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Challenging foster caregiver–maltreated child relationships: The effectiveness of parent–child interaction therapy

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Abstract

This study describes the effectiveness of parent–child interaction therapy (PCIT), an evidence-based treatment for abused children, for 75 non-relative foster parents and their foster children compared with 98 non-abusive biological parent–child dyads referred for treatment because of the children's behavior problems. Results showed decreases in child behavior problems and caregiver distress from pre- to post-treatment for both foster and biological parent–child dyads, revealing no differences in the effectiveness of this treatment for foster parents compared with non-abusive biological parents.
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1. Introduction

Children in foster care are considered at risk for adverse outcomes because of maltreatment, prenatal exposure to drugs and alcohol, and poverty (Burns et al., 2004). Experience of maltreatment, particularly during preschool years, is considered to put

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children at risk for maladaptive social, psychological, and psychobiological functioning (Cicchetti & Toth, 2000; De Bellis, 2001; Manly, Kim, Rogosch, & Cicchetti, 2001). In addition to the risks generated by maltreatment, removal from parents' care and multiple placement changes also increase children's risk of mental health problems (Newton, Litrownik, & Landsverk, 2000; Webster, Barth, & Needell, 2000).

Research has found that nearly 50% of children entering foster care nationwide showed evidence of mental health problems and were in need of mental health services (Burns et al., 2004). Longitudinal research of children in foster care showed continued need for services over time (Newton et al., 2000). An examination of a group of children judged not to be at risk when they entered foster placement who experienced multiple placements were at greater risk for mental health problems one year later (Newton et al., 2000). Research evidence has demonstrated foster children's need for mental health services arising both from the traumatic experience of maltreatment and the difficulties inherent in adjusting to placement in foster care. Research has shown that mental health problems presenting as externalizing behaviors, particularly aggressive and destructive behaviors, are most likely to cause disruptions in placement (Newton et al., 2000), which further increases the likelihood of future placement instability and psychopathology (James, Landsverk, & Slymen, 2004a), particularly when it happens early in the transition to foster care (Webster et al., 2000).

1.1. Foster children's needs

While maltreatment is acknowledged as compromising social, psychological, and psychobiological development (Cicchetti & Toth, 2000; De Bellis, 2001), externalizing behavior problems (e.g., aggression, defiance) are common symptoms of deficits in these areas (Gelles & Straus, 1990). Research also has documented a high incidence of behavior problems in children in foster care (Burns et al., 2004; Clausen, Landsverk, Ganger, Chadwick, & Litrownik, 1998), which was found to be a strong predictor of placement disruption (James, Landsverk, Slymen, & Leslie, 2004b; Newton et al., 2000; Smith, Stormshak, Chamberlain, & Whaley, 2001). For this reason, it seems logical to focus intervention on externalizing behavior problems associated with placement disruption by giving foster parents the tools they need to manage these children's behavior and thereby establish a positive relationship with them.

Unfortunately, evidence-based treatments that can support foster caregivers' attempts to manage the difficult behavior of their foster children and establish mutually rewarding relationships with them have not been implemented at the same pace as need would seem to dictate (Chaffin & Friedrich, 2004). In part, the lag in service provision may be a consequence of a need to research the effectiveness of these treatments in a foster care population. This study reports on the effectiveness of parent–child interaction therapy (PCIT), an empirically supported treatment for reducing childhood behavior problems (Chambless & Ollendick, 2001), as a means for reducing foster children's behavior problems by enhancing the relationship between foster parents and their foster children and teaching foster parents behavior management skills.

1.2. Interventions for children in foster care

Despite the importance for foster children of having stable, supportive relationships with their foster caregivers, foster caregivers receive limited individualized support or training to deal with the psychological needs of their maltreated foster children. Programs that currently support foster parents are, for the most part, of the "crisis response" type. Foster caregivers have access to social workers through child protective services and can obtain referrals for mental health services for children. In some cases, it is possible for them to obtain respite care and other types of supportive child-focused services (e.g., wrap-around services). However, these services are designed to address the child's problems, not foster parents' ability to manage them. Programs that might better support both foster parents' and foster children's needs (e.g., foster parent training and support in combination with traditional services) are not used systematically but have been shown to be effective in many ways. For example, the Casey Family Program's system of supporting services for foster children and foster parents keep some of the most challenging children in the foster family system and out of institutions and supported foster children's adjustment to emancipation (Fanshel, Finch, & Grundy, 1990). Early Intervention Foster Care, a program designed to support foster parents as well as their foster children, has helped children retain placements (Fisher, Gunnar, Chamberlain, & Reid, 2000). We argue that when disruptive behavior is a presenting problem for foster children in new placements, it is important for therapists to work with foster caregivers, helping them to build a positive, rewarding relationship with the child and at the same time to manage children's behavior problems.

1.3. Parent–child interaction therapy

Parent–child interaction therapy (PCIT) is an intervention founded on social learning principles. PCIT, a modification of the original model by Hanf (1969), is designed for children between 2 and 7 years of age who have externalizing disorders (Eyberg & Robinson, 1983; Hembree-Kigin & McNeil, 1995). The underlying model of change is similar to that of a parent-training program, i.e., modifying the way parents interact with their children diminishes child behavior problems, which in turn promotes more positive parenting (Chaffin et al., 2004). However, PCIT is unique in that it incorporates both parent and child within the treatment session and uses live and individualized therapist coaching to tailor the process of changing the dysfunctional parent–child relationship.

PCIT is conducted in two phases. The first phase focuses on enhancing the parent–child relationship (often described as child-directed interaction or CDI) and the second focuses on improving child compliance (often described as parent-directed interaction or PDI). Both phases of treatment begin with an hour of didactic training, followed by therapist coaching in dyadic play situations. The coaching is conducted from an observation room via a 'bug-in-the-ear' receiver that the parent wears. Parents are taught and practice specific skills of communication and behavior management with their children. In CDI (typically seven to ten sessions), the primary goal is to create or strengthen a positive and mutually rewarding relationship between parents and their children by modifying the way

parents interact with their children. Parents are taught to follow their children's lead in play by describing their activities and reflecting their appropriate verbalizations. They are also taught to praise their children's positive behavior, telling them specifically what is laudable about their actions, products or attributes. By the end of CDI, parents generally have shifted from rarely attending to their children's positive behavior to frequently and consistently praising appropriate child behavior. Also, they shift from using more controlling methods of getting their children to engage them in play (e.g., questions, commands) and begin reflecting their children's speech and describing their play in a way that conveys their non-controlling interest in the child's activity. During this time parents learn to shape their children's behavior by using "selective attention". By using this strategy, parents signal their disapproval of their children's inappropriate behavior by withdrawing their attention. Parents let the children know what behavior they want to see by telling children that when they are behaving appropriately, they will regain their parents' attention (e.g., "When Joshua's bottom is in the chair, then I'll be able to play with him."). When the children behave appropriately again, they are rewarded with their parents' attention and praise. Mastering selective attention provides parents a foundation for obtaining compliance. It teaches parents patience (it is difficult to ignore annoying behaviors) and that maintaining a positive context for play may not require high levels of parental discipline.

In the second phase, PDI (typically seven to ten sessions following CDI), the primary goal is to teach effective parenting skills for use in managing children's behavior. In PDI, therapists maintain the focus of parents' attention to their children's positive behaviors while training them to give clear, direct commands. Once parents master giving effective commands, they learn to provide praise for compliance and strategies for dealing with noncompliance. Consistent with child welfare regulations, the time-out procedure used at this clinic does not use a spank, or any physical restraint. Instead, parents are taught to give a command, count to five, give a two-choice warning (comply vs. time-out), followed by another count to five, thereby giving the child a chance to comply before receiving the time-out. If a child refuses to comply with a time-out (e.g., gets off the chair), parents are taught a strategy to provide children an incentive to comply with the time-out (e.g., removal of privileges, time-out room) and finally to gain compliance (and to follow through). Parents are taught to always praise the child's ultimate compliance, even if it takes a long time to obtain. By the end of PDI, the process of giving commands and gaining compliance are predictable and safe for both the parents and children (Eyberg, 1988). At this time in the treatment process, parents are generally able to obtain compliance without giving a time-out. But if they need to give a time-out, it is a comfortable, predictable, and well-practiced process for which the parent has acquired mastery (see Hembree-Kigin & McNeil, 1995 for a full description of the PCIT program).

There have been numerous studies demonstrating the effectiveness of PCIT for reducing child behavior problems (e.g., Eisenstadt, Eyberg, McNeil, Newcomb, & Funderburk, 1993; Eyberg, 1988; Eyberg & Robinson, 1982; Eyberg et al., 2001) and positive effects have been maintained for up to six years post-treatment (Hood & Eyberg, 2003). Treatment effects also have been shown to generalize to school settings (Funderburk et al., 1998; McNeil, Eyberg, Eisenstadt, Newcomb, & Funderburk, 1991)

and to untreated siblings (Brestan, Eyberg, Boggs, & Algina, 1997; Eyberg & Robinson, 1982). In addition, PCIT also has been shown to be as effective for abusive as non-abusive biological parents (Chaffin et al., 2004; Timmer, Urquiza, McGrath, & Zebell, in press).

PCIT has been used most effectively with children who display externalizing and acting out behaviors (e.g., aggression, oppositional behavior, defiance, non-compliance) and their biological parents. Given that foster children's aggressiveness and behavior problems are widely documented, we can hypothesize that PCIT will be an effective treatment for these children. As a competing hypothesis, including a non-relative adult who has an unpredictable connection to the child may change the dynamic of treatment and increase the probability that treatment effects might be less robust for this group than for biological parents.

1.4. Foster parents' reporting styles

Previous research suggests that foster parents, compared to teachers, tend to rate their foster children's behavior problems as more severe (Shore, Sim, Le Prohn, & Keller, 2002). Research has also shown that foster parents rate foster children's behavior problems as more severe than kin caregivers (Berrick, Barth, & Needell, 1994; Keller et al., 2001). Some have suggested that this difference might be a result of foster parents' greater experience with child protective services (CPS) and their awareness that more resources (e.g., greater numbers of services) are given to children with greater numbers of problems (Leslie et al., 2000). However, it is also possible that they are more accurate reporters than kin caregivers and they observe a wider variety of children's aversive behaviors compared to teachers. The ways in which reporting differences could affect a study of treatment effectiveness is unclear. Foster parents might drop out of PCIT if it required changing styles of interacting with their foster children that they perceive as effective. In evaluating the effectiveness of PCIT for foster parents, we will also report on their patterns of responding to questions about their children's and their own functioning and determine the impact of these patterns on the effects of treatment.

1.5. Purpose of the present study

The primary goal of this study is to determine the effectiveness of PCIT in reducing the behavior problems of children placed with foster parents compared to biological parents and in reducing parents' stress. The first step in determining PCIT's effectiveness is to establish whether therapists are able to retain foster parent/foster child dyads in treatment at the same rate as biological parent/child dyads. Previous research has suggested that among families beginning treatment, between 40–60% terminate prematurely (Armbruster & Kazdin, 1994; Kazdin, 1996). Research repeatedly finds that early treatment termination is non-random but varies by stressful life circumstances (e.g., single parenthood, poverty) and perceived barriers to treatment (Kazdin, Holland, & Crowley, 1997). Other research on biological parents from this clinic found that more distressed parents, parents with more fixed ideas about parents' and children's roles, and abused children with severe behavior

problems were more likely to terminate treatment earlier than other children (Timmer et al., in press). It is possible that the foster parent–foster child dyads in this sample that completed treatment will also be different from those who dropped out, predisposing them to be successful in treatment.

2. Method

2.1. Sample

2.1.1. Selection

Sample selection was conducted in two phases. The first phase was designed to determine whether dyads that completed treatment were systematically different from those who were referred and began treatment. Included in this phase were biological and non-relative foster parent–child dyads referred to a university-based outpatient clinic primarily serving children with a history of maltreatment between October, 1995 and December, 2004 (N=691). All dyads were assessed by clinical interview and attended at least one PCIT session. Dyads who did not return after the initial clinical interview were excluded (N=124). Children were primarily referred to treatment by their CPS social worker, were 2–8 years old, and had externalizing behavior problems. When a child had more than one caregiver in treatment, one was designated as 'primary'. The primary caregiver was selected for inclusion in the study to insure independence of measures. Biological parents who had physically abused their children were excluded from this sample (N=108) in order to control the possibility that any observed differences in treatment effectiveness we might observe would be a result of a difference in the parents' relationships with their children caused by the abuse instead of the nature of the parenting tie and to maximize comparability with biological parents in efficacy studies (biological parents who have sexually abused their children are never provided PCIT). Additionally, 74 dyads had missing data on either all pre-treatment child outcome measures or all parent outcome measures. These dyads were eliminated from the sample.

The resulting sample for the first phase of analyses consisted of 385 dyads: 222 biological parent–child dyads and 163 foster parent–child dyads. The children ranged in age from 2.0–8.8 years (mean age=4.47 years): nearly two-thirds (66%) were under 5 years of age. Approximately two-thirds of the children were male (61.6%) and approximately 91% of the adults were female. Approximately half of caregivers and children were white/non-Hispanic (55% of children and 50% of caregivers), 24% of the children and 20% of caregivers were African American, and 21% of children and 20% of caregivers were Latino. In this group, 76.1% of foster caregiver–child dyads were matched on ethnicity (kappa=0.62).

The sample for the second phase of the study included 173 dyads (of the initial 385 dyads) who completed PCIT, excluding 20 dyads whose course of treatment was considered non-standard (e.g., siblings were included in the treatment sessions). The resulting sample consisted of 98 biological parent–child dyads and 75 foster parent–child dyads.

2.2. Procedures

Parents were mailed a battery of standardized measures and a short demographic questionnaire before they came to the clinic for the first time. Because PCIT is an assessment-based protocol, parents were required to complete at least their assessments of their children's behavior problems before beginning treatment. These same standardized measures were completed immediately post-treatment along with a client satisfaction questionnaire. A packet of measures was given to each caregiver in treatment during their last treatment session. The packet was either mailed to the clinic or collected by a home visitor when completed. Dyads were considered to have completed treatment after the parents were able to meet mastery criteria for the CDI portion of PCIT and obtain compliance with commands from their children. Dyads were not graduated unless children responded to the parent's efforts to manage their behavior. For example, if a child threw a tantrum when the parent gave a command and the parent could not help the child to recover sufficiently to resume play, they were not graduated, even if parents had demonstrated the ability to give a perfect time-out. The average number of treatment sessions to treatment completion was 15.95 (SD=6.5). This number did not vary by parental status.

2.3. Measures

2.3.1. Child Abuse Potential Inventory (CAPI)

The CAPI (Milner, 1986) is a 160-item inventory that features an abuse potential scale and several validity scales. The abuse potential scale is a 77-item measure that combines 6 subscales: rigidity, distress, unhappiness, problems with child, family, and others. Items are rated on a dichotomous scale of either agree or disagree. The scales are normed and validated by a multitude of studies (see Milner, 1986). In this study, we use the abuse and rigidity subscales of the CAPI. The abuse scale is a measure of abuse potential, which has been found to discriminate between abusive and non-abusive adults (Milner & Wimberly, 1980). The rigidity scale is an indicator of parents' beliefs about the rigidity and traditional nature of parents' and children's roles in the family.

2.3.2. Child Behavior Checklist (CBCL)

The CBCL is a standardized instrument that lists approximately 100 problem behaviors that children might display (version for younger children contains 100 items; for older children, 112 items). These measures ask parents or regular caregivers to report on the frequency of specific problem behaviors in their children on a 3-point scale (0=never to 2=often). Separate norms are provided for boys and girls in three age groups. Normative data were derived from a large sociologically diverse population of both non-referred and clinic-referred children and their parents. We use the CBCL's two broadband scales (internalizing and externalizing behaviors) and the total score as a measure of the severity of children's symptoms. There are two versions of the CBCL: one is designed for young children (2–3 years old, Achenbach, 1994a; 1 ½–5 yrs, Achenbach & Rescorla, 2000) and one for middle childhood and teen years (4–18 years, Achenbach, 1994b; 6–18 years, Achenbach, 2001). Therapists transitioned from the old to the new versions of the CBCL

in 2003 and were careful to administer the same version at both assessment points so that a dyad's pre- to post-treatment change would be measured by the same version. The old and new versions of the broadband scales of the CBCL are highly correlated (Achenbach, 2001; Achenbach & Rescorla, 2000) and we do not differentiate scores from the two versions.

2.3.3. Eyberg Child Behavior Inventory (ECBI)

The ECBI (Eyberg & Pincus, 1999) is a 36-item scale that measures specific behavior problems exhibited by children aged 2–16 years. In contrast to the CBCL, the ECBI lists more commonly observed child behavior problems (e.g., dawdling, arguing or fighting with siblings, sassiness). Caregivers indicate the frequency of certain behaviors along a 7-point scale (1=never to 7=all the time) and whether they are considered to be problems (1=yes, 0=no). Scores are summed to obtain an intensity score and a problem score. The reliability and validity of the ECBI is well-established (see Eyberg & Pincus, 1999 for a description of the validation studies and a list of studies using the ECBI).

2.3.4. Parenting Stress Inventory (PSI)

The PSI (Abidin, 1995) was designed to identify parent–child dyads that are experiencing stress and are at risk of developing dysfunctional parenting and child behavior problems. The PSI contains 120 items rated on a 5-point scale (1=strongly disagree to 5=strongly agree), grouped into 13 subscales and 4 scales. We used two of these scales: stress in the child domain (combining parents' reports of children's adaptability, acceptability, demandingness, mood, distractibility, and responsiveness to parent) and stress in the parent domain (combining reports of their depression, role restriction, sense of parental competence, social isolation, health, and relationship with spouse). The validity of the PSI has been well-documented (see Abidin, 1995 for a list of relevant references).

2.3.5. Symptom Checklist 90-R (SCL-90-R)

The SCL-90-R (Derogatis, 1994) is a 90-item self-report symptom inventory designed to assess current presence of psychological symptom patterns. Each item is a brief description of a psychological symptom and is rated on a 5-point scale (0=no discomfort to 4=extreme discomfort). The SCL-90-R has nine symptom subscales: somatization, obsessive–compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism. As recommended by its authors, we use the global severity index, a measure of overall symptom severity, as an indicator of respondents' psychological functioning (Derogatis & Lazarus, 1994). *T*-scores were calculated using the norms for adult non-patients. The SCL-90-R is widely used in inpatient and outpatient settings (see Derogatis, 1994 for a list of validation and reliability studies for the SCL-90-R).

2.3.6. Maltreatment history

Information about children's history of maltreatment was obtained from therapists' reports, social workers' reports, and by research staff's review of any available court records. In California, allegations of maltreatment of a child are substantiated when the

likelihood that a caregiver intentionally harmed or neglected a child in his/her care outweighs the likelihood that he/she did not. When there was an unsubstantiated possibility that a child might have been abused, we coded "suspected maltreatment." A child might be coded with "suspected maltreatment" if an allegation of maltreatment was mentioned on a referral or other communication with a CPS social worker or a caregiver. Children were classified as either having a suspected or documented history of maltreatment, or having no history of maltreatment. For purposes of this study, children with suspected and documented histories of maltreatment were both classified as having a history of maltreatment.

2.4. Data analysis

Demographic characteristics of foster parents were compared with those of biological parents in the Phase I sample. Mean differences between biological vs. foster parents' pre-treatment evaluations of their own psychological functioning and distress and their perceptions of the children's behavior problems were examined using univariate analysis of variance. Demographic differences between groups were re-checked in the Phase II sample. Any significant demographic differences between the two groups were included as covariates in the Phase II analyses.

The first step in analyzing the effectiveness of PCIT was to determine whether foster parent–foster child dyads completed treatment at the same rate as biological parent–child dyads. This type of analysis is important in a study that compares pre- and post-treatment measures of treatment participants as a way of estimating treatment effectiveness because the population of those who completed treatment is likely to vary from those who terminate treatment early. Insofar as a referral to treatment is non-random (e.g., PCIT referrals depend on the child's age, symptoms, and life circumstances), so also their self-censoring from treatment (i.e., dropping out) is likely to be non-random. Parent–child dyads that completed treatment may have been predisposed to be successful. To examine the predictors of early-termination and their variation by foster parent status, we performed a binary logistic regression predicting early treatment termination status (complete vs. early terminate) that included foster parent status, child's physical abuse history, children's ethnicity, sex, and age, parent symptom levels (measured by the Global Severity Index of the SCL-90-R), child behavior problems (measured by the Total scale of the CBCL), and significant interaction terms as predictors. In this analysis, we chose also to model missing data because it often resulted when parents refused or neglected to complete standardized measures and could indicate their commitment or resistance to treatment. For example, caregivers were significantly more likely to have missing data on the measure of parent psychological symptoms (15.6% missing) than on the measure of child behavior problems (6.9% missing). Because missing data was not likely to have been random and because it was likely to provide valuable information about parents' attitudes, we took missing data into account when modeling attrition from treatment. To do this, we used a data imputation procedure in which mean values were assigned to individuals with missing data and created dummy variables indicating that data were missing vs. not missing on these measures of psychological functioning (NICHD Early Child Care Research Network & Duncan, 2003). We elected to use this data imputation procedure because the strategy that

made the fewest assumptions about the population (i.e., assumed no significant differences by group) and because relationships among predictor variables were not altered by this procedure.

In the Phase II analyses, we examined the differential effectiveness of PCIT for foster parent–foster child and biological parent–child dyads by performing repeated measures analyses of variance with assessment point as the within-subjects factor (i.e., pre- vs. post-treatment) and children's physical abuse history and foster parent status as between-subjects factors, covarying significant demographic differences between the groups.

2.4.1. Power of analyses

Using an alpha of .05, an average sample size of approximately 125 in our analyses of treatment effects was sufficient to detect medium effect sizes with a power of 0.80. The observed power reflects the likelihood that the result can be replicated in other studies. For example, when the observed power equals 0.80, it is likely to be replicated in 80% of future studies (Cohen, 1988). In addition to presenting the observed power of treatment effects, we present η^2 (eta-squared), a statistic that indicates the proportion of variance accounted for by membership in the designated groups (i.e., the between-subjects factor). Eta-squared is roughly the square of f, the statistic measuring effect size in analyses of variance. According to Cohen (1988), a small effect size for an analysis of variance is $f=.10$ ($\eta^2=.01$), a medium effect size is $f=.25$ ($\eta^2=.06$), and a large effect size is $f=.40$ ($\eta^2=.16$).

3. Results

3.1. Phase I analyses

3.1.1. Demographic differences

Table 1 describes the demographic differences between biological and foster parents in our sample ($N=385$). Results showed that children in foster care were significantly more likely to be male and African American than children with biological parents. Because we eliminated biological parent–child dyads in which the parent had physically abused the child in treatment, children with biological parents were significantly less likely to have been maltreated than children with foster parents. Foster parents were significantly more likely to be African American, older, married, and have had more education than biological parents. The two groups were equally likely to complete treatment vs. terminate treatment early.

3.1.2. Differences between dyads who drop vs. complete treatment

Table 2 shows the results of a hierarchical logistic regression predicting early treatment termination. The first model showed that the caregivers' ethnicity significantly predicted early treatment termination. Compared to Caucasians, African American caregivers were twice as likely to drop out of treatment early. Also, children with a history of maltreatment were nearly 50% *less* likely to drop out (1.00–0.58=42%). In the second model, we added parents' general symptom severity (below vs. above clinical cutoff), children's behavior

Table 1
Descriptive statistics—biological vs. foster parents

Parental status	Biological N=222	Foster N=163
Age of child (mean years)	4.61 (1.62)	4.31 (1.66)[+]
Children 2–4 years (%)	40.1	49.4[+]
Sex of child (% male)	68.0	52.8**
Child's ethnicity		***
Caucasian (%)	57.2	41.7
African American (%)	15.8	35.6
Latino/a (%)	21.2	21.5
Others (%)	5.9	1.2
Child maltreatment history (%)	50.0	74.2***
Age of adult (years)	30.0 (7.7)	44.4 (11.2)***
Sex of adult (% female)	89.6	92.6
Ethnicity of adult		***
Caucasian (%)	59.9	47.9
African American (%)	12.6	30.1
Latino/a (%)	21.6	17.2
Others (%)	5.9	4.9
Mother's with high school or less (%)	79.4	41.9***
Caregivers married/ cohabiting (%)	35.0	70.3***
Drop treatment early (%)	52.7	51.5

[+]p<.10, *p<.05, **p<.01, and ***p<.001.

problems (below vs. above clinical cutoff), and missing data indicators to the variables listed in Model 1. Results showed that as symptom severity increased, so did the likelihood of dropping out of treatment. Additionally, a marginally significant coefficient indicating missing data on the GSI scale suggested that caregivers missing GSI scores were more likely to terminate treatment early. The third model tested the significance of the interactions between foster parent status and the other four predictor variables (i.e.,

Table 2
Results of logistic regressions of early treatment termination on measures of distress treatment termination status

N=385	Model 1 (odds ratios)	Model 2 (odds ratios)	Model 3 (odds ratios)
Foster parent status (vs. biological)	0.98	1.05	1.45
Caregiver's ethnicity (vs. Caucasian)			
African American	2.03*	1.88*	1.72[+]
Latino	0.93	1.00	0.90
Others	1.66	1.50	1.41
Child's maltreatment history	0.58*	0.57*	0.54**
Global symptom indicator (GSI)		1.02*	1.05***
Missing GSI		2.05[+]	2.35*
Total behavior problems (CBCL)		1.01	0.99
Missing CBCL		0.96	1.07
Foster parent status × GSI			0.95*
Foster parent status × GSI			1.04*
−2 LL	519.82	506.82	497.09
Step chi square	13.15*	13.01*	9.73**
Model chi square	13.15*	26.16**	35.88***

child's behavior problems, parent psychological symptoms, children's maltreatment history, and caregiver's ethnicity). Of these four interaction terms, the interaction terms between foster parent status and measures of caregiver symptom levels, and foster parent status and child behavior problems significantly predicted attrition. Results showed that in contrast to biological parents, foster parents' psychological distress significantly increased their likelihood of treatment completion. While foster parents were significantly less likely to endorse clinical levels of psychological symptoms (biological parents, 30.6% vs. foster parents, 7.4% in clinical range; (χ^2(1, 344)=29.7, $p<.000$), those who were distressed tended to be more likely to remain in treatment (biological parents staying in treatment: distressed, 33.8%; normal range, 57.5%; foster parents staying in treatment: distressed, 83.3%; normal range, 46.8%). Foster parents were somewhat more likely to drop out of treatment, however, when children had severe problems than when their behavior problems were in the normal range (CBCL—normal range: 45.5% drop; clinical range, 55.7% drop). Biological parents' attrition did not differ as much by children's behavior problems (CBCL—normal range: 50.7% drop; clinical range, 56.3% drop).

3.2. Phase II analyses

3.2.1. Treatment effects

Before performing analyses of treatment effects, we re-ran analyses of demographic differences using only the Phase II sample. Foster and biological parents still differed according to children's maltreatment history, children's age, caregivers' marital status and educational attainment, and ethnicity. We elected to use children's ethnicity as a covariate, since children's and caregivers' ethnicity was highly correlated ($r=.68$, $p<.001$) and children's ethnicity discriminated the two parent groups more significantly. We included the following variables in all analyses of treatment effectiveness to control for possible effects of group differences on outcomes: 1) children's maltreatment history, 2) children's ethnicity (African American vs. all others), 3) caregiver marital status (married vs. not married), and 4) caregiver educational attainment (no more than high school vs. more than high school).

We performed two 2×2 repeated measures multivariate analyses of variance to test the likelihood that participation in PCIT would result in a reduction of children's behavior problems for foster as well as biological parents. Separate analyses were performed for each of two measures of child behavior problems, the CBCL and the ECBI. The repeated measure was the assessment point (pre- vs. post-treatment) and the between group measure was foster parent status (biological vs. foster parent). Differences in the numbers of dyads included in each analysis are a result of missing data.

Table 3 shows the mean levels of child behavior problems from pre- and post-treatment for both foster and biological parents. Results of analyses of the ECBI intensity and problem scores showed strong treatment effects (overall F (2, 117)=21.87, $p<.000$, $\eta^2=.27$, observed power=1.0). However, neither the reduction in intensity nor numbers of child behavior problems varied by foster parent status. Results of analyses of CBCL internalizing, externalizing, and total score scales also showed significant treatment effects (overall F (1, 131)=6.15, $p<.000$, $\eta^2=.13$, Observed power=0.96). Unlike the ECBI, the CBCL scales showed a marginally significantly likelihood to vary by foster parent

Table 3
Mean levels of child behavior problems pre- and post-treatment by foster parent status

	Biological (mean) (SD)	Foster (mean) (SD)	Treatment/foster effects
ECBI—intensity of problems	(N=70)	(N=54)	
Pre-treatment	133.4 (37.6)	145.7 (44.3)	Tx***, F***
Post treatment	96.2 (33.2)	113.9	(41.3)
ECBI—number of problems	(N=70)	(N=54)	
Pre-treatment	15.7 (8.5)	16.4 (10.1)	Tx***, F**
Post treatment	6.4 (6.9)	9.2 (10.2)	
CBCL—internalizing	(N=72)	(N=65)	
Pre-treatment	55.1 (9.8)	58.1 (11.8)	Tx x F[+], Tx**, F*
Post treatment	45.2 (9.9)	51.3 (11.5)	
CBCL—externalizing	(N=72)	(N=65)	
Pre-treatment	60.8 (11.0)	65.2 (13.5)	Tx x F[+], Tx***, F**
Post treatment	49.9 (11.0)	59.1 (12.3)	
CBCL—total	(N=62)	(N=56)	
Pre-treatment	59.4 (10.6)	63.4 (13.1)	Tx x F[+], Tx***, F**
Post treatment	48.7 (11.0)	57.1 (12.6)	

Tx=treatment, F=foster parent status, Tx x F=treatment by foster parent status.
[+]$p<.10$ (power <.50), *$p<.05$ (power <.80), **$p<.01$ (power >.80), and ***$p<.001$ (power=1.0).

status. An examination of the mean pre- and post-treatment scores shows a tendency for foster parents to report somewhat smaller treatment gains compared to biological parents.

We next tested whether foster parent status related to changes in parental distress and attitudes from pre- to post-treatment. Table 4 presents mean scores on the child and parent domain scales of the PSI, the global severity index of the SCL-90 R, and the abuse and rigidity scales of the CAPI. In general, analyses of measures of parent functioning showed significant treatment gains but little variation in treatment effectiveness by foster parent

Table 4
Means and standard deviations of parental distress pre-and post-treatment by foster parent status

	Biological (mean) (SD)	Foster (mean) (SD)	Treatment/foster effects[+]
SCL-90R-GSI (T-scores)	(N=63)	(N=60)	Tx***
Pre-treatment	53.2 (12.6)	49.1 (11.4)	
Post treatment	44.4 (10.2)	44.8 (9.8)	
PSI–child domain (raw scores)	(N= 60)	(N=38)	
Pre-treatment	122.3 (21.2)	127.1 (28.3)	Tx**
Post treatment	103.2 (25.0)	109.5 (26.7)	
PSI—parent domain (raw scores)	(N= 54)	(N=25)	
Pre-treatment	128.0 (27.4)	112.6 (21.5)	Tx*, F*
Post treatment	122.9 (28.4)	104.8 (20.1)	
CAPI—abuse (raw scores)	(N=71)	(N=62)	
Pre-treatment	116.8 (93.5)	65.6 (38.5)	Tx*, Tx x F*
Post treatment	83.4 (79.4)	53.4 (33.0)	F***
CAPI—rigidity (raw scores)	(N=71)	(N=62)	
Pre-treatment	15.6 (14.4)	12.1 (12.4)	
Post treatment	15.0 (14.9)	12.4 (13.5)	

Tx=treatment, F=foster parent status, Tx x F= treatment by foster parent status.
[+]$p<.10$ (power<.50), * $p<.05$ (power<.80), ** $p<.01$ (power>.80), *** $p<.001$ (power=1.0).

status. A repeated measures analysis of variance of the global severity index (GSI) scores showed strong treatment effects (F (1, 117)=17.15, $p<.000$, η^2=.13, observed power=.98), as did an analysis of the scale measuring stress in the child domain (F (1, 92)=16.23, $p<.000$, η^2=.15, observed power=.98). An analysis of stress in the parent domain showed significant but weaker effects, possibly because of a greater amount of missing data (F (1, 73)=4.60, $p<.05$, η^2=.05, observed power=0.56). None showed any further variation by foster parent status. However, a repeated measures analysis of variance of the CAPI abuse scale showed a significant, though not strong, variation in treatment effectiveness by foster parent status (F (1, 127)=5.86, $p<.05$, η^2=.04, observed power=0.67). In comparison to biological parents, foster parents' abuse scale scores changed a little from pre- to post-treatment, although they were significantly lower than biological parents' scores at both points in time. An analysis of the CAPI rigidity scale showed no significant change in the rigidity scale over the course of treatment (F (1, 127)=0.17, ns).

4. Discussion

The purpose of this study was to determine the effectiveness of PCIT for foster parents and their children compared with a group of non-abusive biological parents. We found strong treatment effects on measures of parent and child functioning both for foster parents and biological parents, suggesting that PCIT had beneficial effects for foster parents who completed treatment with their foster children. On the whole, we did not observe significant variations in treatment gains by parent groups, although we did find a marginally significant difference in reductions of child behavior problems as measured by the CBCL. Although treatment gains were strong and significant for both foster and biological parents on the CBCL, they appeared slightly diminished for foster parents. It is not clear how much significance to attribute to these findings. Their observed power statistics were all below 0.50 and no other treatment by parent group interactions approached significance (observed power of all other interaction effects <0.25) with the exception of the CAPI abuse scale (see Table 4), which reflects more of a floor effect for foster parents than a problem with treatment effectiveness. It is possible that these findings signal a slight inconsistency in the effectiveness of PCIT for these two groups, or it may reflect reporting biases on the part of foster parents. Still, completion of PCIT predicted decreased child behavior problems and parent distress for foster and biological parent–child dyads. Because PCIT cannot be effective if the parents' praise and attention is not reinforcing for the child, we assume that completing PCIT was also related to improvements in the quality of the parent–child relationship.

The power of the effects of pre- to post-treatment differences in child behavior problems (ECBI scores) were similar in magnitude to those reported for pre- to post-treatment changes in a study of the efficacy of PCIT for parents of children diagnosed with oppositional defiant disorder (Hood & Eyberg, 2003). To illustrate, Hood and Eyberg (2003) report pre–post differences on the ECBI intensity scale d=1.50, power=1.0; ECBI problem scores: d=1.51, power=1.0. In contrast, we report an overall effect size for the two scales of η^2=.27, which translates to d=1.20 (power=1.0). These comparisons suggest that the treatment effects we observed are nearly as strong as those in a non-CPS

population and what we might have expected had we implemented random assignment to treatment groups.

A related implication of the findings on the effectiveness of PCIT presented here is that the original PCIT protocol requiring physical holding and swats to the bottom were not essential elements of treatment success. This study showed that it was possible to show significant improvements in children's behavior using a "hands-off" time-out procedure and either removal of privileges or a time-out room if children refused to comply with time-outs.

While the strength of the changes for foster and biological parents from pre- to post-treatment are persuasive evidence of the effectiveness of PCIT, there may be alternative explanations for these drops in child behavior problems and caregiver distress. The PCIT paradigm is founded on the belief that by coaching parents to alter their interaction styles in ways that improve the parent–child relationship and by teaching them skills in behavior management, children's behavior will improve and parents will continue to perceive and reward the children's good behavior. However, it is possible that parents' reports of improvements in children's behavior are a reflection of a shift in their own attitudes towards their children, rather than a change in children's behavior. Therapists ask parents to focus on and praise their children's appropriate behavior. It is possible that by shifting parents' focus from negative to positive perspectives of their children, we cause a shift in attitudes about their children's behavior. Although not the primary focus of this treatment program, a positive shift in parental attributions may benefit foster children (Milan & Pinderhughes, 2000). Alternately, the change in parents' perceptions could result from their expectations for improvement as a result of being in therapy. Their beliefs in the benefits of therapy could drive perceptions of change in the same way that people might believe in the power of a placebo. Finally, the changes in abusive parents' perceptions of their children and their own functioning could be an extension of their own desire to present themselves in a favorable light and to feel competent as parents. Future research, using multiple informants and multiple methods will provide additional evidence for PCIT's effectiveness with children in foster care.

Results also showed differences between the way biological and foster parents reported on their own stress and their children's functioning: foster parents reported more intense behavior problems in their foster children but reported fewer parenting problems even when measures of social resources (e.g., maternal education), and support (e.g., marital status) were statistically controlled. These differences between biological and foster parents are consistent with other research documenting foster parents' biases in reporting children's behavior problems (e.g., Berrick et al., 1994; Shore et al., 2002).

It is useful to consider the findings shown in the analyses of attrition from treatment. In particular, we found that more distressed foster caregivers were more likely to stay in treatment while distressed biological parents were more likely to drop out of treatment. We have noted anecdotally that non-relative foster caregivers have little access to mental health services beyond the advice of foster children's CPS social workers. It is possible that PCIT provided foster parents with therapeutic support that was otherwise not easily available to them. In contrast, distressed biological parents might drop out of PCIT because they had access to mental health services and preferred treatment that was more focused on their needs rather than those of their children. Second, findings in this study

described foster parents being more likely to drop treatment when they rated their foster children's problems as more serious than when they rated them as less serious. It is possible that this finding reflects part of a larger finding that foster children's level behavior problems was a strong predictor of numbers of placement changes (James et al., 2004a,b).

All in all, these findings suggest that foster parents do not feel significant stress from parenting their foster children, even though they report that the children have serious disruptive behavior problems. As analyses of attrition showed, foster parents who report feeling distressed are much more likely to remain in treatment and thereby obtain some relief, unlike biological parents. When these children's problems are perceived to be extreme, both biological and foster parents remain in treatment with the children slightly less than half the time. However, those who remain in treatment report significant reductions in their children's behavior problems and their own levels of distress.

4.1. Limitations of this study and implications for future research

This study has some limitations. First, because we did not randomly assign caregiver–child dyads to treatment, we do not know whether this group of children's behaviors would have improved in any treatment (or without treatment). However, the children in this study were treated in a non-laboratory, outpatient setting by therapists who carried full-time clinical caseloads and we used, as a control group, a population of behavior problem children with non-abusing biological parents. We believe that the results presented here provide a strong first step in establishing the effectiveness of PCIT in a population of foster children participating in treatment with their foster parents.

Second, we did not have follow-up data to demonstrate the maintenance of treatment effects over time. We used pre- and post-treatment comparisons to indicate treatment effectiveness. However, recent research has documented the maintenance of reductions in behavior problems after participation in PCIT for up to six years post-treatment (Hood & Eyberg, 2003). We depend upon future research to document the long-term effects of PCIT for children in foster care (e.g., improved placement stability).

Third, the results of the Phase I analyses show selection effects for our sample of PCIT completers that must be considered when evaluating treatment effectiveness. Results suggest that the cultural values, children's history of maltreatment, and high parental distress may make it difficult for parents to engage in PCIT. Given a 50% attrition rate and knowing that clients who graduate from PCIT are systematically different from those terminating treatment lends importance to questions about dosage effects of PCIT. In other words, we wonder whether clients terminating early can make substantial gains, even though they have not demonstrated mastery of all PCIT skills. Future research should investigate treatment gains of clients dropping out in different phases of treatment. Research also should explore the effectiveness of different strategies for retaining these caregivers–child dyads in treatment.

Lastly, we focused primarily on caregiver reports of children's behavior and their own functioning as indicators of treatment effectiveness. We did not use multiple reporters or observational data to measure treatment effectiveness. Future studies should include

multiple reporters or observational data when documenting the effectiveness or efficacy of PCIT for foster parent–foster child dyads.

5. Conclusion

In conclusion, the results of this study show the promise of PCIT, an evidence-based treatment, as a treatment for challenging children in foster care and their foster parents. Results provide encouraging evidence of the advantages using foster parents as agents of change in the treatment of young maltreated children. Completing PCIT predicted improved caregiver and child functioning, hopefully resulting in increased placement stability and a more positive long-term prognosis.

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