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Parent–Child Interaction Therapy With Physically Abusive Parents: Efficacy for Reducing Future Abuse Reports

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A randomized trial was conducted to test the efficacy and sufficiency of parent–child interaction therapy (PCIT) in preventing re-reports of physical abuse among abusive parents. Physically abusive parents ($N = 110$) were randomly assigned to one of three intervention conditions: (a) PCIT, (b) PCIT plus individualized enhanced services, or (c) a standard community-based parenting group. Participants had multiple past child welfare reports, severe parent-to-child violence, low household income, and significant levels of depression, substance abuse, and antisocial behavior. At a median follow-up of 850 days, 19% of parents assigned to PCIT had a re-report for physical abuse compared with 49% of parents assigned to the standard community group. Additional enhanced services did not improve the efficacy of PCIT. The relative superiority of PCIT was mediated by greater reduction in negative parent–child interactions, consistent with the PCIT change model.

Physical child abuse is the most prevalent form of abuse handled by child welfare systems, accounting for over 166,000 children entering these systems annually (U.S. Department of Health and Human Services, 2002). Approximately half or more of abuse cases receive some sort of post-investigation intervention or treatment service (DePanfilis & Zuravin, 2002). Despite the prevalence of physical abuse and the numbers of physically abusive parents receiving services, treatment interventions for these parents have received little research attention over the past two decades (Behl, Conyngham, & May, 2003). A range of intervention approaches are in wide use, including parenting groups, parent support groups, anger management programs, and in-home family preservation models relying on crisis intervention and case management. Unfortunately, none of these widely used models meet basic criteria for a well-supported evidence-based intervention (Chaffin & Schmidt, in press). Most have never been subjected to randomized controlled trial testing, and many have been evaluated only for proxy or questionnaire outcomes (e.g., decreased parenting stress), which may not correspond with changes in risk for actual abuse recurrence (Chaffin & Valle, 2003). Some widely used interventions, such as intensive family preservation models, have been rigorously evaluated but found to be ineffective for preventing future child maltreatment (Littell, 1997). Recurrence rates after physical abuse intervention can be substantial. It is not uncommon for child welfare re-report rates to reach 40% or more within a few years. Many or most re-reports among physically abusive parents are for recurrent physical abuse (DePanfilis & Zuravin, 1999; Way, Chung, Jonson-Reid, & Drake, 2001).

Parent training is a staple intervention for physically abusive parents, either as a sole treatment or as a core component of a multicomponent service. Virtually none of the currently used parent training interventions have been tested in controlled trials assessing efficacy for reducing physical abuse recurrence. However, there are well-supported parenting models outside the physical abuse arena. One such model is parent–child interaction therapy (PCIT), which was recently classified as an empirically supported treatment (Chambless & Ollendick, 2000). PCIT has been demonstrated to be effective across a spectrum of child behavior problems and parent–child interaction problems in a variety of populations (e.g., Eisenstadt, Eyberg, McNeil, Newcomb, & Funderburk, 1993; Hembree-Kigin & McNeil, 1995). Treatment benefits for children have been documented to generalize to children's behavior at school (McNeil, Eyberg, Eisenstadt, Newcomb, & Funderburk, 1991), treatment benefits for parents have been found to generalize to other nontarget children in the home (Brestan, Eyberg, Boggs, & Algina, 1997), and benefits have been found to be durable over time (Eyberg et al., 2001; Eyberg & Robinson, 1982). PCIT is one of several interventions derived

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from Hanf's (1969) original two-phase operant model for modifying maladaptive parent–child interactions and disrupting the escalating coercive cycles that social learning theories describe as a developmental trajectory for child behavior problems (Patterson, 1976; Patterson, 1982; Patterson & Reid, 1984; Patterson, Reid, & Dishion, 1992) and, in some cases, for the development of serious parent-to-child violence (Milner & Chilamkurti, 1991; Urquiza & McNeil, 1996).

Child physical abuse often, but not exclusively, occurs when parents discipline children within the context of an escalating negative parent–child relationship, and physically abusive parents commonly view their children as behavior disordered, defiant, and unresponsive to nonviolent disciplinary techniques. The coercive cycle model posits that escalating coercive parent behavior is reinforced by short-term child compliance. Children may learn that parental directives can be escaped by ignoring them up to the point of serious aggression, which can reinforce children's avoidant or noncompliant behavior. Child noncompliance may in turn cue parents to increase their level of coercion until, among some at-risk parents, it reaches the point of violent parent-to-child behavior. In the absence of more positive interactions, a hostile parent–child relationship develops that is characterized by negative parental attributions and intolerance toward the child and, increasingly, reliance on harsh physical punishment as discipline. Physically abusive parents may perceive (inaccurately) that nothing short of violence "works" with their children (Crouch & Behl, 2001).

Urquiza and McNeil (1996) present a detailed theoretical rationale, based on social learning theory, for using PCIT with physically abusive parents and have made suggestions for modifying standard PCIT protocols for use with abusive parent–child dyads. The parent behaviors taught in PCIT are synonymous with social learning theory-based goals for stopping the development of parent-to-child violence—disrupting escalating coercive cycles and improving the quality of parent–child interactions by teaching parenting skills such as targeted labeled praise and selective inattention; extinguishing parents' use of physical punishment, criticism, or sarcasm; and teaching consistently applied, step-by-step, effective and nonviolent alternatives to physical discipline.

One characteristic that distinguishes PCIT from the usual physical abuse group parenting models is its approach. Most parenting programs for abusive parents treat parents separately from their children using a didactic approach (see Wolfe & Wekerle, 1993, for a review). Often, such programs focus on how parenting is conceptualized or understood by the parent rather than how parenting is behaviorally delivered. In PCIT, on the other hand, parents are treated with their children, skills are behaviorally defined, and all skills are directly coached and practiced in dyadic parent–child sessions. In contrast to group approaches, parents are shown directly how to implement specific behavioral skills with their children and then are coached to overlearned skill criteria in vivo. Therapists observe parent–child interactions through a one-way mirror and coach the parent using a radio earphone. Live coaching and monitoring of skill acquisition are cornerstones of PCIT. A few single-subject studies using live coaching or similar approaches with physically abusive parents have reported encouraging results (Borrego, Urquiza, Rasmussen, & Zebell, 1999; Crimmins, Bradlyn, St. Lawrence, & Kelly, 1984; Denicola & Sandler, 1980). In one small-scale comparative study, greater improvement was obtained with a direct-coaching based parenting skill program relative to an information-only condition (Wolfe, Edwards, Manion, & Koverola, 1988). To date, none of these coached behavioral parent-training approaches such as PCIT have been evaluated in a controlled trial with physically abusive parents.

PCIT is a highly focused intervention. Parents are taught a very specific but very limited set of parenting skills. Risk factors for engaging in physically abusive behaviors clearly extend beyond parenting and include broad parental and familial factors. For example, Chaffin, Kelleher, and Hollenberg (1996) found that parental depression and substance abuse were prospective risk factors for the development of subsequent physical abuse. Milner and Chilamkurti (1991) reviewed the literature on physically abusive parent characteristics and described high levels of family problems, general distress, and broad psychosocial difficulties. Co-occurring domestic violence may be present (Shipman, Rossman, & West, 1999). Given the broad range of problems in addition to parenting difficulties that are experienced by physically abusive parents, it is not clear that a parenting intervention alone is sufficient to reduce future abusive behavior or whether parent training needs to be enhanced by the addition of individualized services addressing some of the common co-occurring problems or risk factors faced by parents and families (e.g., parental depression, substance abuse, marital or family problems).

The present study was designed to address three primary questions. First, Is PCIT more efficacious than standard group-based parenting interventions in preventing physical abuse recurrence among physically abusive parents in the child welfare system? This study represents the first randomized test of the PCIT model with this population. Second, If efficacy is supported, are PCIT-related benefits consistent with the change model and techniques of the intervention? The PCIT model posits that changes in parent–child interaction patterns and a decrease in parental behaviors characteristic of the coercive cycle should mediate reductions in future physically abusive behavior, rather than nonspecific changes such as reduced parental distress, which might be expected from any supportive social intervention. We might also expect that a parent–child interaction oriented intervention such as PCIT would influence physical abuse reports more than child neglect reports. Child neglect reports primarily involve environmental living conditions and supervision not derived from escalating coercive cycles of interaction. Although a lack of interaction may characterize neglecting families (Bousha & Twentyman, 1984), this is often a situation of comorbid psychological neglect rather than cause for a neglect report. Third, Given the narrow focus of the intervention, is PCIT alone sufficient to achieve benefits, and to what extent are benefits enhanced by the addition of ad hoc clinic services for known risk factors (e.g., parental depression)? It was hypothesized that (a) PCIT would prove a superior intervention to a standard group-based parenting intervention, (b) changes in parent–child interactions, rather than broad reductions in distress or attitudes, would mediate PCIT-related benefits, (c) PCIT benefits will be greater for physical abuse outcomes than for neglect outcomes, and (d) the addition of service enhancements would improve outcomes. The main outcome of interest for each of these questions and hypotheses consisted of reports of future child physical abuse (i.e., recurrence).

Method

Participants

Parent–child dyads (i.e., abusive parent and abused child) were referred as they entered the child welfare system for a new confirmed physical abuse report. Referrals were eligible for the study if: (a) both the abusive parent (including stepparents or others in a parental role) and at least one abused child were available to participate together in treatment, and no legal termination of parental rights or abdication of parenting role had been initiated; (b) the abusive parent had a minimum measured IQ score of 70; (c) the child was between 4 and 12 years old; (d) the identified abusive parent did not have a child welfare report as a sexual abuse perpetrator; and (e) the parent provided voluntary informed consent to participate. Basic demographic information was collected from the referring child welfare worker on all referrals. Of the 300 dyads referred, 112 (37% of all referrals) met inclusion criteria and were enrolled as participants in the study. The main reasons for pre-inclusion attrition were that the client declined to participate in any treatment, study-related or otherwise (48% of those not enrolled), or could not be located (17% of those not enrolled). Data provided by referring child welfare workers revealed no univariately significant differences between those enrolled versus those not enrolled for parent or child gender, parent or child age, race/ethnicity, family structure (e.g., single parent, two parent, etc.), or the abusive parent's kinship relationship to the child (e.g., biological parent, stepparent, etc.).

Of the 112 participants enrolled in the study, two were subsequently removed from the data analysis sample according to the opinion of the data collector that the participant did not comprehend the assessment questions and could not provide valid data, leaving a final sample of 110 cases in the study. Each case consisted of the identified abusive parent for whom data were collected and the identified abused child for whom data were collected. Nonabusive parents or parents' partners and nonabused or nonindex siblings were eligible to be included as collateral participants in the interventions but did not provide data. All referred cases were offered services, regardless of study inclusion or exclusion status, and participant study data, aside from routine progress reports and mandated maltreatment reporting, were not shared with state authorities.

Procedure

After written informed consent was obtained from parents, and assent obtained from children, a baseline assessment was conducted that included review of the index child welfare investigation and all prior child welfare reports, administration of self-report measures or structured interviews, and observational coding of a structured parent–child interaction. Following baseline assessment, parent–child dyads were randomly assigned to one of the three parenting intervention conditions. All three parenting intervention conditions were structured and required approximately 6 months to complete. Ongoing service utilization was tracked, and after program completion (or at 6 months if participants dropped out of treatment prematurely) the assessment package was repeated. Participants received small gifts, averaging around $10 in value, for participation in posttreatment data collection. Data collectors were uninformed about treatment condition assignment. Follow-up for detected child maltreatment outcomes was obtained from the statewide child welfare administrative database, with matches based on unique identifiers for the family and individual unique identifiers for the abusive parent. All database matches were manually checked to confirm a positive match for a future maltreatment report, with the study participant (abusive parent) identified as the perpetrator. Reports that were classified as ruled out or screened out were excluded, and events were aggregated across close dates and the children involved in the report to yield unduplicated event counts within maltreatment types (i.e., physical abuse, neglect, or sexual abuse). Reports made by the study service providers, or "surveillance effect" reports, were removed ($n = 5$ reports distributed across all three study groups). All surveillance effect reports occurred in cases that had other re-reports from different sources (e.g., teachers, relatives). Thus, removing surveillance effect reports altered the time to re-report but did not affect cumulative re-report rates.

Instruments

Demographic questionnaire. A questionnaire was developed to capture basic demographic information. Initial versions of the questionnaire were screened by outside consultants to ensure their appropriateness for Hispanic and Native American populations, and suggestions were incorporated. The questionnaire was available in both Spanish and English language versions. An early version of the questionnaire was pilot tested on 100 parents in similar programs, and items answered inconsistently or indicated by parents to be confusing were corrected. Mean 2-week test–retest correlation was .74 for continuous variable items, and kappa was .79 for nominal variable items.

Child Abuse Potential Inventory (CAP). The CAP (Milner, 1986) is a widely used 160-item agree–disagree format questionnaire developed to estimate risk for committing child physical abuse. The omnibus CAP Abuse Scale has been reported to have high internal consistency (KR-20 = .92 to .95), a 1-month test–retest stability of .83, and good discriminant and future predictive validity (Chaffin & Valle, 2003; Milner, 1986, 1994). Component subscales include measures of Parent Distress, Rigidity (i.e., rigid or harsh parent beliefs and attitudes), and Loneliness (i.e., isolation and limited social support). Normative value for the Abuse scale is 91, with a signal-detection cutoff score of 166 (Milner, 1986). Both English and Spanish language versions were available. The identified abusive parent completed the instrument. Alphas using present study pretreatment data were .93 for the Abuse scale, .94 for the Distress scale, .79 for the Rigidity scale, and .82 for the Loneliness scale.

Child Neglect Index (CNI). The CNI (Trocme, 1996) yields an overall severity rating for child neglect as well as ratings across separate neglect dimensions. The overall rating is simply the maximum of the separate dimension ratings. Adequate temporal stability and correlation with lengthier instruments have been reported (Trocme, 1996). A research assistant completed the CNI on the basis of a review of written child welfare investigative information and/or an interview with the child welfare worker.

Abuse Dimensions Inventory (ADI). The ADI (Chaffin, Wherry, Newlin, Crutchfield, & Dykman, 1997) is an ordinal measure rating the severity of sexual and/or physical abuse across three dimensions—behavioral severity, duration, and frequency. Behavioral severity rankings were developed on the basis of a national survey of professionals working in the field of child maltreatment, and the instrument has been shown to have high interrater reliability. Research assistants completed the ADI on the basis of a review of written child welfare investigative information and/or an interview with the child welfare worker. Interrater reliability for the ADI was monitored by randomly selecting 10% of the sample for recoding by an independent rater. The mean interrater reliability for ADI scores in the current study was .76.

Dyadic Parent–Child Interaction Coding System (DPICS-II). The DPICS-II is a widely used system for coding parent–child interactions during a structured three-part task: child-directed activity, parent-directed activity, and clean-up from the activity (Eyberg, Bessmer, Newcomb, Edwards, & Robinson, 1994). The DPICS-II codes verbal behavior (e.g., commands, praises, criticisms), vocal behavior (e.g., laughs, whines, yells), and physical behavior (e.g., physical positives such as hugs or pats; physical negatives such as slaps) for both parents and children. Interrater and test–retest reliability as well as discriminant validity between referred and nonreferred children are satisfactory (Aragona & Eyberg, 1981; Bessmer, 1998; Foote, 2000; Webster-Stratton, 1985). Studies also have supported the treatment sensitivity of the DPICS-II (Schuhmann, Foote, Eyberg, Boggs, & Algina, 1998). Interactions were videotaped, then coded by a research assistant who was uninformed about study condition. Coders were trained extensively and were required to meet criteria with a standard

videotape stimulus set before coding any study data; their ongoing coding was checked periodically by the trainer to prevent drift. A subset of tapes on 7 participants was sent for off-site coding by an independent coder (i.e., a coder trained in the DPICS-II system at a remote institution who was not trained or supervised by study personnel and was not involved in any way in the present study). Correlation between study and off-site coding was .94 for negative parent behaviors and .84 for positive parent behaviors.

Behavior Assessment System for Children (BASC). The BASC (Reynolds & Kamphaus, 1992) is a set of instruments for rating behavior, thoughts, and emotions of children ages 4 to 18 relative to standardized age- and gender-referenced norms. It provides measures of adaptive as well as problematic behaviors, includes specific age-appropriate items, and compares information from multiple sources (self, parent, and teacher report) of a variety of internalizing and externalizing behaviors, including aggression, anxiety, depression, and hyperactivity. Internal consistency and temporal stability of the scales range from the mid .70s to the low .90s. The identified abusive parent completed the parent report version of the BASC. The identified abused child completed the child report version of the BASC. If possible, a teacher report version of the BASC was obtained from the child's most recent classroom teacher.

Beck Depression Inventory (BDI). The BDI (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) is a well-known and widely used 21-item self-report measure of depressive symptoms. Higher scores indicate more severe symptoms of depression, but the instrument does not provide a clinical diagnosis of depressive disorders. This measure has been found to be a highly reliable and valid indicator of depressive symptoms and to be sensitive to changes in those symptoms over time and treatment. The identified abusive parent completed the BDI. Alpha for pretreatment data in the current study was .90.

Diagnostic Interview Schedule (DIS) Alcohol and Drug Modules, and Antisocial Personality Disorder Module. The DIS (Robbins, Helzer, Croughan, & Ratcliff, 1981) is a structured diagnostic interview based on diagnostic criteria from the *Diagnostic and Statistical Manual of Mental Disorders, Third Edition* (*DSM-III*; American Psychiatric Association, 1980) and designed for epidemiological research. DIS self-reported alcohol and drug disorders have been found to prospectively predict risk for physical child abuse (Chaffin et al., 1996). We modified the modules for use as self-report instruments, a modification that past studies have suggested yields valid results (Kovess & Fournier, 1990). The DIS Alcohol Disorders Module has been used as a criterion measure against which other alcohol measures are tested and is substantially correlated with other alcohol measures and with clinician diagnoses (Goethe & Ahmadi, 1991; Goethe & Fischer, 1995; Watson, Detra, Fox, & Ewing, 1995). The DIS Drug Disorders Module has high agreement with other diagnostic measures of drug disorders (Hasin & Grant, 1987). *DSM-III* algorithms are applied to yield diagnoses for the DIS modules.

Kaufman Brief Intelligence Test (KBIT). The KBIT (Kaufman & Kaufman, 1990) is a brief, individually administered screening measure of verbal and nonverbal intelligence for people ages 4 to 90 years. It provides a measure of crystallized thinking and fluid thinking, with two subscales, Vocabulary and Matrices, which correlate highly with more comprehensive tests of cognitive functioning. The KBIT was administered as an eligibility screen for the identified abusive parent, requiring a score of 70 or above for inclusion, and was also administered to the abused child for descriptive purposes.

Interventions

PCIT. The PCIT intervention was composed of three modules, and the duration and sequencing of the modules was designed so that the overall structure and duration of the program would be comparable to the standard community group model to which it was being compared. The first module consisted of a six-session orientation group. Because PCIT requires parent activity, including homework assignments and demonstrating skills to overlearned criteria in session, and cannot simply be passively consumed, the orientation group focused on increasing parent motivation for active participation. The study population, unlike typical PCIT clinical populations, is not necessarily seeking help voluntarily. Physically abusive parents may be coerced into treatment and consequently may initially be unmotivated to change parenting behavior. The motivational enhancement orientation group followed a session-by-session protocol, which included live and/or taped testimonials from volunteer program graduates, decisional balance exercises, exercises fostering an understanding of the potentially negative consequences of using severe physical discipline, and exercises encouraging development of self-motivational cognitions and self-efficacy expectations. Each participant was required to make a personal statement on their beliefs about parenting, the effects of their parenting practices on themselves and others, and goals for changes in beliefs and behavior. Parents were required to "pass" the motivational enhancement group requirements by meeting checklist criteria as scored by the therapist for their personal statement and for participation in the group before starting PCIT. Parents who did not pass the motivational enhancement group requirements ($n = 2$) repeated the group once before starting PCIT. A manualized collateral safety and skill-building group was provided for the children, which ran concurrently with the motivational enhancement parent module.

Following the motivational enhancement orientation module, parents began a 12–14 session course of PCIT. Like standard PCIT, the version of PCIT used in this study was conducted in clinic-based, individual parent–child dyad sessions. PCIT itself consists of two phases. The first phase, Child Directed Interaction (CDI), focuses on teaching relationship enhancement skills and establishing a daily positive parent–child interaction time. The first phase consists of a single didactic session followed by five to six live-coached parent–child dyad sessions. Parents are coached to ignore minor child misbehavior; to follow their child's lead in a play interaction; to avoid criticism, sarcasm, or other negative behaviors; and to increase use of labeled praise, reflection, imitation, description, and enthusiasm. Daily homework practice logs were assigned to encourage practice of these skills. The second phase of PCIT, Parent-Directed Interaction (PDI), focuses on teaching command-giving skills and a behavioral discipline protocol for using time-out to obtain child compliance. The second phase also consists of a single didactic session followed by five to six live-coached parent–child dyad sessions.

PCIT was developed for children presenting with disruptive behavior disorders. Modifications to standard PCIT were made to address special issues related to physically abusive families. For example, during the CDI, drills and role plays were used to redouble emphasis on identifying appropriate child behavior and responding with specific praise, a behavior that many physically abusive parents reported was foreign and difficult for them. In standard PCIT, mild corporal punishment may be used if children refuse to comply with time-out. This was not used with physically abusive parents. Nonviolent back-ups and strategies to prevent noncompliance with time-out were taught instead (e.g., depending on age and parental self-control, strategies such as contingent loss of special rewards, time-out in a barrier room or holding chair). In practice, children rarely if ever were noncompliant with time-out in session, and back-ups were almost never required. Parents were coached to pause, self-monitor their stress level, and relax before implementing any component of the time-out discipline procedure. With highly compliant children, for whom the discipline skills could not be practiced and coached in vivo, role plays with therapists were used. In addition, therapists coached parents in situations outside of the clinic room, such as the waiting room or hallway.

PCIT was originally developed for use with parents of children between 2½ and 7 years of age. However, in this study, parent change, rather than child change was the focus, and consequently it was felt that this age range could easily be extended upward. To adapt PCIT for parents of older children, the time-out protocol was modified, and a wider range of discipline strategies were presented, including behavior charts and school behavior report cards. Activity choices for CDI were expanded to include

older school-age children's interests (e.g., making jewelry, models, crafts). During CDI, parents with older children were not coached to be as intensely verbal or effusive as in standard PCIT for younger children. The quality, rather than the quantity, of positive behaviors was emphasized (e.g., using reflective listening skills rather than imitating the child's verbalizations). All modifications and additions to the protocol were made consistent with the overall PCIT theory model and other behavioral parent training models, particularly borrowing from Barkley's (1987) parent training model for older school-age children.

Adherence to the session-by-session protocols for both the motivational enhancement orientation and the PCIT sessions was assessed by frequent direct supervisor observation of sessions and by completion of session-by-session adherence checklists. A co-therapy model was used for supervision and quality control. Supervisors would regularly join therapists behind the one-way mirror to observe competency and adherence to the session-by-session protocol, and give feedback. A random 10% sample of session videotapes was also coded with the use of a protocol-referenced checklist by independent observers; average protocol adherence was 93%.

Following completion of PCIT, parents and children participated in a four-session follow-up group program. These groups were less structured and focused on any skill implementation problems parents might discuss or other issues parents would choose to raise. The main purpose of the follow-up group was to structure the PCIT intervention to be of the same 6-month duration as the standard community parenting group intervention. During this phase, children attended a concurrent manualized support group that focused on teaching social skills. Client satisfaction with the motivational enhancement plus PCIT parenting program was high. On an 11-item client satisfaction scale (scale alpha for the current study = .93), satisfaction ranked 4.3 on a scale ranging from 1 (*least favorable*) to 5 (*most favorable*).

Enhanced PCIT (EPCIT). Participants in the EPCIT condition received the identical motivational enhancement and PCIT interventions as did participants in the PCIT condition, and these were provided by the same staff. Individualized enhanced services were added, with particular attention to services targeting parental depression, current substance abuse, and family, marital, or domestic violence problems. Although lifetime-prevalence substance abuse was endorsed by a significant number of participants, current substance abuse was less often reported during baseline data collection or in subsequent clinical contacts. However, current and ongoing parental depression and family problems were commonly reported, and parents were generally quite receptive to additional clinic services in these areas. Home visiting by study staff was provided to EPCIT participants to assist parents with implementing PCIT skills in the home. Standard clinical treatment for depression included individual cognitive therapy and antidepressant medication, both provided by study staff at no cost to the participant. Treatment for family problems included marital and family psychotherapy provided by project staff at no additional cost to the participant. If such services were already provided to the family by an outside agency, project staff supported and tracked the families' participation. Because services were ad hoc and individualized, there was considerable variation in the type and number of sessions attended. Because some enhanced services were provided outside the auspices of the study, service quality was not uniformly measured. Client satisfaction for the parenting intervention in the EPCIT condition was rated as 4.1 on the same scale described above.

Standard community group. The community group intervention was implemented at a single community-based nonprofit agency, which had operated this group parent training program for many years and serves over 750 physical abuse cases annually. The parenting program is based on a group psychoeducational (i.e., didactic) model developed in-house by the agency and contains three modules. All modules are manualized and structured. The first module is a six-session orientation group. In this module, parents are introduced to agency services and receive information about listening skills, how parenting practices influence children, and how the parents' own upbringing has influenced the way in which they discipline and parent their children. The second module is a 12-session parenting-skills group in which parents learn about child development, discipline, praise, behavior management, communication strategies, stress management, and the ways in which parental problems affect children. Special needs of parents are also addressed during group discussion. The third module is a 12-session anger management group designed to help participants develop self-awareness, self-control, and compassion or empathy for others. The overall approach relies on discussing how parenting is conceptualized by the parent, identifying and regulating emotions, and verbal problem solving. Collateral supportive programs for children were provided. Client satisfaction with the community group parenting program was high, with an average score of 4.1 on the same eleven 5-point scales used to rate the PCIT interventions. It is important to note that the parenting component of the community group program encouraged parenting attributes that were similar to those encouraged by the PCIT conditions (i.e., use of praise, firm and consistent as opposed to harsh discipline, etc.). However, the approach taken was vastly different. The community group program focused on how parenting was understood and conceptualized. The PCIT programs emphasized how parenting was delivered behaviorally and focused on a much smaller and more behaviorally defined set of skills.

Individualized treatment services received by parents. Measures of additional individualized services received by parents included both the number of referrals made and the number of sessions attended, apart from the core PCIT or community group parenting programs. This information was coded from chart records. For the EPCIT participants, these services were coordinated and directly provided by the study as part of their randomized treatment condition. For the PCIT and community group conditions, these services included ad hoc ancillary services received outside the study, either through self-referral or referral by child welfare workers. In a small number of cases (less than 10%), it was known that some additional service was received and that there was some level of client attendance, but the exact number of sessions attended was unknown. In these instances, a single expectation-maximization algorithm imputation was made for the missing number of sessions based on the overall pattern of other service referrals and session attendance. Data on service referrals and session attendance were collected for the following service types: individual psychotherapy, marital or family therapy, domestic violence services, substance abuse services, and home visiting services. Data were also collected on referrals for psychiatric medication and on whether the parent obtained medication. The EPCIT condition was designed to be more intensive than the other conditions for these types of additional services, particularly psychiatric treatment for depression. As expected, participants assigned to the EPCIT condition received significantly more individualized service referrals and attended more sessions than participants assigned to the PCIT or community group condition (Wilks's lambda = .76, $p < .001$). The mean and median numbers of additional service sessions received by the EPCIT group was 9.3 and 4.0, respectively, compared with a mean and median of 1.9 and 0.0 in the other two groups. Seventy-nine percent (79%) of EPCIT participants received some additional services, compared with 32% of the PCIT and 20% of the community group participants. The most common individualized service received by EPCIT participants was home visiting (55% of EPCIT participants vs. 0% of other participants). The content of home-visiting sessions included crisis management and help implementing parenting practices in the home. Home visits were not counted as formal PCIT sessions and did not follow classic PCIT coaching format. EPCIT services were particularly targeted to parental depression, given that parental depression has been found to be a major risk factor predicting the onset of physically abusive behavior (Chaffin et al., 1996). Receipt of psychiatric medication (typically selective serotonin reuptake inhibitors) was strongly related to EPCIT condition assignment, with 80% of EPCIT parents who had a BDI score of 19 or more receiving antidepressant medication (provided by the study), compared with 22% of significantly depressed parents in the PCIT condition and none of signif-

icantly depressed parents in the community group condition. Similarly, 60% of parents meeting BDI criteria for depression were linked with individual counseling in the EPCIT condition, more than double the rate of either of the other groups. In general, parents did not report current substance use. Most substance use referrals were to 12-step programs, and data on the number of substance abuse sessions attended were not reliably available. The additional individual or family therapy services and the home visiting services were not manualized or protocol driven and were intended to reflect the kinds of ad hoc psychosocial services commonly obtained in community settings. However, these services often were delivered and supervised by the same staff delivering and supervising the PCIT protocol in order to ensure that the additional service content did not counsel parents to use parenting skills that were obviously inconsistent with PCIT parenting skills.

Treatment attrition and dose patterns. Parenting session (including orientation) attendance data were examined for all participants. Attrition and dose were examined solely for these types of sessions because these were the only planned, protocol-driven interventions. In general, parenting intervention dose (i.e., number of sessions) was bimodally distributed, with the most common retention patterns being either early dropout or program completion. On this basis, three attrition patterns were coded. The first attrition pattern included participants who attended very few orientation sessions without completing the six-session orientation group. The second attrition pattern included participants who completed the six-session orientation but completed less than half of the core parenting program. The final attrition pattern included participants who completed all of the orientation and the majority of the PCIT or community group parenting program. Most participants in this final group ("completers") completed the entire parenting program. Completers in all conditions averaged 22–24 total parenting sessions, and there were no group differences in the number of total parenting program sessions among completers across conditions. Attrition patterns were not uniform across the intervention conditions, ordinal regression $\chi^2(2, N = 110) = 8.28$, $p < .02$, with the PCIT and EPCIT programs having better early retention than the community group program. Because attrition was not equal across intervention conditions, an attrition pattern by intervention condition interaction term was tested with all outcome models and included in the final model if it contributed significant variance. Efforts to obtain 6-month posttreatment psychometric data were maintained regardless of treatment attrition, and data were collected on 25% of early treatment dropouts and on almost all treatment completers. Data on the main outcome of interest (i.e., maltreatment reports from administrative databases) were available on all participants regardless of treatment attrition status.

Results

Pre-Randomization Data

Sixty-five percent of the parents in the study were female with a mean age of 32 years ($SD = 8.8$). Thirty-four percent (34%) of parents were married at pretreatment, 26% were never married, 18% were divorced, 13% were separated, 7% were cohabiting, and 1% was widowed. Fifty-two percent were White, non-Hispanic, 40% were African American, 4% were Hispanic/Latino, 1% were Native American, 1% were Asian, and 2% were classified as other. Seven percent of the identified abusive parents had less than a 9th-grade education, 19% had a 9th- to 11th-grade education, 48% had a high school or equivalent education, 22% had some college, and 5% were college graduates. The median household size was 4 persons, with a median of 3 children in the household. According to the U.S. Census Bureau's poverty line criteria for the geographic region, over 62% of all participant households would be characterized as living below the poverty line. Sixty-four percent (64%) of participant families reported receiving some form of public assistance, most often food stamps (37%). On the whole, the extent and duration of abusive behavior among participants was serious. Abusive parents had an average of two prior child welfare physical abuse reports and two prior child welfare neglect reports, although both frequency distributions were positively skewed. Severity of known physically abusive behavior was measured both for the referral event and for all past physical abuse referrals, coded on the ADI. In terms of referral event behavior, 73% of cases were referred on the basis of assaultive behavior, such as hitting or punching with a fist, which would be expected to result in injuries such as bruising or scratching; 20% engaged in more extremely violent and severe assaultive behavior (e.g., severe beating), which would be expected to result in serious injuries such as broken bones, major lacerations requiring sutures, and so forth. Only 7% engaged solely in less severe behavior such as excessive spanking. On the basis of the combined current and all past reported abusive behaviors in the child welfare record, a larger percentage (39%) of parents had engaged at some point in the more extremely violent category of assaultive behavior with their children. Current neglect, defined as a score of 3 or more on the CNI at the time of the physical abuse referral, was noted in 25% of cases based on child welfare record review.

Mean parent IQ as measured by the KBIT was 95 (median = 96, standard deviation = 10, range = 70–114). Thirty-two percent of parents self-reported symptoms that met DIS criteria for a lifetime-prevalence drug or alcohol disorder, with 20% meeting criteria for a drug disorder and 16% meeting criteria for an alcohol disorder. Current self-reported use of drugs or alcohol was vastly lower than lifetime prevalence reports, and current report levels were inversely correlated with scores on the CAP Lie scale, suggesting that although lifetime prevalence was substantially endorsed, current use was not accurately reported. Sixteen percent of parents reported symptoms that met DIS criteria for antisocial personality disorder, and 39% reported symptoms that met DIS criteria for probable antisocial personality disorder. The average score on the BDI was 12.3, with 22% of parents endorsing a moderate or high level of depression based on a cutoff score of 19. Seventy-five percent of parents produced a valid profile on the CAP, with an overall mean score of 173 ($SD = 96.3$) for all protocols and a mean score of 200 ($SD = 93.0$) for valid protocols, which is consistent with prior studies of known physical abusers (Milner, 1986).

Identified abused children had a median KBIT IQ of 97 ($M = 94$, $SD = 14$). Parents reported high levels of externalizing child behavior problems on the BASC ($M = 63.0$, $SD = 17.7$). However, parent reports of behavior problems were not strongly correlated with the teacher report BASC ($r = .14$ for Externalizing T scores and $r = .08$ for Internalizing T scores).

Testing the adequacy of the randomization, we found no statistically significant pretreatment differences for maltreatment characteristics (i.e., on CAP Abuse scale, ADI behavioral severity scores, number of past abuse and/or neglect events, or CNI neglect scores) or for family characteristics (i.e., number of children, abusive parent's relationship to abused child, household income). There were no statistically significant differences for child characteristics (i.e., child age, child gender, child IQ, parent report BASC Internalizing or Externalizing T scores) or for parent characteristics (i.e., parent age, parent IQ, lifetime-prevalence drug or

alcohol symptoms, BDI score, antisocial personality symptoms, level of education, parent race, marital status, or gender).

Physical Abuse Re-Report Outcomes

Physical abuse recurrence was analyzed with survival analysis to accommodate event data (yes–no) across varying follow-up times. A total of 37 (34%) participants had a future unduplicated physical abuse report not attributable to study surveillance effect over a median follow-up time of 850 days. The most common source of physical abuse reports came from schools, followed by reports from relatives or family members. Examining raw rates of physical abuse re-reports by treatment conditions, 8 (19%) of the participants in the PCIT condition had a re-report, 12 (36%) participants in the EPCIT condition had a re-report, and 17 (49%) participants in the community group condition had a re-report, $\chi^2(2, N = 110) = 7.6, p = .02$. Survival as a function of intervention condition alone was tested by a Kaplan-Meier survival analysis with pairwise comparisons of the three intervention conditions. PCIT alone had significantly better survival than the community group condition (log rank = 6.2, $p < .02$), and there was a trend for PCIT alone to have better survival than the EPCIT condition (log rank = 2.3, $p = .13$). The EPCIT and community group comparison did not approach significance. Controlling for attrition pattern and attrition pattern by group interaction in a Cox proportional hazards survival analysis, we found that membership in the PCIT group remained the only significant predictor of survival (Wald statistic = 5.0, $p = .03$). Unadjusted treatment group survival functions are displayed in Figure 1.

Demographic Subgroup Moderating Effects

To examine the impact of study intervention condition effects across various demographic subgroups, we conducted a series of separate analyses examining the moderating effects of parent race (Caucasian non-Hispanic vs. other), child age group (under 8 years old vs. over 8 years old), parent gender, parent–child relationship status (biological parents vs. stepparents, etc.), and household income grouping. Cox proportional hazards survival models were constructed with intervention condition and intervention condition by subgroup interaction terms. No interaction terms approached significance.

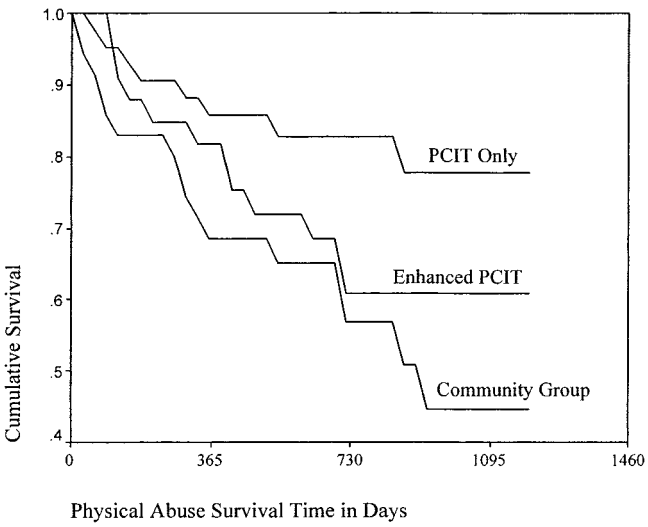

Figure 1. Survival for physical abuse re-referral ($N = 110$). PCIT = parent–child interaction therapy.

Testing Mediating Factors

Unlike re-report outcomes, tests of mediation relied on changes in measured variables that were susceptible to bias due to missing posttreatment data. A multiple imputation approach to missing posttest data was applied with the NORM program (Schafer, 1999). Five imputed data sets were generated with the data augmentation algorithm. The imputation model included all variables in the mediational models, demographic variables (e.g., age, household income, etc.), and variables shown in univariate analyses to be related to "missingness" (i.e., single-parent family type and DIS antisocial personality symptom count). These five data sets were then analyzed separately with conventional statistical techniques, and the model parameters and error terms were combined to arrive at a single set of final model estimates. This approach generally produces more accurate estimates of parameters than either listwise deletion of cases with missing data (i.e., a completers-only analysis) or single imputation techniques. The strategy described by Holmbeck (1998) for testing mediators was followed, first testing associations between the potential mediating variable and design group and then testing associations between the potential mediating variable and physical abuse re-report survival. If both of these tests were significant, the potential mediator was then tested to see whether it substantially reduced the association between design group and survival in a combined model.

Mediation by changes in distress and support. Changes in parental distress and social support were estimated with the Distress and Loneliness subscales from the CAP and BDI scores. Scores decreased over time; however, no significant treatment group effects were found for the CAP Distress scale or Loneliness scale. Reductions in BDI scores were noted across all groups but were less in the EPCIT group, $t(12) = 2.25, p < .05$. Among moderately to severely depressed participants (22% of sample), scores decreased from a mean of 28 to a mean of 12 across treatment groups. BDI changes were next tested for their association with physical abuse survival. Changes in BDI scores were not significantly related to physical abuse survival in a Cox proportional hazards regression, and no further tests of mediation were conducted.

Mediation by changes in parenting attitudes and parent-reported child externalizing behavior problems. Changes in parenting attitudes were measured with the CAP Rigidity scale, and parents' perceptions of child behavior problems were measured with the BASC Externalizing scale. Scores decreased over time; however, no significant treatment group effects were found, and no further tests of mediation were conducted.

Mediation by changes in parent–child interactions. Parent behaviors were coded from videotaped structured interaction sessions by trained observers with the DPICS-II. Parent behaviors were collapsed across positive parent behaviors (i.e., praise, reflection, description, physical positives) and negative parent behaviors (i.e., criticism, sarcasm, physical negatives). Total frequencies for each category were tabulated across a structured

half-hour observation time. Significant group effects were found for reductions in parent negative behaviors associated with the PCIT, $t(12) = -3.83$, $p < .01$, and for the EPCIT condition, $t(17) = -3.62$, $p < .01$, compared with the community group condition, which showed no change from baseline. No significant group effect was found for changes in positive parent behaviors, which were generally high in all three groups. Using a series of Cox regressions with the imputed data sets, we found posttest parental negative behaviors to be associated with physical abuse survival, $t(370) = 2.65$, $p < .01$. Adding parental negative behaviors to the physical abuse survival model for treatment group reduced the effect for PCIT group assignment to statistical insignificance with a small to moderate reduction in model parameters from –1.08 to –.85. This suggests that the benefits of the PCIT group were, to a partial extent, mediated by greater reductions in parental negative interaction behaviors for participants assigned to the PCIT group. A summary of preintervention–postintervention means and standard errors for CAP scales, BASC scales, and DPICS-II behavior frequencies are shown in Table 1.

Specificity of Effects

The PCIT change model would predict that changes in parent–child interactions and discipline skills would influence physical abuse outcomes more than child neglect reports. Child neglect reports are usually made on the basis of environmental deficits or other factors not directly related to coercive interactional cycles. A total of 29 participants (26%) had at least one future neglect report, and no difference in raw neglect re-report rate was found among the intervention conditions. Kaplan-Meier survival analysis revealed no significant differences among the groups for neglect re-reports, and there were no significant effects in a Cox proportional hazards survival analysis controlling for attrition pattern and attrition pattern by treatment group interactions.

Therapist Effects

The study design did not allow examination of therapist effects that could account for differences between PCIT and the commu-

Table 1
Pretreatment (Pre) and Posttreatment (Post) Scores

	Treatment group		
	PCIT	EPCIT	Community group
Measure	*M (SE)*	*M (SE)*	*M (SE)*
BASC Parent-Report Externalizing T score[a]			
Pre	60.6 (2.7)	69.4 (3.0)	59.7 (2.9)
Post	55.3 (2.2)	59.5 (2.4)	56.4 (4.0)
BASC Parent-Report Internalizing T score[a]			
Pre	52.2 (1.6)	51.5 (1.8)	49.7 (1.8)
Post	47.4 (1.5)	48.2 (1.9)	47.2 (2.3)
CAP Abuse scale[a] (normative mean = 91; signal detection cut-off score = 166)			
Pre	181 (14.8)	159 (16.7)	174 (16.2)
Post	122 (15.8)	127 (16.1)	126 (29.4)
CAP Rigidity scale (normative mean = 10)			
Pre	22 (2.4)	19 (2.7)	25 (2.6)
Post	18 (2.7)	17 (3.4)	26 (3.6)
CAP Distress scale[a] (normative mean = 58)			
Pre	108 (11.1)	87 (12.5)	95 (12.1)
Post	68 (14.2)	67 (15.4)	56 (22.0)
CAP Loneliness scale[a]			
Pre	7.8 (0.6)	6.9 (0.7)	7.6 (0.7)
Post	5.9 (0.8)	6.0 (0.7)	5.6 (1.3)
CAP Problems With Child scale (normative mean = 2.8)			
Pre	7.4 (1.1)	7.9 (1.2)	7.1 (1.2)
Post	5.1 (1.8)	7.8 (1.4)	10.0 (2.2)
DPICS-II positive parent behaviors			
Pre	140 (10.9)	127 (10.7)	113 (11.0)
Post	152 (11.2)	146 (18.3)	107 (18.0)
DPICS-II negative parent behaviors[a,b]			
Pre	25 (3.0)	24 (3.4)	25 (3.3)
Post	14 (2.9)	15 (3.0)	32 (4.8)

Note. PCIT = parent–child interaction therapy; EPCIT = enhanced parent–child interaction therapy; BASC = Behavior Assessment System for Children; CAP = Child Abuse Potential Inventory. DPICS-II = Dyadic Parent–Child Interaction Coding System. Means and standard errors were computed for $N = 5$ imputed data sets and combined following Rubin's (1987) rules. $N = 110$.
[a] Time effect significant at $p < .05$. [b] Group by time effect significant at $p < .05$.

nity group intervention. However, it was possible to estimate the size of therapist effects within the two PCIT conditions. A variety of therapists delivered the PCIT interventions. These included basic trainees (graduate practicum students, interns, and beginning postdoctoral fellows, all of whom had no prior experience delivering PCIT), experienced trainees (trainees who had significant experience with PCIT and were observed by their supervisors to be fluent with the technique), and experts (PCIT trainers with many years of experience). Therapists were grouped by consensus rankings of clinical supervisors into three groupings (beginning trainee, experienced trainee, and experts) according to the criteria described above. On the basis of these groupings, 35% of cases were seen by therapists classified as beginning trainees, 39% were seen by therapists classified as experienced trainees, and 26% were seen by therapists classified as experts. Long-term trainees were "beginners" for their early cases and "experienced" for their later cases. Assignment of cases to therapists was not randomized. Survival analysis was used to compare therapist groups across time, and no pairwise comparisons reached statistical significance, although there was a tentative trend (log rank = 1.3, $p = .26$) for cases seen by beginners to fare less well than cases seen by experienced trainees and experts, which were very comparable in outcome.

Exploratory Analyses of the Unexpected Trend Toward Greater Efficacy of PCIT Over EPCIT

It was hypothesized that enhancing the basic PCIT-based parenting program with individualized enhanced clinic services would improve results. This hypothesis was not supported, and in fact a nonsignificant trend was observed for participants randomized to the enhanced condition to have more, not fewer, future physical abuse reports. Limited statistical power was available to explore possible explanations for this finding. None of the mediational analyses reported above suggested factors that might explain this trend. In order to explore this trend, an additional set of analyses was conducted. First, in order to test whether recipients of enhanced services may have received less PCIT, utilization rates were tested. No significant differences between the PCIT and EPCIT groups were found, and both basic and enhanced recipients attended almost identical numbers and types of PCIT sessions. However, there was a nonsignificant trend for basic PCIT recipients to meet full overlearned skill mastery criteria more frequently than enhanced EPCIT recipients (37% vs. 24%, $p = .19$). Although PCIT mastery criteria may be fairly arbitrary, and should not be interpreted as equivalent to a successful or unsuccessful outcome, the low levels attained do say something about the difficulty in conducting criteria-based parent training with this population.

Discussion

Study findings supported the efficacy of a PCIT-based behavioral parent training program with initial motivational enhancement orientation for reducing rates of future child physical abuse among physically abusive parents. The efficacy of the intervention relative to a typical standard community-based parenting program was robust across demographic categories, most notably including the extension of the PCIT-based parent training to parents of children in the 8- to 12-year-old age range. The PCIT intervention appeared to be sufficient, in the sense that efficacy was not improved by adding an array of additional services in response to individual parent need, and in fact there was a nonsignificant trend for provision of these services to attenuate efficacy, rather than enhance it. It is possible that additional services may have diluted interest in or attainment of behavioral parenting goals or that parents in the enhanced condition may have been inadvertently encouraged to attribute their parent–child problems to something other than their own parenting behavior. Also, the exact content and quality of these extended interventions was not controlled in the study and may have contributed to the trend. The implications of this possibility clearly need to be examined further in future larger sample studies, especially given the tendency of child welfare systems and clinicians to prescribe multiple simultaneous, and potentially counterproductive, interventions to these families. Although we cannot confidently conclude that additional services in fact attenuated PCIT benefits or why this trend may have occurred, it is nonetheless fairly clear that added services were not necessary to produce the advantages of PCIT over the standard community parenting program. The hypothesis that PCIT needs the addition of other services to maximally reduce abuse recurrence was clearly rejected, and the sufficiency of PCIT as a treatment for abusive parents was supported.

Findings from the analysis of factors mediating group differences generally supported the PCIT change model. The findings are consistent with the suggestions of Urquiza and McNeil (1996) that the effectiveness of PCIT in reducing physical abuse recurrence would derive from changes in parent–child interaction patterns and in particular a de-escalation of coercive interactions, as predicted by social learning theory of child misbehavior and harsh or violent discipline (Patterson, 1976; Patterson & Reid, 1984). This is also consistent with early findings suggesting that physically abusive parents tend to be especially characterized by high levels of aggressive and negative interactions, whereas neglectful parents are more often characterized by absence of interaction (Bousha & Twentyman, 1984). General or nonspecific changes such as reduced parent distress, changes in parent attitudes and beliefs, or changes in parents' perceptions of child externalizing behavior problems improved across all three conditions but did not mediate group differences. This underscores the emphasis in PCIT and other behavioral methods for directly targeting parents' behaviors and interactions with their children.

This is not to suggest that broader risk factors such as general parenting knowledge, stress or attitudes are unimportant. However, the findings do suggest that changes in these domains may only go so far toward achieving reductions in physical abuse recurrence, a finding that is consistent with a recent study examining dynamic risk characteristics (Chaffin & Valle, 2003). This may be a critical point given that many current physical abuse intervention models rely strongly or even exclusively on providing social support and parent empowerment and often tend to shy away from prescribing parental behavior change in any structured way. In addition, benefits tied to the PCIT model were in the specific outcome area that the model would predict. PCIT did not yield improved outcomes for child neglect, an outcome that we would not expect to be altered by changing coercive cycle behavior.

Study findings were obtained with a diverse, but on average severe, child welfare population. Many parents in the study had multiple prior child welfare system referrals and had engaged in documented serious parent-to-child violence. Most parents came from very low-income households, and a significant number experienced depression, past substance abuse, and other comorbidities. Analysis of therapist effects within the PCIT interventions suggested that extraordinary levels of therapist expertise and experience were not necessary to achieve benefits using the model. This is not to suggest that the model could be effectively implemented by anyone, as all of the therapists in the study were felt to have strong basic competencies and were trained, supervised, and monitored for fidelity by expert PCIT faculty. There was a weak trend for beginners to achieve poorer results. However, once trained and monitored, experienced and advanced trainees appeared to achieve results comparable to experts.

A number of limitations should be considered in interpreting these findings and in suggesting further investigations. First, this was an efficacy trial in the sense that the PCIT interventions were conducted under controlled and favorable conditions. Therapist and service environment differences between the two PCIT conditions and the community group condition were not controlled in the study design. Although the same therapists delivered the PCIT and EPCIT protocols in the same environment, different therapists delivered community services in a different environment. Thus, it is not possible to disentangle effects due to an intervention model from those due to the intervention service environment (university teaching hospital vs. community agency) and therapists (faculty, students, and trainees vs. agency staff). These findings need to be replicated in a field setting, controlling for any potential therapist or setting effects. Second, all interventions were multicomponent in nature. The relative benefits of the motivational enhancement and PCIT components cannot be disentangled with these data. Dismantling studies are needed to answer a number of questions, including the importance of the motivational enhancement orientation both for improving retention and obtaining outcomes. Finally, it is important to note that the present study applied PCIT as a parent treatment, not as a child treatment. Unlike children in PCIT studies targeting child behavior problems, most children included in this study did not have pretreatment behavior problems. Because we were evaluating PCIT as a parent treatment, we included children older than those customarily included in PCIT for child behavior problems. Consequently, the size of changes in child behavior found in this study should not be compared with those found in studies of behavior problem children.

Overall, the findings offer considerable encouragement for adapting PCIT as an intervention for physically abusive parents. The reduction in abuse recurrence rates among families receiving PCIT was substantial—to less than half the recurrence rates of a standard parenting group program. Child abuse recurrences often portend a downward spiraling trajectory for children and families. With each new incident, the probability of a subsequent recurrence increases, and the time between recurrences, decreases (Marshall & English, 1999). These downward spirals may eventuate in increasingly serious child injury and/or family dissolution. Developing interventions with empirically demonstrated efficacy represents a necessary first step in slowing or stopping this process.

References

American Psychiatric Association. (1980). *Diagnostic and statistical manual of mental disorders* (3rd ed.). Washington, DC: Author.

Aragona, J. A., & Eyberg, S. M. (1981). Neglected children: Others' report of child behavior problems and observed verbal behavior. *Child Development, 52,* 596–602.

Barkley, R. A. (1987). *Defiant children: A clinician's manual for parent training.* New York: Guilford Press.

Beck, A. T., Ward, C. H., Mendelson, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. *Archives of General Psychiatry, 4,* 561–671.

Behl, L. E., Conyngham, H. A., & May, P. F. (2003). Trends in child maltreatment literature. *Child Abuse and Neglect, 27,* 215–229.

Bessmer, J. L. (1998). *The Dyadic Parent–Child Interaction Coding System II (DPICS II): Reliability and validity with mother–child dyads.* Unpublished dissertation, University of Florida, Gainesville.

Borrego, J., Urquiza, A., Rasmussen, R., & Zebell, N. (1999). Parent–child interaction therapy with a family at high risk for physical abuse. *Child Maltreatment, 4,* 331–342.

Bousha, D. M., & Twentyman, C. T. (1984). Mother–child interactional style in abuse, neglect, and control groups: Naturalistic observations in the home. *Journal of Abnormal Psychology, 9,* 106–114.

Brestan, E. V., Eyberg, S. M., Boggs, S. R., & Algina, J. (1997). Parent–child interaction therapy: Parents' perceptions of untreated siblings. *Child and Family Behavior Therapy, 19,* 13–28.

Chaffin, M., Kelleher, K., & Hollenberg, J. (1996). Onset of physical abuse and neglect: Risk factors from prospective community data. *Child Abuse and Neglect, 20,* 191–203.

Chaffin, M., & Schmidt, S. (in press). An evidence-based perspective on interventions to stop or prevent child abuse. In J. R. Lutzker (Ed.), *Violence prevention.* Washington, DC: American Psychological Association.

Chaffin, M., & Valle, L. (2003). Dynamic predictive validity of the Child Abuse Potential Inventory. *Child Abuse and Neglect, 27,* 463–482.

Chaffin, M., Wherry, J. N., Newlin, C., Crutchfield, A., & Dykman, R. (1997). The Abuse Dimensions Inventory: Initial data on a research measure of abuse severity. *Journal of Interpersonal Violence, 12,* 569–589.

Chambless, D. L., & Ollendick, T. H. (2000). Empirically supported psychological interventions: Controversies and evidence. *Annual Review of Psychology, 52,* 685–716.

Crimmins, D. B., Bradlyn, A. S., St. Lawrence, J. S., & Kelly, J. A. (1984). In-clinic training to improve the parent–child interaction skills of a neglectful mother. *Child Abuse and Neglect, 8,* 533–539.

Crouch, J. L., & Behl, L. E. (2001). Relationships among parental beliefs in corporal punishment, reported stress, and physical child abuse potential. *Child Abuse and Neglect, 25,* 413–419.

Denicola, J., & Sandler, J. (1980). Training abusive parents in child management and self-control skills. *Behavior Therapy, 11,* 263–270.

DePanfilis, D., & Zuravin, S. J. (1999). Predicting child maltreatment recurrences during treatment. *Child Abuse and Neglect, 23,* 729–744.

DePanfilis, D., & Zuravin, S. J. (2002). The effect of services on recurrence of child maltreatment. *Child Abuse and Neglect, 26,* 187–206.

Eisenstadt, T., Eyberg, S., McNeil, C., Newcomb, K., & Funderburk, B. (1993). Parent–child interaction therapy with behavior problem children: Relative effectiveness of two stages and overall treatment outcome. *Journal of Clinical Child Psychology, 22,* 42–51.

Eyberg, S., Bessmer, J., Newcomb, K., Edwards, D., & Robinson, E. (1994). *Dyadic Parent-Child Interaction Coding System-II manual.* Unpublished manuscript, University of Florida, Gainesville.

Eyberg, S. M., Funderburk, B. W., Hembree-Kigin, T. L., McNeil, C. B., Querido, J. G., & Hood, K. K. (2001). Parent–child interaction therapy with behavior problem children: One and two year maintenance of

treatment effects in the family. *Child and Family Behavior Therapy, 23*, 1–20.

Eyberg, S. M., & Robinson, E. A. (1982). Parent–child interaction therapy: Effects on family functioning. *Journal of Clinical Child Psychology, 11*, 130–137.

Foote, R. C. (2000). *The Dyadic Parent–Child Interaction Coding System II (DPICS II): Reliability and validity with father–child dyads.* Unpublished dissertation, University of Florida.

Goethe, J. W., & Ahmadi, K. S. (1991). Comparison of Diagnostic Interview Schedule to psychiatrist diagnoses of alcohol use disorder in psychiatric inpatients. *American Journal of Drug and Alcohol Abuse, 17*, 61–69.

Goethe, J. W., & Fischer, E. H. (1995). Validity of the Diagnostic Interview Schedule for detecting alcoholism in psychiatric inpatients. *American Journal of Drug and Alcohol Abuse, 21*, 565–571.

Hanf, C. (1969). *A two-stage program for modifying maternal controlling during mother–child (M-C) interaction.* Paper presented at the meeting of the Western Psychological Association, Vancouver, British Columbia, Canada.

Hasin, D. S., & Grant, B. F. (1987). Psychiatric diagnosis of patients with substance abuse problems: A comparison of two procedures, the DIS and the SADS-L. *Journal of Psychiatric Research, 21*, 7–22.

Hembree-Kigin, T. L., & McNeil, C. B. (1995). *Parent–child interaction therapy*. New York: Plenum Press.

Holmbeck, G. N. (1998). Toward terminological, conceptual and statistical clarity in the study of mediators and moderators: Examples from the child-clinical and pediatric psychology literatures. In A. Kazdin (Ed.), *Methodological issues and strategies in clinical research* (2nd ed., pp. 83–112). Washington, DC: American Psychological Association.

Kaufman, A. S., & Kaufman, N. L. (1990). *K-BIT: Kaufman Brief Intelligence Test manual*. Circle Pines, MN: American Guidance Service.

Kovess, V., & Fournier, L. (1990). The DISSA: An abridged self-administered version of the DIS: Approach by episode. *Social Psychiatry and Psychiatric Epidemiology, 25*, 179–186.

Littell, J. H. (1997). Effects of the duration, intensity, and breadth of Family Preservation Services: A new analysis of data from the Illinois Family First Experiment. *Children and Youth Services Review, 19*, 17–39.

Marshall, D. B., & English, D. J. (1999). Survival analysis of risk factors for recidivism in child abuse and neglect. *Child Maltreatment, 4*, 287–296.

McNeil, C. B., Eyberg, S. M., Eisenstadt, T. H., Newcomb, K., & Funderburk, B. (1991). Parent–child interaction therapy with behavior problem children: Generalization of treatment effects to the school setting. *Journal of Child Clinical Psychology, 20*, 140–151.

Milner, J. S. (1986). *The Child Abuse Potential Inventory manual* (2nd ed.). DeKalb, IL: Psyctec.

Milner, J. S. (1994). Assessing physical child abuse risk: The Child Abuse Potential Inventory. *Clinical Psychology Review, 14*, 547–583.

Milner, J. S., & Chilamkurti, C., (1991). Physical abuse perpetrator characteristics: A review of the literature. *Journal of Interpersonal Violence, 6*, 345–366.

Patterson, G. R. (1976). The aggressive child: Victim and architect of a coercive system. In E. J. Mash, L. A. Hamerlynck, & L. C. Handy (Eds.), *Behavior modification and families* (pp. 267–316). New York: Brunner/Mazel.

Patterson, G. R. (1982). *Coercive family process*. Eugene, OR: Castalia.

Patterson, G. R., & Reid, J. B. (1984). Social interaction processes within the family: The study of the moment-to-moment transactions in which human social development is embedded. *Journal of Applied Developmental Psychology, 5*, 237–262.

Patterson, G. R., Reid, J. B., & Dishion, T. J. (1992). *Antisocial boys*. Eugene, OR: Castalia.

Reynolds, C. R., & Kamphaus, R. W. (1992). *Manual for the Behavioral Assessment System for Children.* Circle Pines, MN: American Guidance Service.

Robbins, L., Helzer, J., Croughan, J., & Ratcliff, K. (1981). National Institute of Mental Health Diagnostic Interview Schedule: Its history, characteristics, and validity. *Archives of General Psychiatry, 38*, 381–389.

Rubin, D. B. (1987). *Multiple imputation for nonresponse in surveys*. New York: Wiley.

Schafer, J. L. (1999). *NORM: Multiple imputation of incomplete multivariate data under a normal model: Version 2* [Computer software for Windows 95/98/NT]. Retrieved from http://www.stat.psu.edu/~jls/misoftwa.html

Schuhmann, E., Foote, R., Eyberg, S., Boggs, S., & Algina, J. (1998). Efficacy of parent–child interaction therapy: Interim report of a randomized trial with short-term maintenance. *Journal of Clinical Child Psychology, 27*, 34–45.

Shipman, K. L., Rossman, B. B., & West, J. C. (1999). Co-occurrence of spousal violence and child abuse: Conceptual implications. *Child Maltreatment, 4*, 93–102.

Trocme, N. (1996). Development and preliminary evaluation of the Ontario Child Neglect Index. *Child Maltreatment, 1*, 145–155.

Urquiza, A. J., & McNeil, C. B. (1996). Parent–child interaction therapy: An intensive dyadic intervention for physically abusive families. *Child Maltreatment, 1*, 132–141.

U.S. Department of Health and Human Services. (2002). *Child maltreatment 2000*. Washington, DC: Author.

Watson, C. G., Detra, E., Fox, K. L., & Ewing, J. W. (1995). Comparative concurrent validities of five alcoholism measures in a psychiatric hospital. *Journal of Clinical Psychology, 51*, 676–684.

Way, I., Chung, S., Jonson-Reid, M., & Drake, B. (2001). Maltreatment perpetrators: a 54-month analysis of recidivism. *Child Abuse and Neglect, 25*, 1093–1108.

Webster-Stratton, C. (1985). Mother perceptions and mother-child interactions: Comparisons of a clinic-referred and a nonclinic group. *Journal of Clinical Child Psychology, 14*, 334–339.

Wolfe, D. A., Edwards, B., Manion, I. & Koverola, C. (1988). Early intervention for parents at risk of child abuse and neglect: A preliminary report. *Journal of Consulting and Clinical Psychology, 56*, 40–47.

Wolfe, D. A., & Wekerle, C. (1993). Treatment strategies for child physical abuse and neglect: A critical progress report. *Clinical Psychology Review, 13*, 473–500.

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