Child Maltreatment

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What is This?

Parent–Child Interaction Therapy: An Evidence-Based Treatment for Child Maltreatment

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Rae Thomas[1,2] and Melanie J. Zimmer-Gembeck[1]

Abstract

It is common practice to augment efficacious treatment protocols for special populations (Durlak & DuPre, 2008), but this is often done before establishing that standard services are not appropriate. In this randomized controlled trial with families at risk or with a history of maltreatment ($N = 151$), we investigated the effectiveness of *standard* 12-session Parent–Child Interaction Therapy (PCIT). This is in contrast to other PCIT studies with similar parents, which have allowed for longer and sometimes variable treatment length and with modifications to PCIT protocol. After treatment and compared to Waitlist, mothers reported fewer child externalizing and internalizing behaviors, decreased stress, and were observed to have more positive verbalizations and maternal sensitivity. These outcomes were equivalent or better than outcomes of our previous PCIT trial with high-risk families (Thomas & Zimmer-Gembeck, 2011) when treatment length was variable and often longer. These findings support standard protocol PCIT as an efficacious intervention for families in the child welfare system.

Keywords

child maltreatment, evidence-based treatment, intervention research

Despite best efforts of child protection systems and increased government expenditure, child maltreatment rates continue to remain at unacceptably high levels (Australian Institute of Health and Welfare, 2012; Hussey, Chang, & Kotch, 2006) and child protection systems struggle to provide effective interventions and treatments to high-risk families. Budgetary increases of over 13% per annum (Bromfield, Holzer, & Lamont, 2011) resulting in billions of dollars in child protection, prevention, and intervention seem to do little to stem the tide. Generalist parenting programs known to be effective in increasing parenting skills and decreasing child behavior problems are often utilized in mainstream contexts, however, few of these have met the criteria for evidence-based treatment (EBT; Chambless & Ollendick, 2001), and there have been few interventions founded in theory about the causes of child maltreatment (Allen, Gharagozloo, & Johnson, 2012). In contrast, Parent–Child Interaction Therapy (PCIT), a well-known parenting program for child externalizing behavior problems, has theoretical foundations that support its utility as a treatment approach for this population and has accumulated data to support its contention as an EBT for families who have experienced child maltreatment (Chaffin, Funderburk, Bard, Valee, & Gurwich, 2011; Thomas & Zimmer-Gembeck, 2011; Timmer, Ware, Urquiza, & Zebell, 2010).

However, efficacious interventions are often considered inappropriate for certain populations and may be adapted with the aim of better meeting the needs of those accessing the services (Axford & Little, 2009). Several behavior management

and parenting EBTs have adapted the original design to target the needs of specialized populations. For example, the Triple P Parenting Program has been adapted for obese and gifted children (Morawska & Sanders, 2009; West, Sanders, Cleghorn, & Savies, 2010) and The Incredible Years program has been adapted for bereaved and substance abusing parents (Braiden, McDaniel, Duffy, & McCann, 2011; Stangera, Ryan, Hongyun, & Budney 2011). This trend is also seen in many of the PCIT research studies working with subpopulations (Berkovits, O'Brien, Carter, & Eyberg, 2010; Pincus, Eyberg, & Choate, 2005). Therefore, it is not surprising that PCIT researchers providing services to parents who have maltreated their children have altered the standard PCIT (S/PCIT) design for this population (Chaffin et al., 2004; Chaffin et al., 2011; Timmer, Zebell, Culver, & Urquiza, 2010). However, the assumption that particular subgroups of parents require different parenting interventions has not been tested. The purpose of the current study was to investigate the effectiveness of a S/PCIT

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treatment protocol with mothers who were at high risk or who had a history of maltreating their children.

PCIT for High-Risk Families

PCIT was developed for children aged between 3 and 7 years diagnosed with an externalizing behavior problem and their parents (Hembree-Kigin & McNeil, 1995) and is founded in social learning theory and attachment theory. Parent–child dyads are observed through a one-way mirror and, by using a bug-in-the-ear device, parents are coached to attend to the child's behaviors consistently and predictably. Parents are taught behavior management strategies that focus on positive reinforcement rather than power assertion to reduce child oppositional and disruptive behaviors. The behavior management techniques in PCIT are designed to aid children's emotion regulation by providing parents with developmentally appropriate language and skills (Hembree-Kigin & McNeil, 1995).

Evidence suggests that the most proximal risks of child maltreatment are negative and coercive patterns of parent–child interactions and parents' lack of knowledge or inappropriate use of discipline (Cicchetti & Valentino, 2006). This is because they often result in escalating coercive exchanges, harsh discipline strategies, and aggressive communication techniques (Patterson, 1982). Further, parents with a history of maltreating their children are likely to be less sensitive in interactions and more likely to have an insecure or disorganized caregiver–child attachment compared to other mothers (Baer & Martinez, 2006). Both community and lab-based PCIT outcome studies have generally produced statistically significant and medium-to-large effect sizes in reductions in child externalizing behavior and parental stress, increases in positive observations of parent behavior (see Thomas & Zimmer-Gembeck, 2007 for a review), and more recently, increases in maternal sensitivity (Thomas & Zimmer-Gembeck, 2011). Because each of these therapeutic outcomes has also been identified as a risk factor associated with child maltreatment, PCIT has been identified as an EBT for families at child maltreatment risk (Kauffman Best Practices Project, 2004). However, in investigations of PCIT and child maltreatment, the S/PCIT protocol has been adapted in many different ways, making it difficult for the community practitioner to clearly identify which PCIT protocol to implement with their high-risk and abusive parents.

For example, Chaffin and colleagues (2004) randomly assigned parent–child dyads with a history of child maltreatment to one of three treatment conditions: two PCIT conditions and a treatment as usual condition. Both PCIT groups were augmented with a six-session motivation component prior to commencing PCIT; however, in addition to the motivation component, the second PCIT group participants were also offered individual counseling in addition to PCIT. Results indicated reductions in rates of future referrals to child welfare in the PCIT + motivation group compared to the treatment as usual group. However, contrary to expectations, the PCIT group participants who also received individual therapy were not significantly different than the PCIT + motivation group

in terms of the renotification rates. There was a trend suggesting that increasing services (individual counseling) to PCIT participants attenuated parent and child outcomes. More recently and with similar families, Chaffin, Funderburk, Bard, Valee, and Gurwich (2011) compared PCIT and services as usual with two orientation conditions (motivation and psychoeducation). Participants with a motivation orientation combined with PCIT had fewer notifications to child welfare after treatment than either the PCIT group combined with psychoeducation or either of the service as usual groups. To evaluate the orientation addition to PCIT, the authors recommended future research compare nonorientated PCIT and PCIT with a motivation orientation.

PCIT with high-risk families has also been augmented with either an in-home coaching component or an in-home social support component (Timmer, Zebell et al., 2010). It was expected that augmenting PCIT with in-home coaching would enable greater remediation of inappropriate parent–child interaction, produce greater reductions in child externalizing behavior and parent stress, and greater increases in positive parent–child communications. However, at mid-treatment assessment there were no differences between groups on parental report of child behavior change, but the in-home coaching group parents did report reduced stress compared to the social support group participants. No differences between groups were found also for the rate of skill acquisition or quality of parent–child interactions at treatment completion. Therefore, augmenting PCIT with either in-home coaching or social support did not alter treatment outcomes at completion.

Finally, in a third randomized controlled trial (RCT) of PCIT, treatment was allowed to vary in length (Thomas & Zimmer-Gembeck, 2011). Participants concluded PCIT when they had attained skills to a specified level (Mastery Criteria) and could demonstrate changes in behavior management strategies. This approached differed from the other PCIT trials due to the open-ended treatment time frame. Compared to a waitlist comparison group at 12 weeks of treatment, PCIT participants had significantly less externalizing child behavior problems and parental stress and significantly greater observed positive communication. These positive outcomes were strengthened for PCIT participants after completion of the treatment protocol and similar to Chaffin et al. (2004), participants who completed PCIT were significantly less likely to be notified to child welfare for any maltreatment complaint than those who did not complete PCIT. Despite the overall positive results for participants in PCIT groups, no study with a high-risk cohort has investigated the effectiveness of S/PCIT. Community practitioners need better guidance regarding which PCIT adaptation to use or whether the standard protocol might be similarly effective.

New Directions in Services to Improve Parenting and Decrease Child Abuse

Although governments continue to increase funding for child maltreatment (Bromfield et al., 2011), many of these funds

go to much needed frontline child welfare services and therapeutic agencies are required to do more with fewer resources. Lengthy treatments are often cost prohibitive and may not produce more benefit than treatments of shorter duration, potentially reducing the cost-effectiveness of more intensive treatments. In a meta-analysis of sensitivity and attachment interventions in early childhood (Bakermans-Kranenburg, van IJzendoorn, & Juffer, 2003), results showed that some of the most effective interventions were not lengthy and interventions with fewer contacts appeared somewhat more effective than interventions with many sessions. Second, it was concluded that some interventions were effective regardless of whether families experienced multiple problems. The present study was designed to address the effectiveness of an EBT (i.e., PCIT) with high-risk families using the standard and original protocol without adaptation.

Hence, the purpose of the current study was to assess the effectiveness of S/PCIT with families engaged in or at risk of child maltreatment. Instead of providing additional components, we minimized the length of the intervention protocol to determine whether outcomes were as positive as adapted PCIT interventions. PCIT has two phases. In this study, progression from the first to the second occurred after 6 to 8 coaching sessions regardless of Mastery Criteria and treatment concluded when a maximum of 12 coaching sessions had been conducted. Participants were referred because they had a history or were assessed to be at high risk of child abuse.

Previous research has shown that PCIT is effective in reducing child externalizing behavior problems, parent stress, and child abuse potential, and increasing positive parent–child interactions and maternal sensitivity; these are all correlates of child maltreatment. In the current study, outcomes of the S/PCIT protocol were compared to those of a supported waitlist control group. As PCIT is a dyadic therapy, both parent and child outcomes are important. Therefore, the primary outcomes for the study were an expected decrease in child externalizing behavior and increase in observed parent sensitivity. Overall, we expected that using the S/PCIT protocol for families engaged in or at risk of child maltreatment would be as effective as adapted PCIT for the same population. We expected decreases in externalizing and internalizing child behavior, parent stress, parent depression, abuse potential and observed decreases in negative parent communication, and increases in positive communication and parent sensitivity. Due to consistency in measures and sample population, outcomes of the current trial were compared to our previous PCIT effectiveness trial (Thomas & Zimmer-Gembeck, 2011) to determine whether the S/PCIT treatment protocol was as effective as the lengthier version for high-risk parents.

Method

Participants

Participants were 151 female caregivers ($M_{age} = 33.9$ years, $SD = 7.31$) and their children ($M_{age} = 4.57$ years, $SD = 1.3$;

70.4% boys). For brevity and to simplify language, the term parent will be used to identify the group of female caregivers in this study. The majority of parents were born in Australia (74%) with 1.4% being of Aboriginal or Torres Strait Islander descent. Most mothers had completed some high school (81%) and 16.5% had some tertiary education.

The intervention was delivered by a well-known tertiary referral service and research program for families at high-risk of, or engaged in, child maltreatment. Families were referred after having completed alternative parenting courses and assessed by referrers as requiring further intervention. A semi-structured interview was developed and administered by researchers at preassessment to assess child maltreatment risk using proximal risk factors including high levels of parent distress, inappropriate discipline strategies, and aggressive communication. All families indicated use of corporal punishment in their discipline strategies and expressed high levels of frustration and intolerance with child behavior and high levels of parental distress. Participants were referred from child protection authorities (34.2%), government health services (19.7%), and education and nongovernment social service organizations (18.4%). Parent self-referrals also were accepted (27.6%), but the preassessment semistructured interview had to reveal prior parenting interventions, high risk for child maltreatment and significant levels of child behavioral problems. Families referred from child protection were classified as having engaged in child maltreatment. We were not able to reliably ascertain child protection status for those families referred from sources other than the child protection authority. Therefore, all families were assessed at preassessment using a semistructured interview and families referred from sources other than child protection were classified as high risk.

Although, all participants in the current study referred from child protection authorities were considered as having engaged in child maltreatment, it has been argued that families who come to the attention of the child welfare authorities represent only the most severe end of the continuum of child maltreatment (Cicchetti & Toth, 2005; Manly, 2005), and it is often concluded that the actual child maltreatment rate exceeds official estimates. A reliance on substantiated or reported cases of child maltreatment for inclusion criteria, therefore, not only may produce research findings that are not fully generalizable to the broader population of parents who have maltreated their children but also precludes some parents from interventions because the report of maltreatment was not substantiated or reported. Psychosocial maladaptation occurs in both substantiated and unsubstantiated cases (Drake, 1996). Hussey and colleagues (2005) found the behavioral and developmental outcomes of a high-risk sample of 8-year-old children with both substantiated and unsubstantiated reports of child maltreatment were indistinguishable. Therefore, the recruitment strategy of the current study may be more representative of the general population of maltreating parents than would be found when relying on referrals from child protection sources only (Hussey et al., 2005).

To determine whether the current participants differed at preassessment when compared to participants in previous
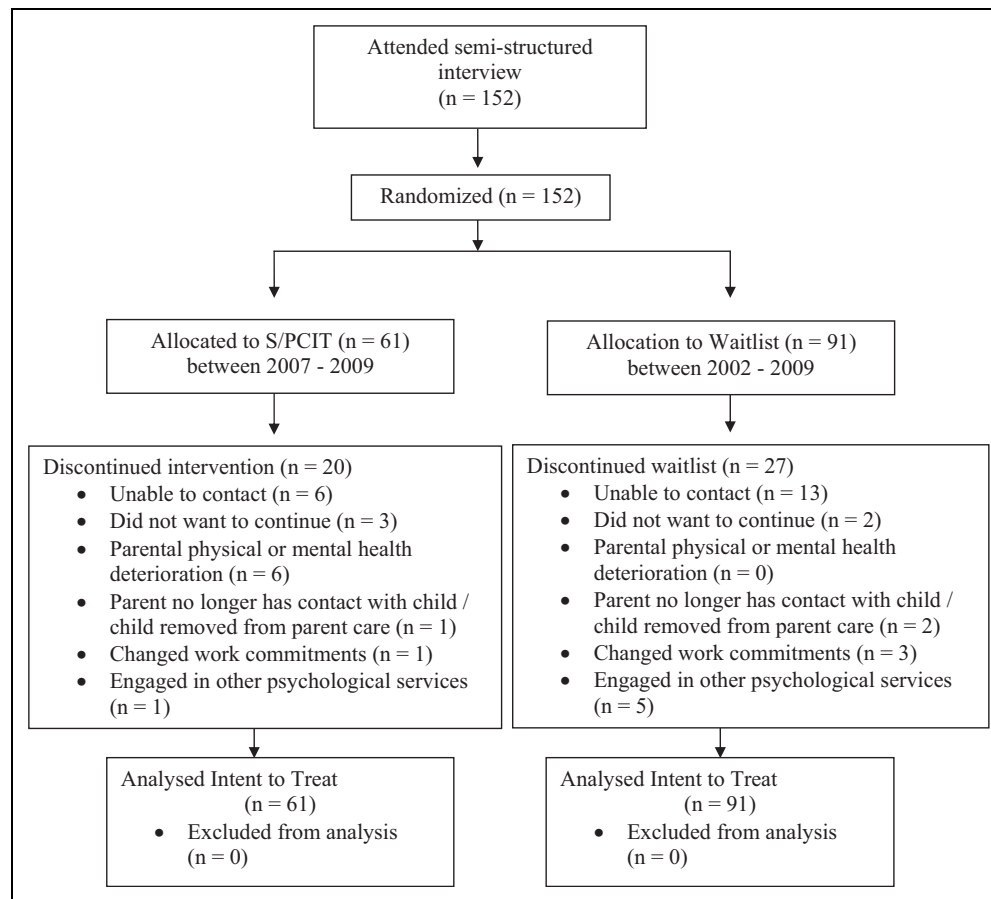
Figure 1. Flow of standard Parent–Child Interaction Therapy (S/PCIT) and waitlist participants through study.

published studies who were all referred from child welfare agencies, we compared published levels of preassessment measures to our findings. We found no differences in child abuse potential scores ($t = 1.47$, $p = .14$; Chaffin et al., 2004), or internalizing behaviors ($t = -1.04$, $p = .30$; Timmer, Ware et al., 2010). However, compared to Timmer, Ware, Urquiza, and Zebell (2010), participants in the current study reported *greater* child externalizing behavior ($t = -2.43$, $p = .01$), *greater* behavior intensity ($t = -3.37$, $p = .0003$), and *greater* problematic behavior ($t = -2.41$, $p = .02$).

In the current study, other than information regarding sexual abuse, access to specific maltreatment history for families referred from child protection authorities was not available. However, different subtypes of maltreatment have been reported to coexist in a majority of families (Cicchetti & Valentino, 2006), and it is likely that this was the case for almost all families in the current study. However, PCIT has been contraindicated for children with a history of sexual abuse. Therefore, children were excluded if there was any suspected sexual abuse history based on information revealed during the initial interview with parents or from child protection authorities.

The present study was part of a larger RCT of PCIT where participants were allocated to time-variable PCIT (TV/PCIT), standard PCIT (S/PCIT) or waitlist. The RCT comparing PCIT and a waitlist group has been conducted since 2002. Between

2002 and 2006 participants were randomly assigned to TV/PCIT group or the waitlist group. Outcomes of these data were reported in Thomas and Zimmer-Gembeck (2011). Between 2007 and 2009, participants were randomly assigned to S/PCIT or waitlist. Therefore, the waitlist group was continuous throughout the RCT and randomization to this group occurred between 2002 and 2009. Consequently due to the length of time for allocation, more families were allocated to the waitlist group compared to the S/PCIT group. Of the 91 families allocated to the waitlist group, 64 (70%) completed 12-week assessments. Of those families who commenced S/PCIT, 41 (68.3%) completed the 12-week S/PCIT assessment. Families randomly assigned to waitlist were informed they could begin PCIT treatment at the conclusion of a 12-week wait. Figure 1 shows the flow of S/PCIT and waitlist participants through the study between 2007 and 2009.

Procedures

Parent–child interaction therapy. PCIT was developed to improve parenting skills and parent–child interactions among families struggling with their children's (aged 3–7) behavior problems (e.g., oppositional defiant disorder; Hembree-Kigin & McNeil, 1995). PCIT has two sequential phases known as child-directed interaction (CDI) and parent-directed interaction

(PDI). Each phase teaches parents communication skills that foster positive parent–child relationships and strategies of differential reinforcement. PCIT skills are taught via didactic presentations to parents and direct coaching of parents while they are interacting with their children. The commencement of each phase includes a didactic session designed to teach the parent specific skills related to each phase of the therapy. The remainder of PCIT involves direct coaching sessions that provide the parent with immediate praise for appropriate responses to their child's behavior and remediation of inappropriate responses. Although the length of treatment time in PCIT is cited as variable, as transition from CDI to PDI occurs when Mastery Criteria for the first phase has been achieved, previous PCIT research reported the average length of treatment time as 13 sessions (Hembree-Kigin & McNeil, 1995; Schuhmann, Foote, Eyberg, Boggs, & Algina, 1998). Treatment is completed when the parent successfully and consistently meets Mastery Criteria by demonstrating strategies learned in PDI and expresses a clear understanding of their own change and role in the family system (Hembree-Kigin & McNeil, 1995). For information on training in PCIT please refer to the PCIT training websites www.pcittraining.tv/ or http://www.pcit.org/

Participants completed preassessment questionnaires (at home between assessment sessions) and the observation task (in the clinic at the second assessment session) prior to random allocation to S/PCIT or waitlist.

S/PCIT. In previous trials of PCIT (Schuhmann et al., 1998; Thomas & Zimmer-Gembeck, 2011), parents were coached during CDI until Mastery Criteria were achieved for two consecutive sessions before commencing PDI. Treatment concluded when the parent met the Mastery Criteria for CDI and was observed to effectively implement behavior management strategies taught in PDI (Hembree-Kigin & McNeil, 1995; McNeil, Capage, Bahl, & Blanc, 1999). However, in S/PCIT, participants were allocated 12 coaching sessions only regardless of proficiency. On average, S/PCIT participants completed a total of 6.5 CDI sessions ($SD = 0.78$, range 5–8) and 5.6 PDI sessions ($SD = 0.97$, range 4–7). In addition to the coaching sessions, all participants received two assessment sessions (preassessment and 12-week assessment) and two didactic teaching sessions preceding both CDI and PDI. The average number of PCIT session in total for S/PCIT was 14 ($SD = 0.84$, range 12–16). On average, S/PCIT participants who did not complete the intervention had a total of 6.6 sessions ($SD = 4.7$).

Waitlist. Participants allocated to the waitlist were contacted weekly by phone by an allocated PCIT psychologist for brief conversations regarding family and other concerns. Parents in the waitlist group were asked to refrain from family therapy and therapeutic assistance with child behavior management for the duration of 12 weeks. At the end of 12 weeks, families were offered S/PCIT. Families who commenced S/PCIT after the waitlist were not included in the S/PCIT treatment group data of the current study.

Training and treatment integrity. Master and doctoral level psychologists trained in PCIT implemented the intervention. In total, six psychologists (including the first author) provided the intervention. Prior to PCIT, all psychologists had experience in providing psychological interventions to adults and children. Supervision was provided by the first author who was trained in PCIT by the PCIT CAARE team in Sacramento, United States. A minimum of weekly supervision sessions were provided with additional consults available as necessary. Supervision included observations of PCIT sessions both when requested and at random to assist in PCIT implementation and integrity.

Data collection. At the first assessment session, parents were given the self-report and parent-report measures to complete at home. Parents returned forms the following week when they were scheduled to complete the second assessment session, the videotaped preassessment. Random allocation to S/PCIT or waitlist occurred after the videotaped preassessment. Postassessment data were collected after 12 weeks for all participants.

Measures

Child externalizing and internalizing symptoms. Two measures were used to assess children's symptoms; the Eyberg Child Behavior Inventory (ECBI, parent-report) to measure child behavior problems, and the Child Behavior Checklist/4–18 (CBCL; parent-report) to measure externalizing and internalizing symptoms. The ECBI measures the intensity of behavior problems (ECBI Intensity) and the extent parents found the behaviors problematic in children (ECBI Problem). Response options for ECBI Intensity range from 1 (*never*) to 7 (*always*). The sum of these scores indicates parent perception of the intensity of the child's behaviors. Second, on a dichotomous yes/no scale, the parents endorse whether each behavior is problematic. The sum of the number of endorsed items constitutes a problem scale. Norms for children 2–12 years have been established, with the threshold score for clinical problems being 132 for the intensity scale and 15 for the problem scale (Eyberg & Pincus, 1999). The CBCL is a widely used behavioral rating scale for children aged 4–18 years and contains 118 items describing a wide range of behavioral and emotional problems (Achenbach, 1991). For children younger than 4 years, the Child Behavior Checklist/2–3 was administered. Responders are required to circle the numbers 0 (*not true*), 1 (*somewhat true*), or 2 (*very true*) for each item. Items are categorized into subscales and scores of these items are summed to determine subscale raw scores. Raw scores are converted to T scores, which have a mean of 50 and a SD of 10. Hence, the T score was utilized in the current study to enable comparisons between different versions of the CBCL. A T score of 60 represents the lower band of the borderline clinical range (1 SD above the mean) with the upper band 63. Scales surpassing a T score of 64 are considered to be in the clinical range. In the current study internal consistency for ECBI Intensity was

Cronbach's α = .94, ECBI Problem .90, CBCL Externalizing .88, and .83 for CBCL Internalizing.

Parent stress. The Parenting Stress Inventory (PSI; Abidin, 1990) consists of 101 items that form composite scores for the child and parent stress domains with 90 response options ranging from 0 (*strongly disagree*) to 5 (*strongly agree*) and a further 11 multiple choice. There are a further 19 items that assess specific life stressors. Scores for the PSI are summed for each scale. High scores on the child stress domain indicate that parents believe that they have more difficulty fulfilling their parental role as a result of qualities of their child. High scores on the parent stress domain indicate that the parent's functioning is a significant stressor in the parent–child relationship. Percentiles scores for the child domain scale range from 121 for the 85th percentile to 147 for the 99th percentile. The parent domain scores range from 160 for the 85th percentile to 190 for the 99th percentile. Scores for the parent and child stress domains were used in the current study and had good internal consistency (α = .93, parent domain and .91, child domain).

Parents' depression. Maternal depression was measured using the Beck Depression Inventory II (BDI-II; Beck, Steer, & Brown, 1996). The BDI-II is a 21-item self-report measure of depressive symptoms. Scores for multiple choice responses are summed to provide an overall score for depression (0–13 minimal depression, 14–19 mild, 20–28 moderate, and 29–63 severe). The internal consistency for the BDI in the current study was α = .93.

Parents' child abuse potential. The Child Abuse Potential Inventory (CAPI; Milner, 1986) was used to measure mothers' level of child abuse potential. The CAPI contains 160 items designed to differentiate maltreating from nonmaltreating individuals. Parents are required to circle a dichotomous agree/disagree response option for each item. Items are summed for each subscale, and the abuse scale represents a composite of items from the other scales. The current study used the total child abuse score. Using survival analyses comparing CAPI abuse scores and child protection notifications, Chaffin and Valle (2003) reported preassessment CAPI abuse scores predicted future child protection notifications for maltreatment with a sample of parents with a history of child maltreatment and those at high risk. The normative mean for the CAPI abuse scale is 91 and signal detection cutoff is 166. The Cronbach's α for the current study was .90.

Parent observed behaviors. The Dyadic Parent–Child Interaction Coding System III (DPICS; Eyberg et al., 2004) was used to assess the quality of parents' verbalizations when interacting with their children. The first 5 minutes of a 10-minute child-led videotaped play interaction between parents and children was coded by independent observers. The first 5-minute segment was chosen to be comparable to other published PCIT trials, which have relied on the first 5 minutes of the free-play situation to code DPICS scores. We also considered the first 5

minutes would simulate realistic communication skills rather than skills that increased over time due to parent habituation to the environment. Frequencies of parent verbalizations were tallied and included praises (labeled and unlabeled), descriptions/reflections (combination of reflections and behavioral and information descriptions), questions (combination of descriptive/reflective questions and information questions), and commands (combination of indirect and direct commands). To adjust for variability in the total number of verbalizations across participants, the percentage of each DPICS category to total verbalizations was calculated for use in analyses.

In addition, the full 10-minute videotaped interactions were coded for sensitivity. The measure of parent sensitivity was developed by modifying one subscale of the Emotional Availability scales (Biringen, Robinson, & Emde, 2000). Parents were rated from 1 (*highly insensitive*) to 9 (*highly sensitive*). Coding included consideration of the parent's affect, ability to respond to the child's signals, flexibility, and accessibility to the child.

Coders were third or fourth year psychology undergraduate students with no knowledge of PCIT and who were blind to treatment condition. The training regime for each of the observational coding systems included 2-hr blocks of time for 6 weeks. A minimum of 18 hr of training and practice occurred before the coding began. Video segments of either DPICS or parent sensitivity were coded by two independent coders. Inter-rater reliability was assessed using 10 randomly selected video segments. High intraclass correlations were established for the 24 coders for the DPICS categories: praise (.98), reflections/descriptions (.97), questions (.99), commands (.97), and negative talk (.92). In addition, the intraclass correlation for the modified sensitivity scale was .96.

Results

Overview of Analyses

For the primary analysis of treatment outcomes, the child and parenting outcomes of families in S/PCIT were compared to waitlist using 2 (Group: S/PCIT vs. waitlist) × 2 (Time: preassessment vs. 12-week assessment) mixed factorial analysis of variance (ANOVA). Group intervention effect sizes (Cohen's *d*) were also calculated for the Group × Time interactions (Devilly, 2005). Missing data were managed in two ways. First, because a small number of participants (5 or fewer) were missing data for some items on some scales, missing values were imputed using multiple imputation (SPSS version 18) and all analyses were repeated. If all items on a scale were missing, these items were not imputed resulting in a smaller sample size for some analyses. Second, to account for attrition we also conducted intent-to-treat (ITT) analyses using an imputed data set. ITT was conducted using the Last Observation Carried Forward (LOCF) method of replacing missing data. LOCF was conducted for participants who completed preassessment data and were randomized but failed to complete the 12-week assessment. Few differences in data analyses were

Table 2. Comparison of Change Between Standard PCIT and Waitlist Preassessment to 12-Week Assessment

Measures	Group	N	Preassessment M	SD	12-Week assessment M	SD	Group × Time F	p	Effect size d
Child behavior problems									
Parent report									
Externalizing behaviors	Standard	57	64.8	9.8	59.0	12.6	13.00	.000	−0.38
	Waitlist	89	64.5	10.1	62.9	11.1			
ECBI Intensity	Standard	60	149.8	37.9	133.7	38.1	5.61	.019	−0.27
	Waitlist	90	149.1	34.9	143.1	36.7			
ECBI Problem	Standard	60	19.1	8.0	13.5	8.6	21.31	.000	−0.61
	Waitlist	90	18.0	7.9	17.5	9.2			
Internalizing symptoms	Standard	57	54.6	10.1	49.8	11.5	6.25	.014	−0.30
	Waitlist	89	56.5	10.9	55.1	12.2			
Parent characteristics									
Parent stress									
Stress due to the child	Standard	60	134.4	25.5	125.5	36.4	4.27	.041	−0.24
	Waitlist	91	132.5	24.5	130.5	25.8			
Stress due to the parent	Standard	60	147.7	30.1	144.7	37.2	0.29	.591	−0.07
	Waitlist	91	145.4	26.8	144.4	25.9			
Parent child abuse potential	Standard	59	153.9	100.5	137.1	110.7	1.02	.315	−0.01
	Waitlist	91	155.1	103.2	149.1	103.4			
Parent depression	Standard	59	14.0	10.6	12.0	11.26	2.06	.153	0.19
	Waitlist	90	15.1	11.3	11.0	9.88			
Parent verbalizations									
Praise, %	Standard	59	3.6	3.3	12.4	9.3	41.69	.000	1.40
	Waitlist	81	3.7	3.9	4.3	5.1			
Descriptions/reflections, %	Standard	59	43.8	11.3	61.5	12.8	39.22	.000	1.28
	Waitlist	81	45.1	12.9	46.8	12.9			
Questions, %	Standard	59	37.3	12.5	16.7	12.4	59.51	.000	−1.50
	Waitlist	81	36.9	13.9	35.7	13.2			
Commands, %	Standard	59	13.4	9.2	7.9	8.3	5.75	.018	−0.39
	Waitlist	81	12.8	10.3	10.8	8.6			
Negative talk %	Standard	59	1.7	3.3	0.8	1.7	10.19	.002	−0.61
	Waitlist	81	1.3	2.1	1.9	2.9			
Parental sensitivity	Standard	59	5.6	1.3	6.3	1.2	7.16	.008	−0.47
	Waitlist	81	5.3	1.5	5.4	1.4			

Note. ECBI = Eyberg Child Behavior Inventory. Numbers for Standard and waitlist observations vary due to equipment failure (waitlist = 4 tapeover, 2 no audio) or missing data (waitlist = 4, Standard = 2).

S/PCIT Compared to Waitlist

Overall, from preassessment to 12-week assessment, S/PCIT participants showed more improvements than waitlist participants. Results of the Group × Time interaction effects and associated effect sizes are reported in Table 2. Specifically, S/PCIT participants reported greater reductions in their child's externalizing behaviors and internalizing symptoms compared to waitlist participants with small-to-medium effects. A small but significant effect for reductions in parent stress attributed to the child was also reported by S/PCIT participants compared to the waitlist participants. However, larger effects were observed for S/PCIT participants compared to waitlist for praise and descriptions and reflections, and medium-to-large effects in decreasing questions, commands, and negative talk. Also, compared to waitlist, a significant medium effect was observed for sensitivity, with greater improvement among S/PCIT participants compared to waitlist. However, there were no significant differences between S/PCIT and waitlist participants when changes in maternal depression, stress due to parent concerns, or total child abuse potential scores were compared.

S/PCIT Compared to TV/PCIT

S/PCIT compared to TV/PCIT at preassessment. As done previously, we first determined whether participants differed at preassessment prior to conducting the primary analyses. Independent *t* tests of the preassessment scores of S/PCIT and TV/PCIT participants showed that TV/PCIT participants reported significantly greater internalizing symptoms ($n = 108$, $M = 60.06$, $SD = 12.32$) than S/PCIT participants ($n = 58$, $M = 54.47$, $SD = 10.1$), $t(164) = 2.96$, $p = .004$. No differences were found for any other dependent variable (data not shown in tables).

S/PCIT compared to TV/PCIT at preassessment to 12 weeks. Table 3 shows the Group × Time interaction effects from

Table 3. Comparisons of Change Between Standard and Time-Variable PCIT Preassessment to 12-Week Assessment

Measures	Group	N	Preassessment		12-Week assessment		Group × Time		Effect size
			M	SD	M	SD	F	p	d
Child behavior problems									
Parent report									
Externalizing behaviors	TV/PCIT	107	68.5	10.7	66.1	11.8	10.34	.002	0.31
	S/PCIT	57	64.8	9.8	58.9	12.6			
ECBI Intensity	TV/PCIT	107	162.3	35.6	151.8	37.5	2.80	.096	0.15
	S/PCIT	60	149.8	37.9	133.7	38.1			
ECBI Problem	TV/PCIT	107	20.1	8.3	17.9	9.2	12.42	.001	0.41
	S/PCIT	60	19.1	8.0	13.5	8.6			
Internalizing symptoms	TV/PCIT	107	59.3	11.2	57.2	11.4	3.79	.053	0.24
	S/PCIT	57	54.6	10.1	49.8	11.5			
Parent characteristics									
Parent stress									
Stress due to the child	TV/PCIT	107	139.5	26.1	138.4	36.5	2.59	.109	0.25
	S/PCIT	60	134.4	25.5	125.5	36.4			
Stress due to the parent	TV/PCIT	107	148.5	35.8	143.7	33.8	0.26	.613	−.05
	S/PCIT	60	147.7	30.1	144.7	37.2			
Parent child abuse potential	TV/PCIT	107	184.4	102.5	181.8	108.2	3.69	.056	0.13
	S/PCIT	59	153.9	100.5	137.1	110.7			
Parent depression	TV/PCIT	107	15.7	11.2	14.0	11.0	0.08	.775	0.03
	S/PCIT	59	14.0	10.6	12.0	11.3			
Parent verbalizations									
Praise, %	TV/PCIT	99	3.6	4.2	8.5	9.2	7.92	.006	0.55
	S/PCIT	59	3.6	3.3	12.4	9.3			
Descriptions/reflections, %	TV/PCIT	99	48.9	11.9	57.1	14.5	15.82	.000	0.91
	S/PCIT	59	43.8	11.2	63.5	12.8			
Questions, %	TV/PCIT	99	34.6	11.7	24.2	15.2	15.22	.000	0.79
	S/PCIT	59	37.3	12.5	16.7	12.4			
Commands, %	TV/PCIT	99	11.3	8.9	8.9	7.3	6.59	.011	0.37
	S/PCIT	59	13.4	9.2	7.9	8.3			
Negative talk %	TV/PCIT	99	1.6	2.8	1.2	2.6	2.11	.149	0.22
	S/PCIT	59	1.7	3.3	0.8	1.7			
Parental sensitivity	TV/PCIT	99	5.1	1.6	5.4	1.6	4.03	.046	0.34
	S/PCIT	59	5.6	1.3	6.3	1.2			

Note. ECBI = Eyberg Child Behavior Inventory; PCIT = Parent–Child Interaction Therapy; TV/PCIT = time-variable PCIT; S/PCIT = Standard PCIT; Numbers for TV/PCIT and S/PCIT observations vary due to equipment failure (TV/PCIT = 2 tapeover, 1 no audio) or missing data (TV/PCIT = 5, S/PCIT = 2).

mixed factorial ANOVA used to compare differences between S/PCIT and TV/PCIT participants from preassessment to the 12-week assessment. Effect sizes are also shown in Table 3. Overall, S/PCIT participants had greater improvements in child externalizing behavior (CBCL) and ECBI Problem scale compared to TV/PCIT participants (see Table 3). In addition, although marginally significant and a smaller effect, S/PCIT participants reported fewer child internalizing symptoms after treatment than TV/PCIT participants. With the exception of negative talk, S/PCIT participants outperformed TV/PCIT participants with medium-to-large effects for improvements in praise and description and reflections, greater reductions in questions and commands, and a significant medium effect for improvements in observed sensitivity.

S/PCIT compared to TV/PCIT preassessment to treatment completion. Because our previous trial of TV/PCIT used a time-variable format, completion of treatment did not occur

within a specified time period. In contrast, all participants in S/PCIT completed treatment after 12 weeks. Therefore, we used LOCF to compare S/PCIT participants' completion scores, which were all assessed at 12 weeks ($n = 59$), to TV/PCIT participants' treatment completion scores, which were assessed as early as 10 weeks and as late as 53 weeks after starting treatment ($n = 99$, data not shown). There were improvements in all measures between the preassessment to the completion assessment, and there were no differences in the improvements over time between S/PCIT and TV/PCIT participants for parent depression, stress, child abuse potential, child externalizing behaviors, and internalizing symptoms. However, S/PCIT participants showed greater improvements in observational measures, including greater improvements in observed praise, $F(1, 156) = 4.06$, $p = .046$, $d = 0.43$, and descriptions and reflections, $F(1, 156) = 8.53$, $p = .004$, $d = -0.13$, compared to TV/PCIT participants. S/PCIT, compared to TV/PCIT participants, also had greater declines in observed

questions, $F(1, 156) = 8.93$, $p = .003$, $d = -0.62$. Further, S/PCIT participants had marginally larger reductions in observed commands than TV/PCIT participants, $F(1, 156) = 3.83$, $p = .052$, $d = -0.31$. No significant difference between S/PCIT and TV/PCIT participants was found for observed sensitivity.

Attrition Rates of PCIT Participants: Preassessment to 12-Week Assessment

A comparison of attrition rates between PCIT groups and the waitlist group was conducted using χ^2 analysis (data not shown in tables). Significant differences were found between S/PCIT and TV/PCIT. Of the families who commenced S/PCIT ($n = 61$), 31.6% did not complete treatment compared to 51.4% ($n = 109$) of TV/PCIT participants χ^2 (1, 170) = 4.95, $p = .036$. There was no significant difference in attrition rate between S/PCIT and waitlist participants χ^2 (1, 150) = 0.17, $p = .722$.

Discussion

PCIT has a robust evidence base as an effective intervention for child externalizing behavior, parent stress, and nonoptimal parent–child interactions (Eyberg et al., 2001; McNeil et al., 1999). In addition to providing further data for a well-established EBT for child externalizing behavior, this study provides further evidence that PCIT is an EBT for parents who have or are at high risk of maltreating their children. Three independent research cohorts have published data on the effectiveness of PCIT with maltreating parents and their children (Chaffin et al., 2011, 2004; Thomas & Zimmer-Gembeck, 2011; Timmer, Ware et al., 2010). However, the current study is the first to demonstrate effectiveness of S/PCIT with families at high risk or engaged in maltreatment.

Determining the effectiveness of EBTs with high or special needs subpopulations is an integral part of establishing intervention effectiveness. Evident in the array of modified interventions for specialized populations, it is commonly expected that original interventions require adjustments before implementation with selected populations (Chaffin et al., 2011; McNeil, Herschell, Gurwitch, & Clemens-Mowrer, 2005; Pincus et al., 2005; Roberts, Mazzucchelli, Studman, & Sanders, 2006; Webster-Stratton & Reid, 2012). In our original RCT of PCIT (Thomas & Zimmer-Gembeck, 2011), we too expected that parents and families with complex problems, such as parents engaged in child maltreatment, would require lengthier treatment options than other families. This was expected because of the evidence that parents who maltreat their children have entrenched maladaptive behaviors, have children who are likely to have very elevated externalizing and internalizing symptoms (Dodge, Bates, & Pettit, 1990), and have experienced transgenerational negative parenting behaviors (Neppl, Conger, Scaramella, & Ontai, 2009). Because of this, our original PCIT trial with maltreating parents and their children used a time-variable approach to treatment, whereby therapy concluded when participants had met Mastery

Criteria and demonstrated consistent application of behavior management skills (Thomas & Zimmer-Gembeck, 2011). However, a meta-analysis conducted after initiating this trial (Bakermans-Kranenburg et al., 2003) suggested differently. Hence, we were in a unique position to modify PCIT to 12 weeks of coaching only, similar to the original PCIT design (S/PCIT; Hembree-Kigin & McNeil, 1995).

Improvements for Families in S/PCIT Compared to Waitlist

Overall, the findings showed that S/PCIT had positive outcomes for high-risk parents and their children when compared to a supported waitlist control. First, S/PCIT participants reported greater reductions in symptoms and problems from pre- to post-intervention. Reductions were found for child externalizing and internalizing behaviors and stress attributed to the child. S/PCIT participants were also observed to decline in questions, commands, and negative talk more than waitlist participants. Similarly S/PCIT participants were also observed to increase significantly more in positive communication skills and maternal sensitivity than waitlist.

All parents, whether in S/PCIT or on the waitlist, reported declines in depressive symptoms between preassessment and 12-week assessment. A plausible explanation for improvements to participants' depression scores may be because all participants had weekly contact with a psychologist. Despite nonactive intervention by the psychologist during the weekly telephone calls to waitlist participants, any contact with a professional on a regular basis may be associated with the alleviation of some depressive symptoms.

Although parent stress attributed to the child (PSI Child Domain) decreased over time among intervention families relative to waitlist control, there was no significant decrease in parents' stress due to concerns other than those related to the child. This was measured with the Parent Domain of the PSI, which contains subscales such as isolation and health that are not addressed specifically in S/PCIT. Similarly to parent depression, child abuse potential significantly decreased from preassessment to 12-week assessment, however unexpectedly, improvement in these scores did not differ between groups. This contrasts our previous PCIT trial (Thomas& Zimmer-Gembeck, 2011) but is consistent with Chaffin et al. (2004) where decreases in CAPI distress, loneliness, and rigidity scale were reported in both groups but no significant treatment group effect was found.

S/PCIT Compared to TV/PCIT

To investigate the effectiveness of limiting the PCIT coaching sessions to 12 only with parents who are at high risk or have maltreated their children, we compared the outcomes of our S/PCIT group to the outcomes for families who participated in TV/PCIT group. Comparisons were possible because of the use of the same measures and consistencies in referral sources and intervention protocols. Compared to TV/PCIT outcomes,

S/PCIT treatment outcomes at 12 weeks were either as positive as TV/PCIT outcomes or significantly better. Compared to TV/PCIT, S/PCIT participants had greater reductions in child externalizing behaviors and nominated problem behaviors and marginally greater reductions in internalizing symptoms and child abuse potential. Similarly, S/PCIT participants outperformed TV/PCIT participants in observed increases in positive communication and reductions in negative communication. These are important differences, suggesting that S/PCIT is at least as beneficial and may be more beneficial than a longer form of PCIT, therefore reducing costs for both families and intervention providers.

Potential Practice and Policy Implications

The identification of effective interventions, which are also time limited and/or brief, has implications for policy makers and community practitioners. First, given the high costs of intervention services for children and their families, interventions that demonstrate effectiveness with shorter treatment durations are an incentive for implementation in busy, underfunded community welfare organizations. Practitioners trained in standard protocols of efficacious interventions may not need to modify the intervention for their complex families. This is important for cost-effectiveness of training and implementing EBTs. Rather than offering multiple training options for an EBT based on subpopulations (i.e., subpopulation training supplements), EBT training organizations could succinctly deliver their standard protocol training therefore reducing training costs for organizations and simultaneously increasing the likelihood the organization would adopt the EBT. Further, rather than developing subpopulation modifications of EBTs, perhaps policy makers should fund large-scale trials of efficacious standard protocols for subpopulations before decisions are made regarding whether intervention modifications are required.

Other important factors when providing therapy to high-risk families are attrition and therapy fatigue. Studies have reported that maintaining high-risk families in interventions is difficult (Friars & Mellor, 2007; Timmer, Urquiza, Zebell, & McGrath, 2005). Previous PCIT research in child maltreatment has reported high attrition rates. Within their sample of mothers with a history of maltreating their children, Timmer, Urquiza, Zebell, and McGrath (2005) reported an attrition rate of 53%. In our TV/PCIT study, we had an attrition rate of 57% (Thomas & Zimmer-Gembeck, 2011). In the current study of S/PCIT however, attrition was reduced to 32%. This is similar to a PCIT study comparing two abbreviated versions of PCIT in a subclinical pediatric population (30%; Berkovits et al., 2010).

To handle missing data and attrition, we managed the data in two ways. First, missing data were imputed using multiple imputation when analyses included all participants who completed treatment or waitlist follow-up assessments. Second, to maintain participants in analyses when they had not completed treatment, we used the method of LOCF. Because there were two repeated assessments only, this method assumes an individual's score on a measure at follow-up was the same at pretest. LOCF is a transparent method for managing attrition and missing data, which is more likely to produce a conservative estimate of intervention effect sizes in studies where improvement, rather than deterioration, is expected (Prakash, Risser, & Mallinckrodt, 2008). Hence, we used a combination of methods to manage missing data in order to present good estimates of effects and to be conservative in our estimates when maintaining participants who did not complete treatment in the analyses.

Therapy fatigue (accessing services from too many interventions simultaneously) has been described as contributing to attrition (Kaminski, Valle, Filene, & Boyle, 2008). Reducing the number of treatment sessions and providing a defined intervention end point may encourage families to remain in the intervention until completion. When intervention length is open-ended, there is potential for both practitioners and families to lose focus of treatment goals. It is possible that participants may not be able to maintain commitment to a variety of intervention approaches simultaneously, and organizations may not have the resources to develop and maintain equally high standards across all intervention components. Open-ended interventions (particularly those with ancillary services) may inadvertently convey messages of complexity of family problems and divert attention from initial presenting problems and goals of treatment (Kaminski et al., 2008). Reviews and meta-analyses have described interventions with fewer treatment sessions as more efficacious than lengthier interventions (Bakermans-Kranenburg et al., 2003; Kaminski et al., 2008). An organized case management approach at initial consultation, with clear goals and foci of treatment, based on family need rather than service center provision, may assist families to resolve one goal at a time, thereby increasing a sense of empowerment and ability to change. Shortened treatment duration may create a sense of purpose and shared goals between practitioners and their clients resulting in commitment to treatment and focused requirements of change.

Future Research

The strength of the current study was its diverse sample resulting from the use of inclusive recruitment methods and minimal exclusionary criteria. In addition, few differences were found when preassessment levels of dependent variables were compared to the levels reported in previous PCIT studies with families referred solely from child protection authorities. For example, Chaffin et al. (2004, 2011) reported preassessment child abuse potential scores and these did not differ when compared to those of the current study participants. Also, Timmer, Ware et al. (2010) reported preassessment scores for ECBI Intensity and Problem scales and CBCL Internalizing and Externalizing scales. Participants in the current study had preassessment scores higher than Timmer, Ware et al. (2010) for child externalizing behavior (ECBI Intensity and Problem scales and CBCL Externalizing scale) and there were no differences between study participants in internalizing symptoms. However, S/PCIT was compared to a waitlist control group

in the current study rather than services as usual. Hence, trials are warranted which compare S/PCIT to treatment as usual or to PCIT augmented with motivational enhancement sessions.

Attrition in our study was approximately 30%, and although this is a significantly smaller proportion than has been reported in other published PCIT trials, it is still higher than ideal. Future research is needed to identify why families do not complete treatment. Also, the time frame for recruitment of waitlist participants was longer than for S/PCIT. This may have affected the study findings if there were historical changes in participants and did mean that sample sizes differed between groups. We were not able to compare treatment effects of S/PCIT to a waitlist at follow-up, because waitlist participants were offered treatment after a 12-week wait. However, this issue is not unique to the current study. Waitlist comparison groups are difficult to achieve in research with parents who have maltreated their children due to ethical concerns for a waitlist and sufficient control in an alternate treatment option. However, a supported waitlist comparison group of 12 weeks was included and the current study is the only study that has compared the effects of S/PCIT with families at risk of maltreatment to those on a waitlist. Further research is needed comparing S/PCIT to an active treatment group.

Conclusion

PCIT is an established EBT for child externalizing behavior. In addition, the current study provides data to support the standard 12-week PCIT as an EBT for parents who are at high risk or have maltreated their children. The present findings also provide important information regarding treatment length. Data suggest that adding additional sessions and ancillary services to extend the time in PCIT may not be necessary for families to experience and report similar or even greater improvements in child behaviors and parent stress attributed to the child and to be observed to show improvements in parent–child interactions. Although PCIT is identified as an EBT for child maltreatment (Kauffman Best Practices Project, 2004), essential implementation issues such as dosage need further redress to support transportability of PCIT into child welfare organizations before the full benefits of PCIT for families and children can be realized.

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