>.510</td>
</tr>
<tr>
<td>Father low SES (DS &gt; 5.0)</td>
<td>5 (35.7)</td>
<td>2 (20.0)</td>
<td>.70</td>
<td>.653</td>
</tr>
<tr>
<td>Mother did not complete high school</td>
<td>4 (25.0)</td>
<td>0 (0)</td>
<td>3.77</td>
<td>.107</td>
</tr>
<tr>
<td>Father did not complete high school</td>
<td>6 (40.0)</td>
<td>3 (27.3)</td>
<td>.45</td>
<td>.683</td>
</tr>
<tr>
<td>Mother depressed (DASS Depression &gt; 9)</td>
<td>3 (21.4)</td>
<td>3 (21.4)</td>
<td>.00</td>
<td>1.000</td>
</tr>
<tr>
<td>Mother parenting conflict (PPC &gt; 5)</td>
<td>7 (53.8)</td>
<td>3 (25.0)</td>
<td>2.16</td>
<td>.226</td>
</tr>
<tr>
<td>ECBI clinic range (Int. ≥ 131/Prob. ≥ 15)</td>
<td>8 (53.3)</td>
<td>6 (42.9)</td>
<td>2.45</td>
<td>.293</td>
</tr>
<tr>
<td>elevated &gt; .5 SD (Int. ≥ 114/Prob. ≥ 11)</td>
<td>6 (40.0)</td>
<td>4 (28.6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PDR clinic range (M &gt; 8.43/Targ. M &gt; 4.48)</td>
<td>10 (62.5)</td>
<td>10 (71.4)</td>
<td>.27</td>
<td>.875</td>
</tr>
<tr>
<td>elev. &gt; .5 SD (M &gt; 6.88/Targ. M &gt; 3.38)</td>
<td>3 (18.8)</td>
<td>2 (14.3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total number of risk factors</td>
<td>3.94 (1.00)</td>
<td>3.43 (1.70)</td>
<td>1.03</td>
<td>.318</td>
</tr>
</tbody>
</table>

Note. There is no mother self-report data for one intervention family with a custodial father. F = univariate ANOVA condition effect; χ² = Pearson’s chi-square (where expected frequencies are too low for chi-square, Fisher’s Exact Test is reported); elevations of .5 SD are included for descriptive purposes but are not deemed risk status.

a Based on the Daniel Scale (DS) of occupational prestige (Daniel, 1983).

b From the Parent Problem Checklist (PPC) of conflict over child-rearing (Dadds & Powell, 1991).

Attrition

Of the 30 families who agreed to participate, 25 (83.33%) took part in the postassessment. Of the five families who did not complete the postassessment, three were intervention condition families (18.75%) and two (14.28%) were wait-list control families. Six months following the intervention, the remaining 13 intervention condition families (100%) were reassessed.

To examine any systematic attrition for the entire sample, all families who completed postassessment were compared with those who did not complete. A series of one-way ANOVAs (completers vs. noncompleters) was performed across all dependent measures at preintervention. Two significant effects were found: noncompleters rated more HPCP community settings as problematic, F(1, 26) = 4.41, p = .046; and also scored higher on the PS Laxness Scale, F(1, 27) = 7.92, p = .009, prior to intervention than mothers who completed both assessments.
Short-term intervention effects. A summary of the means and standard deviations for each dependent measure at pre- and postintervention appears in Table 2 along with the univariate F and significance values for the ANCOVA condition effect.

Table 2.
Short-term intervention effects: intervention and control conditions at pre- and postintervention

<table>
<thead>
<tr>
<th>Measure</th>
<th>Primary care</th>
<th></th>
<th>Wait-list</th>
<th></th>
<th>ANCOVA</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre (SD)</td>
<td>Post (SD)</td>
<td>Pre (SD)</td>
<td>Post (SD)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PDR Total Mean</td>
<td>8.12 (2.62)</td>
<td>5.89 (1.73)</td>
<td>8.94 (4.08)</td>
<td>7.46 (4.63)</td>
<td>1.10</td>
<td>.308</td>
</tr>
<tr>
<td>Target Mean</td>
<td>5.40 (2.87)</td>
<td>2.10 (1.65)</td>
<td>6.85 (3.85)</td>
<td>5.50 (3.70)</td>
<td>8.76***</td>
<td>.007</td>
</tr>
<tr>
<td>ECBI Intensity</td>
<td>136.08 (17.54)</td>
<td>114.08 (22.69)</td>
<td>122.00 (22.63)</td>
<td>112.25 (20.50)</td>
<td>.95</td>
<td>.342</td>
</tr>
<tr>
<td>Problem</td>
<td>14.42 (7.09)</td>
<td>6.92 (4.93)</td>
<td>12.92 (4.76)</td>
<td>8.17 (4.97)</td>
<td>1.63</td>
<td>.215</td>
</tr>
<tr>
<td>HCPC Home</td>
<td>5.67 (1.83)</td>
<td>2.67 (1.67)</td>
<td>4.50 (2.15)</td>
<td>5.33 (2.50)</td>
<td>24.26***</td>
<td>.000</td>
</tr>
<tr>
<td>Community</td>
<td>1.50 (1.17)</td>
<td>.83 (1.11)</td>
<td>2.08 (1.44)</td>
<td>2.00 (1.54)</td>
<td>3.03</td>
<td>.096</td>
</tr>
<tr>
<td>PS Laxness</td>
<td>2.68 (.97)</td>
<td>2.22 (.83)</td>
<td>2.59 (.80)</td>
<td>2.65 (.78)</td>
<td>5.00**</td>
<td>.036</td>
</tr>
<tr>
<td>Overreactivity</td>
<td>3.44 (8.5)</td>
<td>2.92 (.84)</td>
<td>3.07 (1.04)</td>
<td>3.10 (.92)</td>
<td>7.48*</td>
<td>.012</td>
</tr>
<tr>
<td>Verbosity</td>
<td>3.81 (.67)</td>
<td>3.02 (.60)</td>
<td>3.49 (0.89)</td>
<td>3.60 (.89)</td>
<td>8.27***</td>
<td>.009</td>
</tr>
<tr>
<td>FOS Child disruptive</td>
<td>15.86 (15.28)</td>
<td>16.60 (15.28)</td>
<td>9.95 (11.38)</td>
<td>10.29 (11.95)</td>
<td>.45</td>
<td>.509</td>
</tr>
<tr>
<td>Parent positive</td>
<td>84.20 (5.23)</td>
<td>84.39 (9.44)</td>
<td>83.40 (6.74)</td>
<td>81.25 (8.00)</td>
<td>.74</td>
<td>.400</td>
</tr>
<tr>
<td>Parent aversive</td>
<td>.40 (.67)</td>
<td>.20 (.67)</td>
<td>.00 (.00)</td>
<td>.00 (.00)</td>
<td>1.61</td>
<td>.219</td>
</tr>
<tr>
<td>PSOC Satisfaction</td>
<td>32.42 (8.43)</td>
<td>39.50 (7.60)</td>
<td>32.00 (7.53)</td>
<td>32.25 (6.65)</td>
<td>14.09***</td>
<td>.001</td>
</tr>
<tr>
<td>Efficacy</td>
<td>24.92 (7.51)</td>
<td>29.83 (5.20)</td>
<td>24.08 (5.62)</td>
<td>26.08 (6.61)</td>
<td>3.72</td>
<td>.067</td>
</tr>
<tr>
<td>DASS Depression</td>
<td>5.83 (7.36)</td>
<td>2.58 (3.68)</td>
<td>5.08 (6.83)</td>
<td>4.75 (6.31)</td>
<td>3.34</td>
<td>.082</td>
</tr>
<tr>
<td>Anxiety</td>
<td>2.17 (3.81)</td>
<td>.67 (.98)</td>
<td>2.75 (5.58)</td>
<td>2.08 (3.12)</td>
<td>5.27*</td>
<td>.032</td>
</tr>
<tr>
<td>Stress</td>
<td>12.33 (8.70)</td>
<td>6.50 (5.09)</td>
<td>11.25 (11.01)</td>
<td>10.00 (8.56)</td>
<td>5.50*</td>
<td>.029</td>
</tr>
</tbody>
</table>

Note. Pre = preintervention; Post = postintervention; F = ANCOVA univariate effect for condition. The observed parent was the mother in all families. Two families from the intervention condition are not included in the analysis, one due to lack of noncustodial parental consent and one due to a technical fault.

Child behavior

Analysis of PDR total mean and target mean scores using MANCOVA revealed a significant effect, \( F(2, 21) = 11.07, p = .001 \). Univariate tests showed the effect to be significant for PDR target mean scores, with parents in the intervention condition reporting significantly fewer targeted problem behaviors than those in the control condition at postintervention.

Analyses of the ECBI and HCPC using MANCOVA revealed a significant condition effect, \( F(4, 15) = 4.47, p = .014 \). Univariate analyses revealed an effect only for mothers’ HCPC home score, with mothers in the
intervention condition reporting fewer problems at home at postassessment than mothers in the wait-list condition. There were no significant effects for mothers’ ECBI scores, which decreased from pre- to postintervention in both conditions.

**Parenting behavior**

MANCOVA revealed a significant condition effect for mothers’ parenting style on the PS, $F(3, 17) = 9.92, p = .001$. Univariate analyses indicated that at postintervention, mothers in the intervention condition reported less use of dysfunctional parenting strategies than mothers in the wait-list condition, with significantly lower scores reported on each PS subscale.

**Parent-child interaction**

Observed child behavior. ANCOVA was conducted on overall aversive child behavior. No significant condition effect was found, $F(1, 20) = 0.45, p = .509$. The means listed in Table 2 show that the percentage of intervals with disruptive behavior was low in both conditions at preassessment.

Mothers’ observed interaction. Analysis of mothers’ observed positive and aversive interaction was conducted using MANCOVA. Again, there was no significant condition effect, $F(2,18) = 0.88, p = .433$, as levels of aversive interaction were low from the outset.

**Parent confidence and adjustment**

A multivariate condition effect was found for mothers’ sense of parenting competence on the PSOC satisfaction and efficacy scales, $F(2, 19) = 7.22, p = .005$. Univariate analyses indicated that mothers receiving the intervention reported significantly greater satisfaction with parenting (PSOC satisfaction scale) at postassessment than mothers in the wait-list condition.

As the depression and anxiety scale scores were not normally distributed, transformed data were analysed. A significant MANCOVA condition effect was found, $F(3, 17) = 3.23, p = .048$. Inspection of the univariate results revealed a significant effect for both the anxiety and stress scales, with mothers in the intervention condition reporting significantly lower anxiety and stress than wait-list condition mothers at postintervention.

**Clinical significance of change**

While these analyses examined statistically significant condition effects, they did not illustrate the extent of change from the clinical to nonclinical range following intervention. Given the moderate level of severity of the presenting problems in this sample, two methods were employed to examine the clinical significance of reported changes. The key child and parent dependent measures showing a condition effect at postintervention were explored for clinical significance of change using two methods: chi-square analyses of the proportion of participants moving from the clinical to nonclinical range (Kendall, Marrs-Garcia, Nath, & Sheldrick, 1999), and the Reliable Change Index (Jacobson & Truax, 1991) was calculated to examine the extent to which changes achieved from pre- to postintervention were reliable or unlikely to be due to chance (i.e., pre-post change in excess of 1.96 standard errors of measurement). Negative effects were also examined in this analysis.

The PDR target behavior score was the only measure on which means for both conditions fell within the clinical range at preassessment. Therefore, clinically significant change was explored for the PDR only. At preassessment, the conditions were not significantly different: 62.5% of children in the intervention condition and 71.4% of children in the wait-list condition fell within this elevated range. Following intervention, significantly fewer children in the intervention condition (7.7%) than the wait-list (61.5%) remained in this range, $\chi^2 = 8.33, df = 1, p = .004$.

Several significant condition differences were found using the Reliable Change Index (Jacobson et al., 1991) as reported in Table 3. In comparison to wait-list controls, a greater proportion of intervention condition families reached reliable change in a positive direction on parental reports of child behavior, problem settings, parental verbosity, parenting satisfaction and the summary criterion of reliable change on at least one measure. Reliable
negative changes were found on several measures for the wait-list families: parent-reported child behavior, parental overreactivity and verbosity, and parenting stress.

**Intent-to-treat analyses**

Intent-to-treat analyses (Kendall, Flannery-Schroeder, & Ford, 1999) were also conducted for measures with a significant univariate condition effect at postassessment. A second series of ANCOVAs was conducted on the entire sample with preintervention scores inserted at postintervention for families who dropped out or failed to complete postassessment. A significant condition effect remained for the PDR target mean score, $F(1, 27) = 4.66, p = .040$; and mothers’ scores on the HCPC home scale, $F(1, 25) = 22.74, p < .001$; PS overreactivity scale, $F(1, 26) = 6.88, p = .014$, and verbosity scale, $F(1, 27) = 4.66, p = .040$; PSOC satisfaction scale, $F(1, 25) = 10.18, p = .004$; and DASS anxiety scale, $F(1, 25) = 4.29, p = .049$. Results were reduced to trends for the PS laxness scale, $F(1, 26) = 3.71, p = .065$, and the DASS stress scale, $F(1, 25) = 3.12, p = .090$.

Table 3.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Primary care</th>
<th>Wait-list</th>
<th>$\chi^2$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n (%)</td>
<td>n (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RCI &gt; 1.96</td>
<td>+ve</td>
<td>-ve</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PDR Target Mean</td>
<td>3 (23.1)</td>
<td>1 (7.7)</td>
<td>0 (0)</td>
<td>.593</td>
</tr>
<tr>
<td>HCPC Home</td>
<td>6 (50.0)</td>
<td>0 (0)</td>
<td>2 (16.7)</td>
<td>.011</td>
</tr>
<tr>
<td>PS Laxness</td>
<td>2 (16.7)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>.478</td>
</tr>
<tr>
<td>Overreactivity</td>
<td>1 (8.3)</td>
<td>1 (8.3)</td>
<td>1 (8.3)</td>
<td>.592</td>
</tr>
<tr>
<td>Verbosity</td>
<td>7 (58.3)</td>
<td>1 (8.3)</td>
<td>0 (0)</td>
<td>10.27</td>
</tr>
<tr>
<td>PSOC Satisfaction</td>
<td>7 (58.3)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>.005</td>
</tr>
<tr>
<td>DASS Stress</td>
<td>3 (25.0)</td>
<td>1 (8.3)</td>
<td>1 (8.3)</td>
<td>.358</td>
</tr>
<tr>
<td>At least 1 RCI &gt; 1.96$^2$</td>
<td>9 (75.0)</td>
<td>2 (16.7)</td>
<td>4 (33.3)</td>
<td>.016</td>
</tr>
</tbody>
</table>

*Note. Questionnaire data are from mothers only; $\chi^2$ = Pearson’s chi-square (where expected frequencies are too low for chi-square, Fisher’s Exact Test is reported); RCI = Reliable Change Index.

$^*$ A negative RCI discounts any positive RCI in this tally.

$^* p < .05$

$^{**} p < .01$.

**Intervention acceptability**

Intervention acceptability analyses were conducted on data collected from intervention condition families as follows. As part of the intervention process, 12 of the intervention condition families completed monitoring of one target behavior, with 7 of these completing monitoring for a second target behavior. The Goal Achievement Scale mean percentage achieved was 100% for the first goal and 91.7% for the second goal ($SD = 14.45$; range = 67–100).
Repeated measures ANOVA revealed a significant time effect for mothers’ PES reports of child difficulty, \( F(1, 11) = 11.88, p = .005 \). The parenting and partner support scales were explored using repeated measures MANOVA. A significant time effect was found for mothers’ ratings on the parenting scales, \( F(7, 5) = 7.18, p = .023 \). Univariate results revealed mothers reported parenting to be significantly more rewarding, \( F(1, 11) = 6.60, p = .026 \), and fulfilling, \( F(1, 11) = 9.48, p = .010 \), and less stressful, \( F(1, 11) = 25.00, p < .001 \) following the intervention. They also reported feeling significantly more supported in their role as a parent, \( F(1,11) = 11.96, p = .005 \). A weak multivariate trend was found for mothers’ ratings on the partner support scales, \( F(3, 8) = 2.99, p = .096 \), which was accounted for by a significant univariate time effect for mothers’ reports of greater agreement with their partner over discipline, \( F(1, 10) = 5.71, p = .038 \).

Mothers in the intervention condition had high ratings of satisfaction with treatment (\( M = 72.89; SD = 11.48 \)). These scores are slightly lower than average scores reported by Sanders et al. (2000) for more intensive levels of intervention (ranging from 74.58 to 77.48 for mothers receiving Standard and Enhanced Triple P respectively) but higher than average scores for mothers completing Self-Directed Triple P (57.65).

**Intervention effects at follow-up**

As there was no comparison group at the follow-up assessment, results for the intervention group were analysed by repeated measures ANOVA and pairwise comparisons across assessment phases.

**Child behavior**

Repeated measures MANOVA revealed a significant time effect for child behavior according to the PDR scores, \( F(4, 9) = 5.13, p = .020 \). Univariate ANOVAs revealed the effect to be significant for both the total behavior mean score and target behavior mean score. Pairwise comparisons revealed no significant change from postintervention to follow-up (\( p = .821 \) and .919, respectively), the time effect reflected significant improvement from pre- to postintervention (\( p = .008 \) and .001, respectively) which maintained from preintervention to follow-up (\( p = .029 \) and .000, respectively).

As mothers’ scores on the HCPC community scale were not normally distributed, data were transformed. A significant MANOVA condition effect was found, \( F(8, 4) = 7.60, p = .034 \). Further exploration revealed a univariate time effect for mothers’ ECBI intensity and problem scores and the HCPC home score. Pairwise comparisons revealed no significant change from postintervention to follow-up on any of these measures (\( p = .165 \), .517, and .857, respectively). The time effect on each measure reflected significant change from pre- to postintervention (\( p = .007 \), .001, and <.001, respectively), which maintained from preintervention to follow-up (\( p = .012 \), <.001, and <.001, respectively). These results indicate that the intervention gains observed in child behavior at postintervention were maintained at 6-month follow-up and demonstrate positive changes from the preintervention level of functioning.

**Parenting behavior**

MANOVA revealed a significant time effect for mothers’ parenting style on the PS, \( F(6, 6) = 4.51, p = .045 \). Univariate analyses indicated the time effect to be significant for both the overreactivity and verbosity scales. Pairwise comparisons revealed no significant change from postintervention to follow-up (\( p = .399 \) and .391, respectively). The time effect on both measures reflected a significant improvement from pre- to postintervention (\( p < .001 \) and .017, respectively), which maintained from preintervention to follow-up (\( p = .008 \) and .029, respectively).

**Parent-child interaction**

Repeated measures ANOVA revealed no significant effect for observed aversive child behavior, \( F(2, 9) = 0.13, p = .877 \). Similarly, using repeated measures MANOVA, no significant effects were found for mothers’ observed positive and aversive interaction, \( F(4, 7) = 0.21, p = .927 \).

**Parent confidence and adjustment**
A significant MANOVA time effect was found for mothers' parenting sense of competence on the PSOC, $F(4, 8) = 8.40, p = .006$. Univariate analyses indicated the time effect to be significant for both the satisfaction and efficacy scales. Pairwise comparisons revealed no significant change from postintervention to follow-up on either scale ($p = .687$ and .168, respectively). The time effect reflected significant change from pre- to postintervention on both scales ($p = .001$ and .002, respectively), which maintained from preintervention to follow-up on the satisfaction scale ($p < .001$); however, the efficacy scale effect was reduced to a trend from preintervention to follow-up ($p = .062$). Again these results represent maintenance of intervention gains, with a stronger effect on mothers’ satisfaction with parenting than for parenting efficacy.

MANOVA revealed no significant time effect for mothers’ adjustment, $F(6, 6) = 2.05, p = .202$, with no delayed positive intervention effects or adverse effects found.

**Discussion**

The present study provides support for the effectiveness of Primary Care Triple P when conducted by community child health nurses as a brief BFI program for families presenting with concerns about their child’s behavior or development. Parents who received Primary Care Triple P reported significantly lower rates of the targeted problem child behaviors than those in the wait-list condition on the PDR target behavior score, and fewer problem settings at home (HCPC). There were also significantly fewer children in the intervention condition in the clinical range on the PDR following the intervention in comparison to children in the wait-list condition. This finding provides some support for Hypothesis 1, in that a greater decrease was obtained in the targeted child behavior problem(s) in the intervention condition.

However, perusal of Table 2 highlights that a condition effect was found for only two of the six parent-report measures of child behavior. The effect did not hold for global measures of child behavior problems as reported by mothers (ECBI). In this community sample, change was limited to targeted measures of child behavior as not all children displayed clinically elevated disruptive behavior problems at the outset and most parents were presenting with discrete behavior issues. Similarly, the effect was not evident for direct observation of child behavior (FOS). It may be speculated that this is due to brief observation tasks not readily capturing low-frequency problem behaviors (e.g., hurting others) and other developmental issues (e.g., bedtime problems) that were not evident in this observation task.

The hypothesis that parents receiving the intervention would show a greater reduction in dysfunctional parenting practices was also partly supported. Mothers receiving the intervention reported significantly lower reliance on dysfunctional parenting practices (PS laxness, overreactivity, and verbosity scales) than mothers in the wait-list condition. This parent-report finding points to positive long-term prognosis for the children as there was a change in one of the key risk factors implicated in the maintenance of conduct problem behavior. However, these findings must be considered in light of the fact that no effect was found for directly observed parent behavior. As for child behavior, this may be due to the fact that there was minimal aversive parent behavior evidenced in any of the observation tasks.

The PSOC results provide partial support for the hypothesis that the intervention would result in greater self-efficacy or confidence in being a parent. Intervention condition mothers reported a significantly greater level of satisfaction with their parenting role following the intervention in comparison to mothers who had not received the program. The result for the PSOC efficacy scale indicated a trend in the same direction for intervention condition mothers.

The results for measures of parental adjustment, particularly the hypothesized reduction in parenting stress, are less compelling. Significant condition effects were found with intervention condition mothers reporting significantly lower anxiety and stress than mothers in the wait-list condition. While this may be seen as partial support for the predicted reduction in parenting stress for intervention condition families, it should be noted that mothers’ mean scores were not clinically elevated at preassessment and remained within the normal range at each subsequent assessment. As clinical interventions have the potential for negative side effects (Miller & Prinz, 1990), it is important to note that no adverse effects were evidenced on any child or parent outcome measures or on the broader measures of parental adjustment.

Finally, as predicted, intervention gains found at the postintervention assessment were primarily maintained at a 6-month follow-up of the intervention group. However, as there was no follow-up assessment of control
families, it is not possible to conclude whether these measures of child behavior and parenting would vary from those of a control group at this assessment time.

Although this study provides some support for each hypothesis, the results must be interpreted with caution. Due to the lack of effects on the observational measures of child and parent behavior, potential reporting biases must be considered in interpreting changes found on parent-report measures of child behavior and parenting. RCI findings showed a significantly greater level of clinically reliable change for the intervention condition only for a limited subset of measures (HCPC Home Scale, PS Verbosity, PSOC Satisfaction). While intervention effects were found in line with the hypotheses, the extent of change may not be seen as clinically reliable. However, as the participants in this study were not clinic-referred families and were presenting for advice and parenting support for discrete child behavior issues, which were mostly of moderate intensity, a floor effect appears evident. Consequently, the RCI may not be as useful with this sample. As a brief, preventive intervention, the aim of the intervention was to identify early difficulties and prevent their exacerbation to clinical levels.

Satisfaction with the program was high: slightly lower-than-average scores for more intensive levels of intervention such as Standard and Enhanced Triple P that involve around 10 hours of practitioner contact, but higher-than-average scores for interventions involving no direct contact with a practitioner, such as Self-Directed Triple P (as reported by Sanders et al., 2000). The program also appeared to largely meet the goals of participating families, with monitored target behaviors showing over 95% goal attainment within the brief intervention phase. The most common goals revolved around reducing tantrums, increasing compliance with instructions, and reducing aggression.

Unlike previous Triple P outcome studies (e.g., Bor et al., 2002 and Sanders et al., 2000), there was no intervention effect found using direct observation of parent-child interaction. It may be that the observation sessions were too short, as they were reduced to half the duration of past observation tasks to reduce the demand on participating families. However, it is most likely that as this brief primary care intervention is designed for parents with concerns about mild-to-moderate discrete child behavior issues, the observation settings did not necessarily tap the target problem for each family. As noted earlier, there was a generally low overall level of disruptive child behavior and minimal aversive parent behavior in the observation settings at preassessment. These were lower than preassessment rates in other studies where intervention effects were reported (Sanders et al., 2000). Again, a floor effect may be at play. In this case, generalized observational tasks, which are cost- and labor-intensive, may be inappropriate for families presenting with discrete moderate child behavior problems at primary care services.

This study adds to a series of controlled outcome studies exploring the efficacy and effectiveness of the Triple P system of intervention (see review in Sanders et al., 2002). It extends earlier work by examining the impact of a brief, early intervention conducted by child health nurses in a community setting. These results provide the first effectiveness outcomes from a randomized controlled trial of BFI in a primary care setting. Given the impact of this brief intervention, the implications for more broad dissemination are promising.

References


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1 This father completed the PDR monitoring and no other measures; therefore, all questionnaire data are for mothers only.
2 Chi-square analysis confirmed there was no significant difference in attrition rates across conditions, \( \chi^2 = 0.11, df = 1, p = .743 \).
3 Univariate ANCOVA results reported in Table 3 are for transformed variables; however, means reported are untransformed for ease of interpretation.
4 It should be noted here that when preintervention mean scores fall in the normal range, it is unlikely that many participants will demonstrate reliable change as a floor/ceiling effect is expected.