# Accumulating Evidence for Parent–Child Interaction Therapy in the Prevention of Child Maltreatment

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In a randomized controlled trial, the effectiveness of Parent–Child Interaction Therapy (PCIT) and correlates of maltreatment outcomes were examined. Mothers ($N = 150$) had a history or were at high risk of maltreating their children. After 12 weeks and compared to waitlist, PCIT mothers were observed to have improved parent–child interactions and reported better child behavior and decreased stress. At PCIT completion, improvements continued and mothers reported less child abuse potential and had improved maternal sensitivity. Also, PCIT completers were less likely to be notified to child welfare than noncompleters. Finally, those families not notified post-PCIT showed greater reductions in child abuse potential and improvements in observed sensitivity during treatment. Implications for theory and practice are discussed.

The importance of ending child maltreatment cannot be overemphasized. Physical, emotional, and sexual abuse have significant negative implications for children's development (Margolin & Gordis, 2000; Rogosch, Cicchetti, Shields, & Toth, 1995). Despite the investment in prevention and intervention programs to reduce child abuse, notifications for suspected child abuse continue to rise, and this has high social and financial costs to children, families and society. To begin to ameliorate the occurrence and impact of child maltreatment, it is crucial to conduct translational research that examines the mechanisms of maltreatment and consequently tests the effectiveness of targeted interventions.

Generalist parenting programs effective in increasing parenting skills and decreasing child behavior problems are often utilized in mainstream contexts, but there is little evidence regarding the effectiveness of these treatments when implemented with families within the child protection system. There are few interventions known to reduce child maltreatment. One such intervention recommended by the Kauffman Best Practices Project (2004) is Parent–Child Interaction Therapy (PCIT). Although the effectiveness of PCIT has not been firmly established for parents who have a history of maltreating their children, there are many reasons to expect its potential utility.

PCIT was originally developed for families who had children with clinical levels of child externalizing behaviors. PCIT was founded on social learning theory (Bandura, 1977; Patterson, 1982) and attachment theory (Bowlby, 1969). It focuses on assisting parents to maintain consistent limits, to ignore minor disruptive behaviors, to manage their own emotions during negative interactions, to identify effective time-out strategies, and to implement strategies effectively and judiciously (Eyberg et al., 2001; Timmer, Urquiza, Zebell, & McGrath, 2005). PCIT offers behavior management strategies that focus on positive reinforcement rather than power assertion to reduce child oppositional and disruptive behaviors. Through in vivo coaching techniques, PCIT is designed to aid children's emotion regulation by providing parents with language and skills to assist them (Hembree-Kigin & McNeil, 1995). Chaffin et al. (2004) were the first to demonstrate the effectiveness of PCIT with parents who had a history of maltreating their children. In this randomized controlled trial, PCIT was linked to large reductions in

negative parent behavior, child abuse potential, and externalizing child behavior. However, PCIT was modified to require completion of a six-session motivational component prior to commencement of PCIT sessions. In the current study, a motivational component was not added to typical PCIT. Instead, the most commonly used standard PCIT treatment protocol was implemented.

There were two primary aims of the current study. The first was to examine the effectiveness of standard PCIT with mothers at risk or with a history of maltreating their children. We report the outcomes of a randomized controlled trial of PCIT with mothers referred after notification for child maltreatment or identified as high risk for maltreating their children by professionals or through clinical interview. PCIT was expected to alter the maladaptive developmental trajectory of these parents and children through strategies that would reduce some of the known risk factors for maltreatment. These risk factors included poor parent–child interactions, low maternal sensitivity, high child abuse potential (e.g., high maternal emotional reactivity and distress, attributions that the child is a stable source of problems), maternal perceptions of the child as a stressor, and child externalizing problems. Hence, we examined whether PCIT reduced multiple risk factors for maltreatment. In addition, notification to children's welfare services for suspected abuse was examined. The second study aim was to identify the treatment outcomes that are linked to individual and interactional processes relevant to reducing child abuse, which have been identified in developmental theory and previous child maltreatment research. To do this we identified treatment-related improvements associated with a lack of notification for suspected child abuse following PCIT treatment.

### PCIT and Potential Mechanisms for Reducing the Risk of Child Abuse

To increase the likelihood of effectiveness, interventions to reduce child abuse need to be grounded in theory and research on its precursors and correlates. Although PCIT was not developed specifically to address child maltreatment, it does address risk factors associated with it. These include characteristics and experiences of the parent, such as parental stress (Sprang, Clark, & Bass, 2005) and use of harsh disciplinary strategies (Montes, de Paul, & Milner, 2001). In addition, child maltreatment has been associated with child externalizing behavior (Whipple & Webster-Stratton, 1991). Par-

ent–child interactions such as infrequent and aggressive communication styles (Bousha & Twentyman, 1984) and insecure parent–child attachment relationships (Egeland & Sroufe, 1981) have also been associated with child maltreatment.

*Parent–child interactions.* Evidence suggests that the most proximal risks of child maltreatment are coercive parent–child interaction patterns and parents' lack of knowledge about or inappropriate use of discipline (Bousha & Twentyman, 1984; Caselles & Milner, 2000; Kolko, 1996). The goals of PCIT are to reduce these risk factors by coaching parents to use more praise, to describe and reflect their children's behaviors and emotions, and to minimize negative communication such as criticisms and frequent commands or instructions.

Harsh discipline strategies and aggressive communication techniques contribute to negative parent–child interactions and often result in escalating coercive exchanges between parents and children (Caselles & Milner, 2000; Montes et al., 2001; Patterson, 1982). These cycles can escalate to child maltreatment. PCIT is designed to intervene in these processes by improving parents' behaviors when interacting with their children and helping parents to break these cycles by attending to how their behavior has direct effects on their children's negative or positive responses, and vice versa. In addition, parents are coached in (and practice) effective behavior management strategies as they interact with their children. By using strategies designed to change parents' effect and verbalisations during real interactions with their children and providing parents with effective behavior management strategies, PCIT strategies are expected to reduce the risk of maltreatment by interrupting the coercive cycle of negative communication and aggression.

*Attachment and sensitivity.* Because PCIT is founded on attachment theory and parental sensitivity has been described as a primary determinant of caregiver–child attachment patterns (van IJzendoorn & Bakermans-Kranenburg, 2004), the strategies used in PCIT are designed to improve caregiver sensitivity to their children, although this has never been directly assessed in any previous study of PCIT. Parent sensitivity has been defined as the ability of a caregiver to read her or his child's behavioral and emotional signals accurately and to respond promptly and appropriately (Ainsworth, Blehar, Waters, & Wall, 1978). Parents with a history of maltreating their children are likely to be less sensitive to them; an insecure or disorganized caregiver–child attachment is more likely found among caregivers who have maltreated their children compared to

other mothers (Baer & Martinez, 2006; van IJzendoorn, Goldberg, Kroonenberg, & Frenkel, 1992).

*Parent characteristics.* Parent characteristics associated with child maltreatment are other important intervention targets. Parents who maltreat their children often have personal challenges such as stressful and chaotic lives. Studies have shown that PCIT reduces maternal stress with greater reductions in stress found among mothers in PCIT compared to those on a wait-list (Chaffin et al., 2004; Nixon, Sweeney, Erickson, & Touyz, 2003; Timmer et al., 2005).

Mothers who have maltreated their children not only report more stress, but they also view their children's behaviors as more disruptive and intentionally annoying when compared to other mothers (Bauer & Twentyman, 1985). They are more likely to make negative and stable attributions about child externalizing behavior, perceiving their children's behavior problems as beyond their capacity to change (Dadds, Mullins, McAllister, & Atkinson, 2003). These same mothers are likely to perceive positive behavior due to external and unstable influences. PCIT is designed to change parents' attributions about their children's problem behaviors, and to assist them to feel that they are more competent parents who can have a positive influence on their children. For example, in a study of multiproblem families with no known history of maltreatment, mothers' perception of stress attributed to the child has been found to improve following PCIT compared to a control group (Hood & Eyberg, 2003).

*Child behavior problems.* Children's externalizing behaviors, such as aggression, can be the result of their maltreatment (Cicchetti & Valentino, 2006). Although children should not be blamed, children's aggression and tantrums may play roles in parents' harsh discipline practices and negative parent–child interactions. Mothers who have abused their children have been identified as utilizing power assertion and corporal punishment as strategies to gain child compliance at greater rates than nonmaltreating mothers (Whipple & Webster-Stratton, 1991). Therefore, one risk factor for maltreatment is child externalizing behavior. PCIT is a well-established intervention for reducing child externalizing behaviors (Eyberg et al., 2001; Thomas & Zimmer-Gembeck, 2007).

## Purpose of the Current Study

PCIT has been shown to be effective in reducing stress, negative parent–child interactions, coercive discipline strategies and difficult child behavior (Chaffin et al., 2004; Timmer et al., 2005). All these factors could be important mechanisms for reducing the maltreatment of children. One randomized controlled trial has been conducted that demonstrated the effectiveness of PCIT with 110 parents who had a history of maltreating their children (Chaffin et al., 2004). However, this study included a motivational component prior to PCIT treatment. The current study is a randomized controlled design and examines the effectiveness of a *standard* PCIT format with mothers with a history of or a high risk of child maltreatment.

There were three other unique elements in this study. First, drawing from attachment theory and correlates of child maltreatment, the attachment theoretical foundation of PCIT was examined by assessing changes in maternal sensitivity as an outcome of intervention. Second, intent-to-treat analyses were conducted, which allowed the inclusion of all participants in analyses regardless of the length of their involvement in the PCIT treatment protocol or the wait-list. Third, record data were collected on notifications to child protection authorities. This made it possible to focus on mechanisms of reduced child maltreatment as an outcome of PCIT and to determine which intervention outcomes were associated with lack of notification to child protection following PCIT.

## Method

### Participants and Procedure

*Participants.* Participants were 150 female caregivers (*M* age = 33.5, *SD* = 8.9) and their children (*M* age = 5, *SD* = 1.6; 71% boys and 29% girls) from South East Queensland, Australia. All but 3 children were between 2.5 and 7 years old (2 children aged 2.25 years and 1 child aged 8.16 years). For brevity and to simplify language, the term *parent* is used to identify the group of female caregivers in this study.

Conducting research with multiproblem families has many challenges including accessing participants. In the current study, participants were referred from child protection authorities, identified as suspects of maltreatment by other professionals, or self-identified because of significant child behavior problems and stress. All participants were confirmed to be at high risk of child maltreatment using a semistructured clinical interview. This method of participant recruitment was used because it has been argued that it provides a sample more representative of the general population

of maltreating parents than that would be found when relying on referrals from child protection sources only (Dadds et al., 2003; Hussey et al., 2005). Participants were referred by government child protection services (45.3%), government health services (20.7%), education and nongovernmental social service organizations (19.3%), and self-referrals (14.7%).

Another challenge for research in this area is deciding inclusion and exclusion criteria, because the majority of maltreated children experience multiple subtypes of maltreatment and in varying chronicity and severity (Cicchetti & Valentino, 2006). This challenges the capacity to include a homogeneous sample that is large enough to make conclusions about intervention efficacy or effectiveness. For example, Howes, Cicchetti, Toth, and Rogosch (2000) found that multiple forms of maltreatment were present in most families; 90.5% of maltreated children experienced emotional maltreatment, 90.5% were neglected, 59.5% were physically maltreated, and 26.2% were sexually maltreated. Because of this covariation of maltreatment types, our study includes children who were physically maltreated, emotionally maltreated, and/or neglected. However, children with a history of sexual abuse were not included because sexual abuse is contraindicated for PCIT. One mother who attended PCIT using substances was excluded from further participation.

Participants completed questionnaires and observational tasks prior to random allocation to either PCIT or an Attention Only wait-list group. Random allocation was two families to PCIT ($n = 99$) for every one family to the Attention Only group ($n = 51$). Of the PCIT treatment families, 42 completed all follow-up assessments (42%). Of the families allocated to the Attention Only group, 36 completed a single follow-up assessment after 12 weeks (71%). After this follow-up, families in the Attention Only group were offered PCIT and no further data from these families were used in analyses. The Attention Only group refrained from family therapy or parent support programs.

*Timing of data collection.* Due to the high risk of child abuse in this study, it was essential to limit the wait-list (i.e., Attention Only group) to 12 weeks only. This corresponded with the typical waiting time for services in the community. Therefore, all families randomly assigned to the wait-list completed two assessments: The first was prior to randomization and the second was a follow-up conducted 12 weeks after the first assessment. The PCIT treatment group completed four assessments including a preassessment prior to randomization and three follow-up assessments. The first follow-up was conducted 12 weeks after the first assessment, the second was after completion of the treatment protocol, and the third follow-up was 1 month after the second.

PCIT treatment varied in length depending on each family's progress with the skills; treatment was completed when mastery criteria for the first treatment phase (Child Directed Interaction, described later) were met and parents' effectively implemented the behavior management strategies taught in the second phase (Parent Directed Interaction [PDI]). Therefore, collecting data after 12 weeks of contact with PCIT for each family in treatment allowed us to compare the PCIT treatment group to the Attention Only group at the same time of involvement in the research project (12 weeks) even though most in the PCIT treatment group had not finished the treatment protocol yet. Collecting data again from the PCIT treatment group when they completed all PCIT sessions allowed us to examine further improvements in the PCIT treatment group between the second and third assessments (i.e., 12 weeks and treatment completion). The timing of the third (completion) assessment varied according to the length of treatment for each family, but the average was 16.95 PCIT sessions and 24.3 weeks of contact with program. The fourth and final assessment was conducted with PCIT treatment families 1 month after they had completed the third assessment. This allowed tests of the maintenance of improvements 1 month after treatment completion.

The same procedures were followed at each assessment, except a reduced set of questionnaires was used for the last follow-up of the PCIT treatment group. Parents were given questionnaires to complete at home and returned forms the following week when they completed the observational portion of the assessment. Each parent–child dyad was observed in a 10-min, child-lead, free-play activity, which was videotaped. All observational assessments occurred in the research clinic.

Teachers or day-care providers ($n = 109$, 73%) also participated for those children who attended. Teachers were sent questionnaires to return in prepaid envelopes at each time of data collection.

Child maltreatment notification dates were abstracted from child welfare protection electronic files. Dates of all notifications following last contact with the research project staff were collected for participants randomized to the PCIT treatment group.

*Treatment.* PCIT was developed to improve parenting skills and parent–child interactions among families struggling with their children's (ages 3–7) behavior problems (e.g., oppositional defiant disorder; Eyberg, 1988; Hembree-Kigin & McNeil, 1995). Standard PCIT has two didactic sessions but mainly relies on direct coaching of parents when interacting with their children during two distinct phases, Child Directed Interaction (CDI) and PDI. Each phase is designed to emphasize specific skill development and mastery criteria. Parents also are expected to practice skills at home.

Didactic sessions focus on teaching the specific skills related to each phase of the therapy (i.e., either CDI or PDI skills) and are conducted prior to the coaching sessions in each phase. Coaching sessions are conducted with the parent and child in the play therapy room as the therapist observes via a one-way mirror. The therapist and the parent communicate through a ''bug-in-the-ear'' device, which permits direct coaching of skills, immediate feedback and social reinforcement.

In the CDI phase of PCIT, specific nondirective, interactional parent skills are taught. These skills include praising the child, reflecting the child's statements, imitating the child's play, describing the child's behavior, and being enthusiastic in play. Specifically during the CDI phase, parents are also taught to ignore undesirable behavior, not to question or criticize, and not to use commands or instructions while playing with the child. The goal of CDI is to build a positive and warm relationship between the child and parent and allow the child to take the lead in interactions. As such, criticism, commands and instructions are minimized as they create a negative environment and may refocus the attention toward the parent and the parent's needs. By focusing on building positive parent behavior management skills, the parents are taught to focus on positive rather than negative child behaviors, and they are taught differential reinforcement whereby children are positively rewarded for desirable behavior and receive little attention for misbehavior.

Behavior management strategies are taught and practiced during the PDI phase. The aims for parents during PDI are to: (a) develop realistic expectations of their children's behaviors in accordance to their developmental level; (b) acquire, demonstrate, and maintain reasonable limits; and (c) become consistent and fair in their discipline strategies (Hembree-Kigin & McNeil, 1995). Parents learn to give commands or instructions effectively, are coached in the use of the time-out procedure, are helped to establish and communicate clear guidelines, and are assisted to maintain consistent responses to child misbehavior.

One commonly used PCIT treatment protocol, usually referred to as *standard PCIT*, allows the number of sessions to depend on attaining prescribed mastery criteria in CDI before advancing to PDI (Hembree-Kigin & McNeil, 1995). Treatment is completed when parents meet mastery criteria in CDI, are observed to consistently implement strategies learned in PDI, and express clear understanding of their own change and their role in the family system. This PCIT treatment protocol was expected to be more effective than a time-limited protocol when working with parents with a history or at high risk of child maltreatment and was used in the current study.

PCIT was implemented in the current study following the procedures described in previous studies (Eyberg et al., 2001; McNeil, Capage, Bahl, & Blanc, 1999; Nixon et al., 2003). Parents were coached during CDI until ''mastery criteria'' were achieved for two sessions in a row before commencing PDI. The PCIT treatment protocol was completed when parents met mastery criteria for CDI followed by effectively implementing the parenting strategies taught in PDI, and could articulate their role in their children's misbehavior. It was expected that this articulation would reflect an attitudinal shift regarding the locus of causality of child misbehavior (e.g., ''it's all the child's fault'' vs. a systems perspective). On average, PCIT participants who completed the treatment protocol engaged in a total of 11.8 ($SD = 4.49$, range = 4–25) CDI coaching sessions and 5.07 ($SD = 2.75$, range = 2–13) PDI coaching sessions.

*Training and treatment integrity.* During the data collection period, there were three primary PCIT psychologists who provided services to 67% of the families in this study. Two other psychologists practiced PCIT for a 2-year period and provided therapy for another 20% of families, whereas another three psychologists provided therapy for 1 year each and between them provided PCIT for the remaining 13% of participants. All psychologists had experience in providing psychological interventions to adults and children prior to PCIT. The first author provided supervision. A minimum of a weekly supervision session was 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.

*Attention Only wait-list group.* For those allocated to the 12-week Attention Only group, parents were contacted weekly for brief conversations regarding family and other concerns. At the end of 12 weeks, families commenced PCIT, but these families were not included in the PCIT treatment group of the current study.

*Sample representativeness.* Analyses were conducted to determine whether the PCIT participants who completed treatment were representative of all participants assigned to PCIT. No differences were found between those who did and did not complete the PCIT treatment after comparing child behavior, parent characteristics, teacher report of child behavior, observational assessment scores, child age, parent age, marital status, education level, and employment status. However, participants who did complete the PCIT treatment protocol were less likely to have been referred from child welfare protection than participants who did not complete, $\chi^2 = 5.54$, $p = .02$.

## Measures

*Child symptoms.* Four measures were used to assess children's symptoms, including the Eyberg Child Behavior Inventory (ECBI, parent report) and the Sutter-Eyberg Student Behavior Inventory–Revised (SESBI–R, teacher report) to measure child behavior problems, and the Child Behavior Checklist/4–18 (CBCL, parent report) and the CBCL/Teacher Report Form (TRF, teacher report) to measure externalizing and internalizing symptoms. The ECBI and the SESBI–R measures behavior problem intensity and the extent to which parents or teachers found the behaviors problematic. The measure was designed for children aged 2–16 years (Eyberg & Pincus, 1999). In the current study, the internal consistency for the ECBI intensity and problem scales were Cronbach's $\alpha$s = .92 and .91, respectively. The CBCL is a widely used, normed behavioral rating scale for children aged 4–18 and contains 118 items describing a wide range of problems (Achenbach, 1991). For children younger than 4 years the Child Behavior Checklist/2–3 (CBCL/2–3) was administered. The internal consistencies for the CBCL internalizing and externalizing scales were Cronbach's $\alpha$s = .87 and .91, respectively.

*Parent stress.* The Parenting Stress Inventory (PSI; Abidin, 1990) was used to measure stress levels in the parent and child domains. The PSI has 101 items that form composite scores for each domain. In the current study internal consistency for the parent stress domain was Cronbach's

$\alpha$ = .94 and Cronbach's $\alpha$ = .93 for the child stress domain.

*Parent child abuse potential.* The Child Abuse Potential Inventory (CAPI; Milner, 1986) was used to measure mothers' level of child abuse potential. The CAPI has 160 items and 10 subscales designed to differentiate maltreating from nonmaltreating individuals. Six of these subscales were included in the global score for child abuse potential including distress, rigidity, unhappiness, problems with child and self, problems with family, and problems with others. Distress and unhappiness tapped a mother's emotional problems such as rejection, confusion and general unhappiness as well as her level of emotional reactivity and regulation. Rigidity assessed the mother's attitudes toward children (the way they look and behave) and in beliefs about the home and life within it. Problems with the child and self-assessed a mother's beliefs about her child as a stable source of problems and a general indication of the mother's physical health. High scores on these items suggested a perception of intractable problems and limited ability and competency in the management of problems. Problems with family suggested familial challenges such as fights and ongoing emotional difficulties with family members and problems with others assessed general difficulties in social relationships. Only the global child abuse potential score was used in the current study, Cronbach's $\alpha$ = .94.

*Observed parenting behaviors.* The Dyadic Parent–Child Interaction Coding System III (DPICS; Eyberg et al., 2004) was used to assess the quality of parents' verbalisations when interacting with their children. While viewing the first 5 min of a 10-min videotaped play interaction between parents and children, independent coders counted the frequency of parent verbalizations. Counts of praises (including both labeled and unlabeled praise), descriptions or reflections (a combination of reflections and behavioral and information descriptions), questions (a combination of descriptive or reflective questions and information questions), and commands (a combination of indirect and direct commands) were formed. 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, scores for sensitivity were assigned after viewing the full 10-min interactions. The measure of parent sensitivity was developed by modifying one subscale of the Emotional Availability Scales (EA; Biringen, Robinson, & Emde, 2000). The

scale involved rating the parent from 1 (*highly insensitive*) to 9 (*highly sensitive*) and included consideration regarding the parent's affect, ability to respond to the child's signals, flexibility, and accessibility to the child.

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 coding began. Each video segment of either DPICS or parent sensitivity was coded by two independent coders. Interrater reliability (intraclass correlations) was assessed using 10 randomly selected video segments. High intraclass correlations were established for the 15 coders for the DPICS categories labeled and unlabeled praise (both .99), reflections (.98), behavioral descriptions (.85), information descriptions (.93), descriptive or reflective questions (.92), information questions (.98), direct commands (.96), and indirect commands (.94). In addition, the intraclass correlation established good interrater reliability for sensitivity (.95).

*Notification of suspected maltreatment.*  Data were gathered from official records regarding children's notification to child welfare protection. Dates of new notifications were available for all study participants in the PCIT treatment group either after completion of PCIT treatment protocol or after the last known date of contact with the study. For families who completed PCIT, new notification dates were abstracted after completion of treatment, whereas new notification dates for families who did not complete PCIT treatment protocol were abstracted after the last known contact with the study. As the Attention Only group was offered treatment after completion of the wait-list, comparison of notification data could not be made between PCIT treatment and Attention Only groups. The length of time from last contact ranged from 19 to 66 months ($M$ = 48.4 months, $SD$ = 12.2). It is not known whether maltreatment was or was not substantiated following notifications. Notifications were recorded with reference to children rather than alleged perpetrators. Therefore, information was not available on the identification of alleged perpetrators.

## Results

### Overview of Analyses

Group differences in pre- to 12-week child behavior and parenting were tested using 2 (time) × 2

(treatment vs. wait-list group) mixed factorial analysis of variance (ANOVA). Single-group effect sizes and independent-group effect sizes were calculated. When between-group differences were found, clinical significance (CS) and reliable change indices (RCI) were calculated. For each participant, CS was established if the participant's last assessment score on a measure fell below the published clinical cutoff and if the improvement from the first to the second assessment was determined to be reliable (RCI; Jacobson & Truax, 1991). Measures with published clinical cutoffs included CBCL, ECBI, PSI, and CAPI. As some measures did not have published norms to establish a normal or nonclinical level (e.g., DPICS, parental sensitivity), the preassessment mean was used as the cutoff in calculations of CS. Because of the high levels of dysfunction among participants, and in an attempt to describe meaningful change for these dysfunctional families, a conservative difference between repeated assessments of at least 1 $SD$ was required to conclude that a clinically significant improvement had occurred (Wise, 2004). Finally, chi-square analysis was conducted to compare the proportion of participants who were categorized as recovered or improved in the treatment group to the proportion in the Attention Only group.

Intent-to-treat (ITT, $N$ = 150) analyses also were conducted to include all participants whether or not all assessments had been completed. ITT was conducted using the last observation carried forward (LOCF) method of replacing missing data. LOCF was applied to families who completed preassessment and randomisation but who failed to complete either 12-week or completion assessments because of attrition from the study.

Because the Attention Only group was limited to 12 weeks involvement in the research project, but PCIT treatment protocol varied in length and exceeded 12 weeks in duration, analyses also were conducted to examine improvement among the treatment group from preassessment to completion of PCIT and from completion of PCIT to 1 month after treatment completion to examine treatment maintenance effects. Mixed factorial ANOVAs with only a within-subject effect (time) were conducted and effect sizes calculated.

Finally, chi-square analysis was used to compare the percentage of child protection notifications between those participants in the PCIT treatment group who had completed the treatment protocol and those who had not. Comparison of notifications between treatment and Attention Only wait-list groups could not be made because participants on

the wait-list were invited to undertake PCIT following their 12-week wait.

### Preassessment Problem Levels

Preassessment data indicated the majority of parents were stressed, had children with clinical levels of child externalizing behaviors, and were elevated in their child abuse potential. More specifically, the average child was within the clinical range for externalizing symptoms at preassessment, CBCL externalizing ($M = 67.6$, $SD = 11.0$), ECBI intensity scale ($M = 157.9$, $SD = 38.0$), and ECBI problem scale ($M = 19.2$, $SD = 8.7$). Parents reported the majority of the children had clinical (75.2%) or borderline (6%) externalizing symptoms as recorded on the CBCL and 66.4% of children were rated as clinical in externalizing behavior as recorded on the ECBI intensity scale. In addition, 62.4% of parents reported that their children were significant problems for them on the ECBI problem scale. Despite a smaller sample size, teachers also reported that the average child exhibited externalizing behavior within the clinical range for the CBCL externalizing scale ($M = 61.4$, $SD = 11.0$), but this was not found for teacher reports of SESBI intensity ($M = 118.7$, $SD = 47.0$) and SESBI problem scores ($M = 8.9$, $SD = 9.6$). The majority of parents reported clinical levels of stress for both the child (78.5%) and parent (65.5%) domains of the PSI. Parents reported high child abuse potential, on average ($M = 182.1$, $SD = 102.2$; signal detection score = 166) with 50.3% scoring above the signal detection score.

### 12 Weeks of PCIT Treatment Compared to Attention Only Wait-List

*Parent report of child symptoms.* Significant interactions (Group × Time) were found showing greater declines in externalizing behavior in the PCIT group than the Attention Only group ($d$s = −0.40 to −0.70; see Table 1). These medium effects were consistent for all parent-report measures of child externalizing symptoms. In contrast, there was no significant Group × Time effect when child internalizing symptoms were compared ($d = 0.15$). Similar results were found in ITT analyses; however, effect sizes were smaller (externalizing behavior $d = −0.22$; ECBI intensity $d = −0.42$ and ECBI problem $d = −0.50$).

The improvement in parent reports of child externalizing behavior was both clinically and statistically significant for one quarter of the PCIT treatment group when measured by ECBI intensity (26.2% of participants met RCI criteria, 7.1% recovered, and 19.0% improved) compared to no participants meeting RCI criteria in the Attention Only group (see Table 2). However, no significant group differences were found when children's behavior problems were measured with the CBCL externalizing scale or the ECBI problems subscale.

*Teacher report of child symptoms.* There were no significant Group × Time interactions when teachers' reports of children's externalizing and internalizing symptoms were compared ($d$s = −0.13 to 0.16; data not shown in Table 1). Results were similar in the ITT analyses. Correlations were not significant between teacher report and parent report of child externalizing and internalizing behaviors.

*Parent stress and attributions of stress due to the child.* There was a greater decline in parent stress levels from the preassessment to the 12-week assessment in the PCIT treatment group as compared to the Attention Only group (see Table 1), and the effect sizes were moderate for stress due to the child and stress due to the parent ($d$s = −0.13 and $d = −0.29$, respectively). ITT analyses revealed similar results for stress attributed to the child ($d = −0.19$), but no significant difference between the Attention Only group and PCIT treatment group for stress due to the parent. In addition, there was a clinically significant reliable decline in parenting stress due to the child for 16.6% of PCIT participants in the reduced sample (7.1% recovered, 9.5% improved), whereas significantly fewer families in the Attention Only group met criteria (see Table 2). In contrast, no participants in either group met change criteria for reductions in stress due to the parent.

*Parent child abuse potential.* Changes in child abuse potential did not differ between the PCIT treatment and Attention Only groups (see Table 1).

*Observed parent verbalisations and sensitivity.* There was greater improvement in positive parental verbalisations in the PCIT treatment group compared to the Attention Only group (see Table 1), with large effects for observed parental praise ($d = 2.18$, ITT $d = 1.44$) and parental descriptions of their child's behaviors and reflections of their child's verbalizations ($d = 0.95$, ITT $d = 0.72$). In addition, parents' questioning decreased significantly more in the PCIT treatment group compared to the Attention Only group ($d = −1.48$, ITT $d = −1.00$).

Significant group differences in proportions of participants with reliable change were found for praise, questions and commands; over 83% (62.8% recovered, 20.9% improved) of PCIT participants had reliable increases in praises compared to 33%

Table 1

*Comparisons of Parent–Child Interaction Therapy Treatment and Attention Only Groups: Preassessment to 12-Week Assessment*

| Measures | Group | N | Pre M | Pre SD | 12-week M | 12-week SD | F | p | Within group | Between group |
|---|---|---|---|---|---|---|---|---|---|---|
| Child problems | | | | | | | | | | |
| Parent report | | | | | | | | | | |
| Externalizing | Treatment | 42 | 68.1 | 10.1 | 63.3 | 11.3 | 6.66 | .012 | −0.47 | −0.40 |
| | Att only | 36 | 66.1 | 10.4 | 65.4 | 10.3 | | | −0.07 | |
| ECBI intensity | Treatment | 42 | 162.0 | 36.3 | 139.1 | 35.4 | 17.60 | < .001 | −0.63 | −0.64 |
| | Att only | 34 | 148.7 | 33.5 | 148.9 | 33.4 | | | 0.01 | |
| ECBI problem | Treatment | 40 | 19.3 | 7.9 | 14.3 | 8.9 | 11.01 | .001 | −0.64 | −0.71 |
| | Att only | 33 | 18.6 | 8.0 | 19.2 | 8.7 | | | 0.07 | |
| Internalizing | Treatment | 42 | 59.7 | 12.7 | 55.1 | 12.5 | 1.41 | .239 | −0.36 | −0.15 |
| | Att only | 36 | 55.9 | 9.0 | 54.0 | 11.1 | | | −0.21 | |
| Parent characteristics | | | | | | | | | | |
| Stress due to child | Treatment | 41 | 2.9 | 0.6 | 2.7 | 0.5 | 4.95 | .029 | −0.33 | −0.13 |
| | Att only | 36 | 2.9 | 0.5 | 2.8 | 0.5 | | | −0.20 | |
| Stress due to parent | Treatment | 41 | 2.7 | 0.7 | 2.5 | 0.6 | 5.59 | .021 | −0.29 | −0.29 |
| | Att only | 36 | 2.7 | 0.5 | 2.7 | 0.5 | | | 0.00 | |
| Child abuse potential | Treatment | 40 | 175.7 | 104.3 | 174.0 | 119.3 | 0.22 | .644 | −0.02 | 0.08 |
| | Att only | 36 | 180.6 | 102.5 | 170.8 | 105.9 | | | −0.09 | |
| Observed verbalizations, % | | | | | | | | | | |
| Praise | Treatment | 43 | 4.4 | 4.8 | 14.6 | 10.1 | 30.50 | < .001 | 2.13 | 2.18 |
| | Att only | 33 | 3.9 | 4.1 | 3.7 | 4.2 | | | −0.05 | |
| Description & reflection | Treatment | 43 | 51.3 | 12.8 | 66.2 | 10.6 | 14.03 | < .001 | 1.17 | 0.95 |
| | Att only | 33 | 45.8 | 11.6 | 48.4 | 11.9 | | | 0.22 | |
| Questions | Treatment | 43 | 31.8 | 11.7 | 12.4 | 8.1 | 25.49 | < .001 | −1.66 | −1.48 |
| | Att only | 33 | 38.4 | 14.2 | 35.9 | 13.3 | | | −0.18 | |
| Commands | Treatment | 43 | 11.2 | 9.7 | 6.0 | 4.1 | 3.19 | .078 | −0.54 | −0.39 |
| | Att only | 33 | 10.9 | 9.6 | 9.5 | 7.3 | | | −0.15 | |
| Observed sensitivity | Treatment | 43 | 5.3 | 1.7 | 5.2 | 1.6 | 0.38 | .540 | −0.06 | −0.18 |
| | Att only | 33 | 5.0 | 1.7 | 5.2 | 1.6 | | | 0.12 | |

*Note.* ECBI = Eyberg Child Behavior Inventory; Att only = Attention Only group.

(12.1% recovered, 21.2% improved) of the Attention Only group (see Table 2). In addition, 67% of PCIT treatment participants decreased the frequency of questions and commands compared to 21% of Attention Only participants decreasing questions and 42% decreasing commands from pre- to 12-week assessment. However, there was no group difference for sensitivity.

*Outcomes at PCIT Treatment Protocol Completion*

Table 3 summarizes descriptive statistics, *F* values, significance levels, and effect sizes for the treatment group. CS and RCI also were calculated and are described in the text.

*Parent report of child symptoms.*   As was found at 12 weeks, child externalizing behavior improved from the preassessment to PCIT treatment protocol

completion; large effects were found by treatment completion (CBCL externalizing *d* = −0.78, ITT *d* = −0.35; ECBI intensity *d* = −1.27, ITT *d* = −0.55; see Table 3). There was a significant improvement in internalizing symptoms, also, with a medium within group effect size (*d* = −0.64, ITT *d* = −0.32). In contrast, teachers continued to report no significant improvements in child symptoms (data not shown in Table 3).

Almost one-half of children met RCI criteria for improvements in parent-reported externalizing behavior by PCIT treatment completion, CBCL externalizing subscale (43.9%), ECBI intensity (55%), and ECBI problems (53.8%). Overall, 36.6% of children had reliable improvements in internalizing symptoms by completion of treatment.

*Parent stress.*   PCIT participants who completed treatment showed significant reductions in stress

Table 2

*Frequency and Percentage of Participants in Reliable Change Index (RCI) Categories: Preassessment to 12-Week Assessment*

| | Recovered | | Improved | | Unchanged | | Deteriorated | | False positive | |
|---|---|---|---|---|---|---|---|---|---|---|
| Measures | PCIT | Att only | PCIT | Att only | PCIT | Att only | PCIT | Att only | PCIT | Att only |
| Parent report of child problems | | | | | | | | | | |
| Externalizing | 5 (11.9) | 1 (2.8) | 3 (7.1) | 1 (2.8) | 27 (64.3) | 28 (77.8) | 0 (0.0) | 0 (0.0) | 7 (16.6) | 6 (16.7) |
| ECBI intensity | 3 (7.1) | 0 (0.0) | 8 (19.0) | 0 (0.0) | 28 (66.7) | 28 (82.4) | 0 (0.0) | 2 (5.9) | 3 (7.1) | 4 (11.8) |
| ECBI problem | 6 (15.0) | 2 (6.1) | 4 (10.0) | 1 (3.0) | 24 (60.0) | 23 (69.7) | 1 (2.5) | 2 (6.1) | 5 (12.5) | 5 (15.2) |
| Internalizing | 5 (11.9) | 5 (13.9) | 6 (14.3) | 0 (0.0) | 20 (47.6) | 20 (55.6) | 4 (9.5) | 2 (5.6) | 7 (16.6) | 9 (25.0) |
| Parent characteristics | | | | | | | | | | |
| Stress due to child | 3 (7.1) | 0 (0.0) | 4 (9.5) | 0 (0.0) | 25 (59.5) | 31 (86.1) | 1 (2.4) | 0 (0.0) | 9 (21.4) | 5 (13.9) |
| Stress due to parent | 0 (0.0) | 0 (0.0) | 0 (0.0) | 0 (0.0) | 33 (78.6) | 33 (91.7) | 0 (0.0) | 0 (0.0) | 9 (21.4) | 3 (8.3) |
| Child abuse poten | 1 (2.5) | 1 (2.7) | 3 (7.5) | 8 (22.2) | 27 (67.5) | 14 (38.9) | 2 (5.0) | 5 (13.9) | 7 (17.5) | 8 (22.2) |
| Obs verbal, % | | | | | | | | | | |
| Praise | 27 (62.8) | 4 (12.1) | 9 (20.9) | 7 (21.2) | 2 (4.7) | 7 (21.2) | 3 (6.9) | 14 (42.4) | 2 (4.7) | 1 (3.0) |
| Desc & reflect | 5 (11.6) | 0 (0.0) | 1 (2.3) | 1 (3.0) | 9 (20.9) | 29 (87.9) | 0 (0.0) | 0 (0.0) | 28 (65.1) | 3 (9.1) |
| Questions | 28 (65.1) | 3 (9.1) | 1 (2.3) | 4 (12.1) | 4 (9.3) | 20 (60.6) | 0 (0.0) | 5 (15.2) | 10 (23.3) | 1 (3.0) |
| Commands | 8 (18.6) | 3 (9.1) | 21 (48.8) | 11 (33.3) | 2 (4.7) | 7 (21.2) | 9 (20.9) | 12 (36.4) | 3 (7.0) | 0 (0.0) |
| Obs sensitivity | 2 (4.7) | 1 (3.0) | 2 (4.7) | 0 (0.0) | 27 (62.8) | 25 (75.8) | 1 (2.3) | 2 (6.1) | 11 (25.6) | 5 (15.2) |

*Note.* Recovered = passed RCI and clinical significance; Improved = passed RCI but not clinical significance; Unchanged = unchanged RCI and unchanged or deteriorated clinical significance; Deteriorated = deteriorated in both RCI and clinical significance; False positive = improved clinical significance but unchanged RCI; RCI > 1.96 = Reliable Change Index improved and recovered categories; PCIT = Parent–Child Interaction Therapy treatment group; Att only = Attention Only group; ECBI = Eyberg Child Behavior Inventory; Desc & reflect = descriptions and reflections; Obs = observed. Sample sizes ranged from 40 to 43 in the PCIT group and 33–36 in the Attention Only group (see Table 1).

Table 3

*Within Treatment Group Effects From Preassessment to Treatment Protocol Completion (N = 41)*

| | | Pre | | Completion | | | | |
|---|---|---|---|---|---|---|---|---|
| Measures | N | M | SD | M | SD | F | p | d |
| Child problems | | | | | | | | |
| Parent report | | | | | | | | |
| Externalizing | 41 | 67.8 | 10.9 | 59.3 | 10.7 | 25.48 | < .001 | −0.78 |
| ECBI intensity | 40 | 162.1 | 33.2 | 120.0 | 24.5 | 112.50 | < .001 | −1.27 |
| ECBI problem | 39 | 19.9 | 7.5 | 10.0 | 7.5 | 65.34 | < .001 | −1.33 |
| Internalizing | 41 | 58.7 | 12.3 | 50.8 | 12.8 | 16.74 | < .001 | −0.64 |
| Parent characteristics | | | | | | | | |
| Stress due to the child | 41 | 2.9 | 0.6 | 2.4 | 0.5 | 52.69 | < .001 | −0.83 |
| Stress due to the parent | 41 | 2.8 | 0.8 | 2.4 | 0.5 | 27.78 | < .001 | −0.50 |
| Child abuse potential | 40 | 171.3 | 100.7 | 130.8 | 101.1 | 20.83 | < .001 | −0.40 |
| Obs verbalizations, % | | | | | | | | |
| Praise | 38 | 4.9 | 5.1 | 14.5 | 8.9 | 35.43 | < .001 | 1.88 |
| Desc & reflect | 38 | 51.5 | 12.7 | 67.5 | 12.9 | 31.92 | < .001 | 1.26 |
| Questions | 38 | 31.1 | 11.1 | 12.2 | 9.6 | 68.34 | < .001 | −1.70 |
| Commands | 38 | 11.4 | 9.4 | 5.5 | 6.2 | 10.49 | .003 | −0.63 |
| Observed sensitivity | 38 | 5.5 | 1.6 | 6.1 | 1.1 | 4.36 | .044 | 0.38 |

*Note.* ECBI = Eyberg Child Behavior Inventory; Desc & reflect = descriptions and reflections; Obs = observed.

from preassessment to completion of PCIT treatment protocol (see Table 3). The effect size for stress attributed to the child was large ($d = −0.83$, ITT $d = −0.46$). The effect size for stress due to the parent was medium ($d = −0.50$, ITT $d = −0.26$). Calculations of CS and RCI identified 31.7% of parents

as recovered or improved in relation to stress attributed to the child and 9.8% of parents recovered or improved in relation to stress due to the parent.

*Parent child abuse potential.*   Different from the results at 12 weeks of contact, child abuse potential significantly declined ($d = -0.40$; ITT $d = -0.16$). There was a clinically significant decrease in child abuse potential for 17.5% of the PCIT treatment group participants from preassessment to treatment protocol completion.

*Observed parent verbalizations and sensitivity.* There were large and significant improvements in parents' observed behaviors when interacting with their children, including increases in praise ($d = 1.88$, ITT $d = 1.37$) and descriptions and reflections ($d = 1.26$, ITT $d = 0.93$; see Table 3), and decreases in questions ($d = -1.70$, ITT $d = -1.15$) and commands ($d = -0.63$, ITT $d = -0.40$). In addition, parental sensitivity significantly improved ($d = 0.38$, ITT $d = 0.20$).

PCIT participants classified as recovered or improved were 84.2% for praises, 23.7% for descriptions or reflections, and 68.4% for both questions and commands. About 5% of parents recovered or improved in parental sensitivity by treatment completion.

### Maintenance of Treatment Effects

Short-term (1-month) maintenance of improvements was found for child behavior, parent stress, and parenting behaviors (data not shown). Specifically, there was maintenance of posttreatment improvements in child externalizing behavior, parent stress due to the child, stress due to the parent, sensitivity, praises, descriptions and reflections, questions and commands.

### Child Protection Notifications After PCIT Treatment Protocol Completion

Analyses were completed to determine whether PCIT treatment completion was associated with a reduction in notifications to child protection for suspected maltreatment. Toward this aim, we determined whether children had been notified because of suspicions that they were being maltreated following their last contact with us. We then compared notification rates of those who completed PCIT treatment protocol with those who did not. As the Attention Only group was offered PCIT after the waiting period of 12 weeks, it was not possible to compare notifications between these groups.

PCIT Treatment participants who completed PCIT were significantly less likely to be notified to child protection than those participants who dropped out of treatment. Of 46 families completing PCIT treatment protocol, 17% were notified to state welfare organization after treatment completion compared to 43% of the 53 families who did not complete PCIT ($\chi^2 = 7.7$, $p < .01$). There also was a marginal difference when comparing participants referred from child protection; a further notification for suspected maltreatment occurred for 47% of these families who completed the PCIT treatment protocol compared to 73% of the families who did not complete treatment ($\chi^2 = 2.8$, $p = .092$).

### Comparison Between Families Notified and Not Notified

Intervention outcomes were compared between children who were and were not reported to child protection authorities for suspected maltreatment after their last contacts with the intervention. Only children randomized to treatment could be included in these analyses and ITT data were used. Group differences were tested using 2 (time: preassessment, completion assessment) × 2 (notified, not notified) mixed factorial ANOVA. Two significant Group × Time interactions were found. Children not notified to child protection had parents who showed greater reductions in child abuse potential and greater improvements in sensitivity.

### Discussion

Few studies have used a randomized design (RCT) to investigate the efficacy or effectiveness of interventions for improving parenting and reducing risk of child abuse among mothers who have maltreated their children (Chaffin & Friedrich, 2004). Many funded child protection services and other providers are now required to implement evidence-based interventions (Pawson, 2006), but they have to rely on intervention research that may not be directly applicable to the families they work with. Although multiple efficacy trials of PCIT have been conducted with single- or multiproblem families with no known history of maltreating their children (e.g., Eyberg et al., 2001; Nixon et al., 2003), only one previous RCT has examined the efficacy of PCIT with parents who were referred for suspected or known child maltreatment (Chaffin et al., 2004). In this study, PCIT was enhanced with a motivational protocol that had to be completed before entering PCIT treatment. In the current study,

standard PCIT without a motivational component was implemented to determine whether it is an effective intervention associated with improvements in many known child abuse risk factors and reductions in notification to child protection for suspected maltreated. Furthermore, multimethod (observation and pencil-and-paper measures) and multisource (parents, independent observers and teachers) data collection procedures were used to determine whether conclusions about PCIT could be confirmed across multiple methods and reporters. Finally, the current study shows that reduced child abuse potential and increased parent sensitivity are two positive outcomes of PCIT that are associated with a lack of notification to child protection after completing the intervention.

### PCIT Outcomes and Mechanisms for Reducing Rates of Suspected Maltreatment

The findings of the current study identified the benefits of PCIT for parents with a history of maltreating their children and located mechanisms linked to successful reduction of child abuse. When comparing the PCIT treatment group and the wait-list group, the PCIT treatment group reported greater improvements by 12 weeks into the program, including reductions in stress due to the child and children's externalizing behaviors. Parents also were observed to interact with their children using more positive statements, and more descriptions and reflections. When families who did not finish treatment or wait-list were included via ITT analyses, the results were similar and usually significant even though effect sizes were reduced. Further, with three exceptions of child abuse potential, teacher reports of child problems, and parental sensitivity, greater proportions of PCIT participants were found to report or exhibit clinically significant and reliable improvements on all outcome measures when compared to participants in the Attention Only group. This shows important benefits of PCIT treatment at 12 weeks and compared to the Attention Only group; however, further analyses were conducted to examine additional changes in the PCIT treatment group between 12 weeks and completion of the treatment protocol. These results showed that completion of PCIT treatment protocol also was associated with a reduction in child abuse potential and improvements in parent sensitivity.

Although these findings demonstrate that improvements can occur prior to completing PCIT, following the standard protocol of PCIT to comple-tion (i.e., families continue in the intervention until mastery criteria for both CDI and PDI are met) is important. Gains were much more substantial by treatment completion compared to the gains found at 12 weeks. Moreover, by treatment completion, but not before, parents reported they made more beneficial attributions about their children's behaviors, were less emotionally reactive and distress prone when interacting with their children (i.e., child abuse potential), and they were observed to be more sensitive when interacting with their children. It appears that child abuse potential and parent sensitivity are some of the more entrenched risk factors for child maltreatment, which require the full PCIT treatment protocol before improvements occur.

PCIT also was associated with a reduced chance of notification for suspected child abuse. The rate of future notifications was decreased among those families who completed PCIT compared to those who did not complete treatment; when the analysis was limited to only those participants referred from child protection authorities there was still a marginally lower rate of future notification. Further analyses focused on the mechanisms of reduced notification and these were isolated to reduction in child abuse potential and improvements in parental sensitivity. Those in the group who had not received a notification showed more reductions in child abuse potential scores and increased parental sensitivity. Assuming that notification is an accurate way to identify children who are being abused, reducing child abuse potential and increasing parent sensitivity are two particularly important mechanisms to address in prevention and intervention programs.

Results of analyses using teacher reports about children diverged from parent report, observations and clinical interviews by showing nonclinical levels of child behavior problems, on average, and revealing no improvements in children's behavior following PCIT. It was found that parent and teacher reports were not significantly correlated. Hence, teachers and parents had little agreement about child behavior problems. It could be that one reporter is more accurate than the other or it could be that children's behavior differs between contexts and both reporters are similarly accurate. It is possible that children's behavior problems are at their worst when with their parents and they are better behaved or more variable in their behaviors at school. This is supported by our observations of the problem interactions between children and parents. It remains possible, however, that abusive parents are more inaccurate than teachers or nonabusive

parents when reporting about child behavior problems. Yet, observations also were not consistent with reports from teachers. This suggests two issues. First, declines in child behavior problems might be a result of parental changes in their views of their children rather than changes in the children. Second, that it is important to supplement parent report in future research with high-risk families. More generally, future research examining reasons for discrepancies between parent and others' reports of child behavior problems would be useful, especially when the parents are known to have parenting problems. This could reveal whether children exhibit different behavior at home compared to at school or whether parents' report of children's behaviors may overestimate the extent of their problems, as has been suggested in past research (Bauer & Twentyman, 1985). In general, such research could inform knowledge about parental socialization of children's behavior problems and provide useful guidance when making decisions about the best source of information when working with high-risk families.

*Generalization and Limitations of Study Findings*

There are several methodological issues to consider when generalizing the results to other populations. These include participant recruitment, attrition, specific child maltreatment outcome measures and comparison to a wait-list. First, an inclusive recruitment strategy was a significant strength in the current study and included seeking referrals from multiple sources such as local government departments including health and welfare and non-government agencies all working with families exhibiting characteristics known to correlate with child maltreatment (e.g., child externalizing behavior, high levels of parent stress, and negative parent–child interaction patterns). Preassessment data clearly indicate this strategy was successful in recruiting high-risk families.

Second, as other studies have reported (Friars & Mellor, 2007; Kazdin, Holland, & Crowley, 1997), maintaining high-risk families in an intervention can be challenging, even when it is provided free of charge and systems are in place to support attendance. In the current study treatment completion was defined as completing the PCIT treatment protocol by reaching mastery criteria in CDI treatment sessions, parents observed to consistently implement discipline strategies and articulate their role in the social learning environment of misbehavior. Although attrition was higher than ideal, it is similar to the rate reported by other interventionists working with high-risk families or children with clinical level of behavioral problems (Friars & Mellor, 2007) and families referred from a child protection agency. ITT analyses were conducted in an attempt to minimize the potential bias due to nonrandom loss of participants.

Participation in the current study was voluntary. Nevertheless, families referred by a child protection agency may have been more likely to perceive their involvement as mandatory. This perception may have decreased motivation and belief that the intervention would be beneficial. Chaffin et al. (2004) attempted to remediate this possible barrier by incorporating a motivational component prior to PCIT. It is not clear whether this addition to the standard PCIT format resulted in more motivation and consequently less attrition. To redress this, Chaffin et al. (2009) recently reported the results a double-randomized trial of PCIT. Results indicated greater retention when families participated in a PCIT plus motivation group compared to other treatments. The use of a motivational enhancement is a direction for future research and something to consider when providing interventions to high-risk and multiproblem families. Overall, it is possible that families referred to interventions from child protection require extra support for readiness and retention.

Finally, although PCIT was founded in social learning theory and attachment theory, assessments of attachment or related constructs have not been used in studies of the efficacy of PCIT prior to this study. PCIT was associated with improvements in parental sensitivity in the current study; however, we did not examine whether this was due to new behaviors learned and repeatedly practiced over time (social learning) or whether it was due to changes in parent attributions and/or representations of themselves as a parent (attachment-related models). What is notable is the reduction in child abuse potential and improvements in observed sensitivity at treatment protocol completion among families who were not notified for suspected child abuse after they completed PCIT treatment. In contrast, parents of children who were not notified for suspected maltreatment did not have greater improvements in some known correlates of child abuse, such as observed parent–child interactions, parental stress and child externalizing behaviors. It is possible that parents at high risk of child maltreatment can acquire skills that reduce child behavior problems and parent stress, and even appear to increase positive parent–child interactions, but these

skills may not necessarily translate to changing behaviors critical to child maltreatment. Our findings suggest that interventions need to target risk factors assessed by the CAPI (Milner, 1986) such as distress reactions, difficulties with emotion regulation, and rigid attributions about negative behaviors of parents and children as due to internal and stable factors.

Another potentially productive intervention enhancement would be to focus on parents' accurate reading of, and timely response to, the child's behavior and emotional cues to enhance sensitive interactions. There are multiple ways that this could be done and different approaches may be equally successful. For example, two approaches, which each had the goal of improving mother–child attachment relationships, were investigated in a recent study (Cicchetti, Rogosch, & Toth, 2006). Both were informed by attachment theory; however, the first focussed on altering maternal insecure representational models of attachment relationships, whereas the second focussed on increasing parenting skills and knowledge of child development. In comparison to a control group who received regular services from the community and a nonmaltreatment control group, *both* interventions were similarly successful in improving mother–child attachment relationships. The results of the current study and the previous study (Cicchetti et al., 2006) suggests parent sensitivity and attachment can be improved and may be important mechanisms for reducing child abuse.

*Raising Healthy Children: Implications for Policy and Practice*

The evidence is growing that PCIT is associated with significant improvements in parenting and child behavior when based on parent report, observations, and notifications for suspected child maltreatment. These improvements are not insignificant even in a brief 12-week period, but they are much stronger when families are provided with a slightly longer time in treatment. In particular, this study appears to support the premise that best practice interventions in child maltreatment may include allowing longer treatment times and incorporating intervention strategies that move beyond a focus on behavior management and stress reduction to constructs measured by the CAPI and maternal sensitivity such as improving capacity for emotional regulation and empathic responding, promoting feelings of parent competence, and changing rigid

attributions about the causes of problems and failure. Although further research is required to isolate the components of PCIT that may be most valuable, PCIT should be one treatment of choice for practitioners working with parents at high risk of child maltreatment.

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