

Effects of Parent-Child Interaction Therapy on Young Children with Disruptive Behavior Disorders

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The behavioral and social-emotional consequences of Parent-Child Interaction Therapy (PCIT) were examined in 17 studies of preschool-age children identified as exhibiting a disruptive behavior disorder. These studies included 628 children, 368 of whom participated in parent-child interaction therapy. Study findings revealed that involvement in PCIT results in statistically and clinically significant improvements in child behavior functioning. While there is some evidence that PCIT positively impacts social-emotional development, this evidence is less compelling. Implications for practice are described in terms of core relationship-building and discipline skills that parents should implement in order to optimize child behavior functioning.

Purpose

The American Psychological Association's Division 12 Task Force on Effective Psychosocial Interventions recently designated Parent-Child Interaction Therapy (PCIT) as a "probably efficacious treatment" for children with conduct problem behavior (Brestan & Eyberg, 1998). The primary purpose of this research synthesis is to verify the effectiveness of PCIT for improving the behavior of young children exhibiting disruptive behavior disorders. In addition, the research synthesis will examine empirical findings regarding child social-emotional outcomes resulting from participation in PCIT.

The conduct of the synthesis is guided by a framework that focuses on the degree to which variations in the PCIT intervention are associated with variations in behavioral and social-emotional outcomes (Dunst, Trivette, & Cutspec, 2002). In general terms, a practice-based research synthesis differs from more traditional meta-analyses by systematically examining and unpacking the characteristics of practices that are related to differences in outcomes or consequences. Specifically, this type of analysis focuses more on an understanding of *how* the same or similar characteristics exert the same or similar observable effects and not solely on statistical or observation-based relationships between or among these variables.

Background

Disruptive behavior in preschool-age children is the most common reason for referral to child mental health services (Kazdin, 1995; Schuhmann, Durning, Eyberg, &

Boggs, 1996). Recent studies have reported prevalence rates as high as 23% for clinically significant disruptive behavior among toddlers (O'Brien, 1996). In addition to its high prevalence, disruptive behavior exhibits a high degree of stability over time if not treated (Campbell & Ewing, 1990; Lahey et al., 1995; Rose, Rose, & Feldman, 1989). Disruptive behavior disorders of early childhood pose significant challenges—not only for the affected child, but also for their family and for society as a whole. The presence of disruptive behavior disorders in young children appears to be a common pathway for a wide range of psychiatric disorders in adolescence and adulthood, as well as for delinquency and criminal behavior (Farrington, 1995).

Given the enormous potential long-term societal costs of childhood disruptive behavior disorders, the need for early intervention is strongly indicated. The preschool years appear to be an optimal time for treating disruptive behavior disorders for several reasons. First, behavior problems in young children are less entrenched relative to older children and, second, parents have more of an influ-

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ence on their child's behavior at this young age (Capage, Foote, McNeil, & Eyberg, 1998). In addition, available evidence suggests that interventions are more effective with this population at the preschool age vs. later ages (Dishion & Patterson, 1992; Ruma, Burke, & Thompson, 1996).

The prominent role of dysfunctional parent-child interaction in the development of disruptive behavior problems (Campbell, 1997; Olson, Bates, & Bayles, 1990; Patterson, 1982) suggests the need for interventions aimed at modifying the contingencies that shape these dysfunctional interactions. Parent-Child Interaction Therapy (PCIT) represents one such intervention. PCIT was developed by Sheila Eyberg at the Oregon Health Sciences University as a treatment for behaviorally disturbed preschool children and their families (Eyberg & Robinson, 1982). It employs a two-stage treatment approach, based on Hanf's model of parent management training (Hanf, 1969). The development of PCIT was influenced by Baumrind's research on the authoritative parenting style—one in which parents are both highly responsive and highly demanding (Baumrind, 1967). This line of research demonstrated that young children whose parents do not adequately meet the child's dual needs for nurturance and limits are likely to exhibit poor outcomes. In addition to social-learning theory, the conceptual foundation of PCIT is based on attachment theory (Ainsworth, 1969). Attachment theory posits that young children whose parents demonstrate a high degree of warmth, responsiveness, and sensitivity to their signals are more likely to develop a secure working model of their relationships with others and to develop more effective emotional regulation.

Therefore, PCIT draws upon both social-learning and attachment theories in order to modify maladaptive parent-child interactions into ones that characterize authoritative parenting. Parents are taught one specific set of skills that promote a nurturing and secure relationship with their child and a second set of skills designed to increase the child's prosocial behavior and decrease negative behavior (Neary & Eyberg, 2002).

Description of the Practice

PCIT is an intensive intervention that involves training parents in behavioral management techniques within a play-therapy context using a combination of didactic, modeling, and interactive coaching techniques. A critical element of PCIT is that the practitioner works with the parent and child together during the majority of the treatment sessions, since the emphasis is on changing interaction patterns within the dyad. Another defining characteristic of this intervention is "live" coaching, in which the practitioner provides parents with immediate feedback while observing parent-child interactions behind a one-way mirror and communicating to the parent via a bug-in-the-ear device. Assessment is another key characteristic

of PCIT, since it guides clinical decision making throughout the course of treatment. A number of assessment instruments have been developed specifically as a result of PCIT. The most prominent of these instruments is the Dyadic Parent-Child Interaction Coding System-II (DPICS-II; Eyberg, Bessmer, Newcomb, Edwards, & Robinson, 1994). The DPICS-II is a behavioral observation coding system that is used to measure the frequency of specific parent skills at the start of each session. Parents and practitioners review graphs of DPICS-II data each week to evaluate progress towards skill mastery and to decide which skills need further attention (Herschell, Calzada, Eyberg, & McNeil, 2002a).

Typically, PCIT is conducted in weekly 1-hour treatment sessions. Each of the two phases of PCIT (described below) begins with a didactic session that parents attend alone. During this session, the practitioner introduces the skill set to be learned for that phase and engages the parent in a role-play during which the parent begins to practice the skills. Subsequently, the parent and child attend coaching sessions, during which parents are coached in the application of the skills as they interact with their child in a play setting. At the beginning of each coaching session, the practitioner reviews homework from the previous week and observes the parent in a standardized 5-minute play situation using the DPICS-II. During this observation period, the practitioner codes the frequency of the particular skills that the parent is in the process of learning so that skills requiring further practice can be identified.

PCIT is divided into two distinct treatment phases: Child-Directed Interaction (CDI) and Parent-Directed Interaction (PDI). Parents typically receive instruction in CDI skills first. This set of traditional play-therapy skills is intended to strengthen the parent-child relationship and increase the child's prosocial behaviors. Once CDI skills are mastered, the parent receives instruction in PDI skills. These skills consist of behavior modification/discipline techniques designed to decrease negative child behavior. The rationale for implementing CDI first is that children will be less resistant to the limits and rules that parents will begin to impose on them during PDI if these rules are applied in the context of the positive relationship that is established during CDI (Neary & Eyberg, 2002).

In addition to practicing newly learned skills during the treatment sessions, parents are instructed to practice CDI/PDI skills between sessions in order to hone their skills. Ideally, practitioners should avoid using a time-limited treatment method (i.e., a pre-set limit to the number of sessions) and, instead, employ a criteria-based treatment method in which advancement through phases and treatment termination is based on when the parent has achieved a specified level of skill mastery. When a criteria-based method is used, the average length of PCIT treatment is 12

sessions (Rayfield, Monaco, & Eyberg, 1999). In research studies that utilize a pre-set session limit (in order to standardize treatment across participants or reduce study costs), the session limits are typically set at seven CDI and seven PDI sessions. The major skills to be learned in the CDI and PDI phases of PCIT are described below.

Child-directed interaction. In this phase, the parent and child engage in “special play time,” during which parents are instructed to allow their child to lead the play session. Parents are also instructed to avoid asking questions, giving commands, or criticizing the child. Instead, parents are coached in the implementation of PRIDE skills: (1) **P**raise appropriate behavior (e.g., “I like the way you are playing so gently with the toys.”), (2) **R**eflect appropriate talk (e.g., Child: “I like to play with blocks.” Parent: “These blocks are fun.”), (3) **I**mitate appropriate play (e.g., parent draws circles on a piece of paper after a child performs the same action), (4) **D**escribe appropriate behavior (e.g., “You are making a tower.”), and (5) **E**nthusiastic (e.g., “You REALLY are being gentle with the toys!”). Parents are instructed to utilize these skills at an extremely high frequency rate during special play time. During this phase, parents are also taught to selectively ignore inappropriate behaviors that do not place the child in immediate danger.

Appropriate toys for CDI include those that encourage creativity (such as constructional toys) and that are developmentally appropriate for the child. Toys that are messy (e.g., paint), conducive to aggressive play (e.g., guns), or have preset rules (e.g., board games) are avoided (Rayfield et al., 1999).

Typical criteria for CDI skill mastery require that the parent emit at least 10 behavioral descriptions, 10 reflections, and 10 labeled praises during the course of a 5-minute CDI observation. Additionally, total commands, criticisms, and questions must be no more than three during the observation period (Herschell et al., 2002a). Once these criteria are met, the PDI phase of treatment is initiated.

Parent-directed interaction. In this phase of PCIT, parents are instructed on how to give clearly stated commands and to systematically deliver a consequence following every instance of child compliance or noncompliance. Parents are taught to give commands that are direct, specific, age-appropriate, positively stated, and respectful/calm. In addition, commands are only given one at a time and only when necessary. The rationale for a command is also explained either before they are given or after they are obeyed.

First, the child is taught to comply with simple instructions during “minding exercises” (e.g., “Please put the red crayon in my hand.”). As the child becomes more accustomed to these simplistic commands, more “real-life” commands are introduced (e.g., “Please pick up the crayon

that you dropped.”). Parents are coached to provide a specific praise following child compliance (e.g., “Thank you for picking up the crayon. Because you listened to me, you do not have to go to time-out. We will keep playing.”). If the child refuses to comply with the command, the parent gives a single reminder that the child must obey or go to the time-out chair. If the child does not comply within 5 seconds, the parent administers a highly specialized and effective time-out procedure (time-out chair) in which time-out does not end until the child complies with the parent’s original command. A backup for time-out is utilized to eliminate unacceptable time-out behavior (e.g., a “time-out room”).

The PDI procedure follows an algorithm that parents are taught to follow precisely (see Neary & Eyberg, 2002). Practitioners provide a diagram with specific words to use when implementing the steps of the time-out procedure. Parents initially practice the PDI skills at home during 5-10 minute daily clean-up sessions following the 5-minute daily CDI practice sessions. Over the course of time, parents extend their commands to other times of the day.

Typical criteria for PDI skill mastery require that parents give at least four commands, of which 75% must be “effective” (e.g., direct, positively stated, etc.) within a 5-minute PDI observation period. In addition, parents must demonstrate at least 75% correct follow-through after effective commands (i.e., labeled praise after compliance and warning after noncompliance). Finally, if a time-out occurs during the observation period, the parent must successfully follow through with the time-out procedure and the interaction must terminate with compliance to the original command (Herschell et al., 2002a).

Search Strategy

Search Terms

Identification of relevant studies was accomplished by using the keywords parent-child interaction therapy, parent child interaction therapy, and PCIT. An author search (Sheila Eyberg) was also conducted.

Sources

A computer-assisted bibliographic search was conducted using: Psychological Abstracts (PsycINFO), Educational Resources Information Center (ERIC) database, Social Science Citation Index (SSCI), MEDLINE, The Cochrane Database of Systematic Reviews, The Cochrane Database of Abstracts of Reviews of Effectiveness, The Cochrane Controlled Trials Register, Cumulative Index to Nursing and Allied Health Literature (CINAHL), InfoTrac Expanded Academic ASAP, Academic Search Elite, and Books in Print. An online search via the Google search engine was also conducted. In addition, the tables of contents for all 2002 issues of five relevant journals were manually searched in an attempt to retrieve sources that may

not have been identified by bibliographic searches, due to their recent publication date. The reference lists of all acquired sources were also reviewed in order to locate additional sources that may have been omitted from the bibliographic search findings. Finally, a bibliography of PCIT literature located at the University of Florida's Child Study Lab was also reviewed.

Selection Criteria

Studies were included in the research synthesis if they met all of the following criteria: (1) the focus of the study was to establish the effectiveness of PCIT for children with disruptive behavior disorders; (2) the study sample was comprised primarily of preschool-age children (ages 2 through 5) at the time of baseline assessment; (3) the PCIT intervention was described in sufficient detail to ascertain that the intervention applied in the study was the same intervention described in the *Description of Practice* section of the synthesis; (4) children in the study sample exhibited a disruptive behavioral disorder as evidenced by a DSM diagnosis of Oppositional Defiant Disorder (ODD), Conduct Disorder (CD), and/or Attention-Deficit Hyperactivity Disorder (ADHD), or by scoring in the clinical range on the Eyberg Child Behavior Inventory (ECBI; Eyberg & Ross, 1978) Problem Scale and Intensity Scale; (5) the study included at least one child-level behavioral or social-emotional outcome measure.

Exclusion criteria

It was necessary to exclude certain studies that appeared to have met all of the inclusion criteria during the initial phase of the search process. Close inspection of these studies revealed certain characteristics of the PCIT intervention that differed significantly from the standard PCIT implementation methodology so as to warrant their exclusion. Specifically, excluded studies were those in which the PCIT intervention was administered via a group didactic format (as opposed to a practitioner working one-on-one with a parent/child dyad) (e.g., Pollock, 1996) and those in which the PCIT intervention omitted either the CDI or PDI phase (e.g., Sosna, 1992).

Search Results

A total of 17 studies met the selection criteria and were included in the research synthesis. Thirteen studies were published in peer-reviewed journals, three studies were unpublished dissertations, and the remaining study was obtained from the University of Florida's Child Study Lab website.

It should be noted that two of the studies in this synthesis constitute follow-up investigations of original studies that are also contained within the synthesis. Specifically, the Eyberg et al. (2001) study presents follow-up data on a subset of families who participated in the Eisenstadt, Eyberg, McNeil, Newcomb, and Funderburk

(1993) study. Similarly, the Funderburk et al. (1998) study presents follow-up data on a subset of families who participated in the McNeil, Eyberg, Eisenstadt, Newcomb, and Funderburk (1991) study.

Participants

Tables 1 and 2 summarize, respectively, the characteristics of both the child and parent study participants. The 17 studies included 628 children, of whom 368 underwent PCIT and 260 served as control participants. As seen in Table 1, participant drop-out rates were highly variable, ranging from 0% to 53% for pre-post assessments and 0% to 55% for follow-up assessments.

Children's gender was reported in 16 (94%) of the studies. The vast majority of child participants were male (mean of 86% across studies). Participants' age at pre-treatment assessment ranged from 2 to 8 years across studies, with a mean age of 4.6 years (average of reported study means) across the 16 studies that provided information on child age.

Child participants were defined as exhibiting a disruptive behavior disorder using one of three methods: (1) scoring in the clinical range on the Eyberg Child Behavior Inventory (ECBI; Eyberg & Robinson, 1982) (five studies); (2) meeting DSM criteria for Oppositional Defiant Disorder (five studies); or (3) meeting DSM criteria for either Oppositional Defiant Disorder, Conduct Disorder, or Attention-Deficit/Hyperactivity Disorder (seven studies). Nineteen (19) percent of child participants met disruptive behavior disorder criteria via Method 1, 29% met criteria via Method 2, and 52% met criteria via Method 3. Examination of Table 1 reveals that participants assessed via Method 3 frequently exhibited multiple comorbid disruptive behavior disorder diagnoses.

Descriptive information about the families participating in the study was not always provided (see Table 2). From the information that was available, it appears that the vast majority of families were Caucasian (70% to 100% across studies) and approximately half of the parents were married. The limited information regarding family income/SES that was available suggested that these were typically low-income families in which the parents were high school graduates.

Only 10 (59%) of the studies specified which parent participated in the PCIT intervention. In most cases, PCIT was implemented with the mother only (70% across the 10 studies), while in 30% of cases, both parents were participants in the PCIT intervention. Almost all studies reported participant attrition rates for the pre- to post-treatment assessment, as well as for follow-up assessments when studies utilized a longitudinal design.

Research Designs

Table 3 summarizes the research design employed by each study. Two studies (12%) used single-participant

designs (Bahl, Spaulding, & McNeil, 1999; Borrego, Urquiza, Rasmussen, & Zebell, 1999), while the remaining studies (88%) used a between- and within-group design.

Single-participant designs. Both studies employing single-participant designs used a pre-treatment (O_1), treatment (X), post-treatment (O_2) design. Both studies incorporated a longitudinal follow-up assessment component with either one (O_3) or two (O_3, O_4) follow-up assessments. Length of time between post-treatment and first follow-up ranged from 1 to 5 months. For the study that included two follow-up time points, length of time between post-treatment and second follow-up was 16 months.

Group designs. Among the studies utilizing a group design, a variant of the O_1XO_2 within-group design was used in six studies (40%). One of these studies incorporated two longitudinal follow-up assessments at 12 and 24 months (Eyberg et al., 2001) and another employed a single follow-up assessment at 1.5 months (Eisenstadt et al., 1993).

There were nine group design studies (60%) that combined between-group contrasts with O_1XO_2 within-group comparisons. Of these, four compared a PCIT group to a group of waitlist control participants (Brestan, Eyberg, Boggs, & Algina, 1997; Eyberg, Boggs, & Algina, 1995; McNeil, Capage, Bahl, & Blanc, 1999; Schuhmann, Foote, Eyberg, Boggs, & Algina, 1998), one compared a PCIT group to a group receiving alternative treatment (Terao, 1999), two compared a PCIT group to a social-validation group(s) comprised of participants who did not exhibit disruptive behavior disorder (Funderburk et al., 1998; McNeil et al., 1991), one compared a PCIT group to both a waitlist control group and a social-validation group (Nixon, 2001), and one compared a PCIT-Standard Implementation group to a PCIT-Abbreviated Implementation group, a waitlist control group, and a social-validation group (Nixon, Sweeney, Erickson, & Touyz, 2003). Random assignment to groups occurred in all studies with a waitlist control group, but not in studies employing an alternative-treatment group or a social-validation group.

Only 4 of the 9 between-within group design studies (44%) implemented a longitudinal follow-up component (Funderburk et al., 1998; Nixon, 2001; Nixon et al., 2003; Schuhmann et al., 1998). Length of time between post-treatment and first follow-up ranged from 4 to 12 months. For the study that included two follow-up assessments (Funderburk et al., 1998), length of time between post-treatment and second follow-up was 18 months.

In 77% of studies that employed outcome measures that require observational coding, interrater reliability data was also presented. Most of the time (54%), individuals serving as observational coders were blind to group assignment and intervention stage (i.e., pre- vs. post-treatment).

Characteristics of PCIT Intervention

The settings in which PCIT was delivered included university-based psychology clinics, hospital-based clinics, and community mental health centers. In the vast majority of cases, the practitioner serving as the PCIT practitioner was a doctoral-level clinical psychology graduate student or psychology intern who had undergone extensive training in the implementation of the intervention. In one study (Switzer, 1997), master's-level psychologists/social workers employed by a community mental health center served as practitioners.

With two exceptions, all studies reported engaging in weekly treatment sessions that were one hour in length. In the Nixon (2001) and Nixon et al. (2003) studies, weekly sessions ranged from 1 to 2 hours in duration. In all but two studies, the traditional phase sequence (i.e., CDI followed by PDI) was utilized. In the study conducted by Eisenstadt et al. (1993) and its corresponding follow-up study (Eyberg et al., 2001), a primary focus of the investigation was to determine whether phase sequence impacted treatment effectiveness. Therefore, half of the participants received the traditional phase sequence, while the remaining half received the PDI component first. Because phase sequence manipulation only resulted in minor differences between groups, both studies combined the data and reported on treatment outcome for the group as a whole.

Selected characteristics of the PCIT intervention implemented in each study are presented in Table 3. Five studies (29%) utilized a criteria-based treatment method in which the number of PCIT sessions varied across families and was based on the speed at which parents demonstrated mastery of CDI/PDI skills. The average number of sessions for criteria-based studies was 12.6. In the remaining studies (71%), the researchers instituted a time-limited treatment method in which a predetermined number of treatment sessions were implemented uniformly across participants. In most of the time-limited studies, the number of sessions was set at 14, which is greater than the average number of sessions for criteria-based studies. Therefore, it is assumed that this liberal number of predetermined sessions would be sufficient to allow participants to achieve mastery of CDI/PDI skills.

Treatment fidelity. Some form of clinician-level, treatment-fidelity information was reported in nine (53%) studies. In some cases, the authors simply indicated that practitioners used a treatment manual containing session-content outlines to ensure fidelity to treatment. In other cases, clinicians were required to complete checklists documenting adherence to treatment-manual session content. The most compelling form of treatment-fidelity data occurred in studies in which an independent observer coded videotapes of sessions to establish degree of adherence to treatment-manual session content (Brestan et al., 1997;

Eyberg et al., 1995; Nixon et al., 2003; Schuhmann et al., 1998).

Nine studies (53%) provided evidence of treatment fidelity with regard to the parent's implementation of CDI/PDI skills. This evidence took the form of required completion of daily homework monitoring sheets, required mastery of predetermined criteria as observed during sessions, the documentation of significant pre-post treatment differences in targeted parent skills (i.e., increased praise, decreased commands), and the presentation of graphical trends that illustrate increases/decreases in targeted parent behavior frequencies across time. DPICS or DPICS-II data (Eyberg et al., 1994; Eyberg & Robinson, 1983) were typically used to assess the degree of parent implementation of CDI/PDI skills.

Outcomes

Although most studies included parent-level outcomes (e.g., parenting stress, locus of control), these outcomes are omitted due to the research synthesis' focus on child-level outcomes. Child behavioral outcomes were measured in 65% of the studies, while 35% of the studies measured both behavioral and social-emotional outcomes. Table 3 provides a summary of the specific child-level outcome measures used in these studies.

Behavioral outcomes. The instruments used to assess behavioral outcomes encompass a range of data-collection methods (self-report, behavioral observation, structured clinical interview) and a range of respondents (parents, teachers, study personnel). The vast majority of these measures were standardized instruments with documented psychometric properties, although a few were created by the authors specifically for use in their investigation.

The behavioral outcomes assessed by these instruments include parent and teacher reports of behavior problem frequency and intensity, parent and teacher reports of inattention/hyperactivity, rates of observed compliance, and rates of observed negative behavior/verbalizations. In addition, several studies examined the percentage of children meeting diagnostic criteria for disruptive behavior disorder at post-treatment and follow-up assessment.

Social-emotional outcomes. The measures used to assess social-emotional outcomes also varied in terms of information source (child, parent, teacher, study personnel) and methodology (observation and self-report). These measures also tended to be commonly used instruments with known psychometric properties. The social-emotional outcomes assessed by these measures include child-rated self-esteem, non-verbal affection displayed between parents and children, teacher-rated social competence, and parent-rated disposition/temperament and hostility/withdrawal.

Synthesis Findings

Table 4 summarizes the findings regarding the child behavioral and social-emotional consequences of PCIT reported across studies. In addition, the table contains information regarding the degree to which change in behavior and/or social-emotional status was demonstrated to be a direct result of the PCIT intervention (i.e., specificity). There was considerable variation across the 17 studies regarding the specificity of documenting the appropriate implementation of (a) treatment (i.e., therapists adhering to session-content guidelines) and (b) CDI/PDI skills (i.e., parents' skill mastery).

For the purposes of this research synthesis, studies that lacked data demonstrating parent's mastery of CDI/PDI skills were categorized as having Low Specificity (N = 8, 47%). Studies that provided evidence of parent's mastery of CDI/PDI skills, but did not report any practitioner treatment-fidelity procedures were categorized as having Moderate Specificity (N = 3, 18%). Finally, studies that provided data regarding both appropriate practitioner treatment delivery and parent skill mastery were classified as High Specificity studies (N = 6, 35%). The latter studies provided the strongest evidence that change in behavioral/social-emotional outcomes are a direct consequence of the PCIT intervention.

Results

Behavior change. Some form of positive child behavior change was documented in all of the studies. Most studies (76%) implemented multiple measures of child behavior change, whereas four studies (24%) relied on a single measure. The most commonly reported behavioral consequences of PCIT included: (1) a reduction of parent-/teacher-rated intensity/frequency of behavior problems (reported in 94% of studies), (2) an increase in clinic-observed compliance rates (reported in 53% of studies), (3) a reduction in inattention/hyperactivity as measured by parent/teacher report or classroom observation (reported in 29% of studies), (4) a decrease in clinic-observed negative behavior such as whining/crying (reported in 24% of studies), and (5) a reduction in the percentage of children who qualify for a DSM diagnosis of disruptive behavior disorder (reported in 24% of studies).

The improvements from pre- to post-treatment were statistically significant across all studies, and clinically significant (i.e., scores moved from the clinical range to the normal range) in 14 (82%) studies. For studies that compared PCIT participants against a waitlist or alternative-treatment control group, the PCIT participants exhibited significantly greater behavioral improvements relative to the control group. Furthermore, 6 of the 8 longitudinal studies (75%) reported that behavioral gains obtained at the time of post-treatment were maintained

through all follow-up periods.

Social-emotional change. Six of the 17 studies (35%) included some measure of child-level, social-emotional change. The Eisenstadt et al. (1993), Eyberg and Robinson (1982), McNeil et al. (1991), and Nixon (2001) studies each presented original data, while the Eyberg et al. (2001) study presented longitudinal follow-up data from the original Eisenstadt et al. (1993) investigation. Similarly Funderburk et al. (1998) presented longitudinal follow-up data on the original McNeil et al. (1991) investigation. Improvement in social-emotional status from pre- to post-treatment was reported in all of the four studies presenting original data. Of the two “original data” studies that employed a control group, one study reported differential rates of improvement between groups favoring the PCIT group (Nixon, 2001). Follow-up assessments (Eyberg et al., 2001; Funderburk et al., 1998; Nixon, 2001) indicated that, with a few exceptions, post-treatment gains in social-emotional development were not maintained over time.

Rival Explanations

A number of rival explanations might explain the positive findings reported by study authors. As a consequence of the generally high quality of the research designs, however, many of these rival explanations can be refuted.

The possibility of maturation accounting for pre-post treatment improvements in behavioral functioning is mitigated by strong evidence in the literature that disruptive behavior disorders do not spontaneously remit over time if untreated (e.g., Campbell & Ewing, 1990). In addition, the inclusion of a control group(s) in 53% of the studies serves to separate the effects of maturation and treatment. Participant mortality or attrition could also explain positive findings. Significant attrition posed a problem for 5 of the 17 studies reviewed in this synthesis. However, the majority of these studies reported a lack of differences on demographic characteristics and/or symptom severity measures across treatment dropouts and completers.

The demand characteristics of the treatment-outcome study may have resulted in observer or rater bias, since all of the outcome measures involved the use of self-report and experimenter observation methods. The typical employment of multiple outcome measures utilizing multiple methods of data gathering within studies serves to attenuate concerns that positive findings are simply the result of observer/rater bias. Furthermore, observational data coders were typically blind to group assignment and intervention stage (i.e., pre- vs. post-treatment), thereby minimizing the probability of observer bias in the clinic setting.

Because a number of studies selected participants for inclusion in the study based on highly elevated scores on the ECBI, documented improvements using this measure may be a product of regression to the mean. How-

ever, several studies reported a clear differential improvement on the ECBI between a PCIT group and a waitlist/alternative-treatment control group, which provides evidence that improvement on this measure cannot be solely attributed to a statistical artifact.

In summary, a number of common threats to internal validity were addressed within the research designs of these studies. The use of control groups, blind raters, multiple methods of measurement, and appropriate statistical techniques diminishes the plausibility of rival explanations and strengthens the contention that observed effects are directly attributable to participation in the PCIT intervention.

Conclusion

This research synthesis examines claims that Parent-Child Interaction Therapy is a “probably efficacious treatment” for the treatment of children with conduct problem behavior (Brestan & Eyberg, 1998). The primary focus of this synthesis is to summarize findings regarding the effectiveness of PCIT for improving the behavior of young children exhibiting disruptive behavior disorders. A secondary focus is to examine empirical findings regarding child social-emotional outcomes resulting from the PCIT intervention.

The evidence base for PCIT’s effectiveness stems from studies that (1) assessed level of adherence to a standardized treatment protocol (i.e., treatment fidelity); (2) utilized multiple assessment methods and research designs; (3) used measures with well-established psychometric properties to assess outcomes; (4) employed a variety of control groups; (5) used “real world” samples of participants in which children suffered from comorbid disorders and were from low-income, single parent families; and (6) employed a longitudinal component to demonstrate the stability of treatment effects. Furthermore, studies documenting the efficacy of PCIT have been replicated by several independent research groups.

Taken together, these studies provide strong evidence for the effectiveness of PCIT. The evidence reviewed in this synthesis supports claims that PCIT is effective in improving behavior outcomes in preschool-age children with disruptive behavior disorder; therefore, PCIT is recommended as an evidence-based intervention for this purpose. The utility of PCIT for impacting social-emotional outcomes in this population, however, is tenuous and requires further investigation. A reduction in disruptive behaviors should logically lead to improved relationships with caregivers and peers, which in turn, should result in improved child social-emotional outcomes. However, these outcomes have not yet been a focus of investigation in the PCIT treatment-outcome literature.

There are several caveats regarding the recommendation of PCIT as an evidence-based intervention. First, none of the studies reviewed in this synthesis examined father-child dyads (i.e., families in which the sole caregiver participating in the intervention was the father). There is no reason to postulate that father-only implementation of CDI/PDI skills would result in different behavioral/social-emotional consequences. Despite this, there is currently no available evidence to support the use of PCIT without incorporating the child's mother in the intervention. Although most of the study participants have been male (which likely is a reflection of the greater prevalence of disruptive behavior disorders in males), none of the studies reviewed reported differential rates of improvement for females and males. Therefore, the available evidence suggests that PCIT is equally effective with females and males.

Since the vast majority of PCIT treatment effectiveness research has been conducted using Caucasian children, it is an erroneous assumption that PCIT is effective for improving behavior/social-emotional outcomes for children of other ethnicities. Indeed, the exploration of cultural variables on PCIT outcome has recently been identified as a key direction for future research studies in this area (Herschell, Calzada, Eyberg, & McNeil, 2002b). Cultural variations in acceptable parenting practices cannot be ignored. It may be that the skills that PCIT requires parents to engage in with their child may fall outside the range of acceptable parenting practices for parents of particular ethnic groups. Therefore, PCIT is recommended as an evidence-based intervention only for those families who consider the implementation of CDI/PDI skills as consistent with their cultural parenting norms.

One last caveat concerns the external validity of the research findings. Since all studies of PCIT effectiveness were conducted in clinical settings using master's- /doctoral-level therapists who underwent substantial training in PCIT, the generalizability of findings to less controlled settings appears limited.

Implications for Practice

For practitioners working with families of children with severe levels of disruptive behavior, the formalized Parent-Child Interaction Therapy protocol appears warranted. Implications for practice, however, can also be derived from this research synthesis for children with more typical levels of challenging behavior. For these children, the presence of a warm and nurturing parent-child relationship, combined with the use of consistent discipline and clear limit-setting, optimizes child behavioral functioning. A positive parent-child relationship can be cultivated by implementing regular child-led playtimes, during which parents avoid giving commands or criticism and engage in a high frequency of labeled praise using an enthusiastic tone of voice. Consistent discipline is attained when

parents give direct commands in a calm, respectful way, and systematically deliver a consequence following each instance of child compliance or noncompliance in the context of everyday activities.

The companion to the *Bridges* is a *Bottomlines* (Vol. 1, No. 7) report that describes the major findings from this practice-based research synthesis in understandable, user-friendly language. The *Bottomlines* summarizes what we know about Parent-Child Interaction Therapy specifically for parents and practitioners. Also included is a lively vignette illustrating what the practice looks like for a young child and his mother.

For more detailed information concerning implementation of PCIT components, the reader is referred to the PCIT *Solutions* Practice Guide. *Solutions* are designed by staff of the Research and Training Center on Early Childhood Development as a compliment to research syntheses concluding that sufficient research evidence exists to support the practice under study. The PCIT *Solutions* Practice Guide is prepared in a "how to" format that provides practitioners and parents with the information necessary to use PCIT techniques to decrease disruptive behavior problems. This practice guide will be available to readers in either electronic versions at our website (www.researchtopractice.info) or written, video, and/or PowerPoint versions that can be obtained by writing us at our Research and Training Center address.

References

- Achenbach, T. M., & Edelbrock, C. S. (1983). *Manual for the Child Behavior Checklist and Revised Child Behavior Profile*. Burlington, VT: Authors.
- Achenbach, T. M., & Edelbrock, C. S. (1986). *Manual for the Teacher's Report Form and teacher version of the Child Behavior Profile*. Burlington, VT: Authors.
- Ainsworth, M. D. (1969). Object relations, dependency, and attachment: A theoretical review of the infant-mother relationship. *Child Development*, 40, 969-1025.
- Bahl, A. B., Spaulding, S. A., & McNeil, C. B. (1999). Treatment of noncompliance using parent child interaction therapy: A data-driven approach. *Education and Treatment of Children*, 22, 146-156.
- Baumrind, D. (1967). Child care practices anteceding three patterns of preschool behavior. *Genetic Psychology Monographs*, 75, 43-88.
- Becker, W. C. (1960). The relationship of factors in parental ratings of self and each other to the behavior of kindergarten children as rated by mothers, fathers, and teachers. *Journal of Consulting Psychology*, 24, 507-527.
- Borrego, J., Jr., Urquiza, A. J., Rasmussen, R. A., & Zebell, N. (1999). Parent-child interaction therapy with a fam-

- ily at high risk for physical abuse. *Child Maltreatment*, 4, 331-342.
- Brestan, E. V., & Eyberg, S. M. (1998). Effective psychosocial treatments of conduct-disordered children and adolescents: 29 years, 82 studies, and 5,272 kids. *Journal of Clinical Child Psychology*, 27, 180-189.
- 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(3), 13-28.
- Campbell, S. B. (1997). Behavior problems in preschool children: Developmental and family issues. *Advances in Clinical Child Psychology*, 19, 1-26.
- Campbell, S. B., & Ewing, L. J. (1990). Follow-up of hard-to-manage preschoolers: Adjustment at age 9 and predictors of continuing symptoms. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, 31, 871-889.
- Capage, L. C., Foote, R., McNeil, C. B., & Eyberg, S. M. (1998, Summer). Parent-child interaction therapy: An effective treatment for young children with conduct problems. *Behavior Therapist*, 21, 137-138.
- Dishion, T. J., & Patterson, G. R. (1992). Age effects in parent training outcome. *Behavior Therapy*, 23, 719-729.
- Dunst, C. J., Trivette, C. M., & Cutspec, P. A. (2002). Toward an operational definition of evidence-based practices. *Centerscope*, Vol. 1, No. 1.
- Eisenstadt, T. H., Eyberg, S., McNeil, C. B., 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, R. (1994). *Dyadic Parent-Child Interaction Coding System-II: A manual*. Gainesville: University of Florida, Department of Clinical and Health Psychology, Child Study Lab.
- Eyberg, S. M., Boggs, S. R., & Algina, J. (1995). Parent-child interaction therapy: A psychosocial model for the treatment of young children with conduct problem behavior and their families. *Psychopharmacology Bulletin*, 31, 83-91.
- 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(4), 1-20.
- Eyberg, S. M., & Robinson, E. A. (1982). Parent-child interaction training: Effects on family functioning. *Journal of Clinical Child Psychology*, 11, 130-137.
- Eyberg, S. M., & Robinson, E. A. (1983). Dyadic Parent-Child Interaction Coding System (DPICS): A manual. *Psychological Documents*, 13(2), MS 2582, 24 pages.
- Eyberg, S. M., & Ross, A. W. (1978). Assessment of child behavior problems: The validation of a new inventory. *Journal of Clinical Child Psychology*, 7, 113-116.
- Farrington, D. P. (1995). The development of offending and antisocial behaviour from childhood: Key findings from the Cambridge Study in Delinquent Development. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, 36, 929-964.
- Funderburk, B. W., & Eyberg, S. M. (1989). Psychometric characteristics of the Sutter-Eyberg Student Behavior Inventory: A school behavior rating scale for use with preschool children. *Behavioral Assessment*, 11, 297-313.
- Funderburk, B. W., Eyberg, S. M., Newcomb, K., McNeil, C. B., Hembree-Kigin, T., & Capage, L. (1998). Parent-child interaction therapy with behavior problem children: Maintenance of treatment effects in the school setting. *Child and Family Behavior Therapy*, 20(2), 17-38.
- Goyette, C. H., Conners, C. K., & Ulrich, R. F. (1978). Normative data on revised Conners Parent and Teacher Rating Scales. *Journal of Abnormal Child Psychology*, 6, 221-236.
- Hanf, C. (1969, April). *A two-stage program for modifying maternal controlling during mother-child interaction*. Paper presented at the meeting of the Western Psychological Association, Vancouver, BC, Canada.
- Harter, S., & Pike, R. (1984). The Pictorial Scale of Perceived Competence and Social Acceptance for Young Children. *Child Development*, 55, 1969-1982.
- Herschell, A. D., Calzada, E. J., Eyberg, S. M., & McNeil, C. B. (2002a). Clinical issues in parent-child interaction therapy. *Cognitive and Behavioral Practice*, 9, 16-27.
- Herschell, A. D., Calzada, E. J., Eyberg, S. M., & McNeil, C. B. (2002b). Parent-child interaction therapy: New directions in research. *Cognitive and Behavioral Practice*, 9, 9-15.
- Kazdin, A. E. (1995). *Developmental clinical psychology and psychiatry: Vol. 9. Conduct disorders in childhood and adolescence*. Thousand Oaks, CA: Sage.
- Lahey, B. B., Loeber, R., Hart, E. L., Frick, P. J., Applegate, B., Zhang, Q., Green, S. M., & Russo, M. F. (1995). Four-year longitudinal study of conduct disorder in boys: Patterns and predictors of persistence. *Journal of Abnormal Psychology*, 104, 83-93.
- Matthey, S., & Barnett, B. (1999). Normative data for an Australian clinical sample on the Home Situations Questionnaire-Modified Version (HSQ-M). *Behaviour Change*, 16, 207-218.

- McNeil, C. B., Capage, L. C., Bahl, A., & Blanc, H. (1999). Importance of early intervention for disruptive behavior problems: Comparison of treatment and waitlist-control groups. *Early Education and Development, 10*, 445-454.
- McNeil, C. B., Eyberg, S., 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 Clinical Child Psychology, 20*, 140-151.
- Mee, L. L. (1992). Effect of parent-child interaction therapy on the verbalizations of behavior disordered children. *Dissertation Abstracts International, 52*(10), 5522B.
- Neary, E. M., & Eyberg, S. M. (2002). Management of disruptive behavior in young children. *Infants and Young Children, 14*(4), 53-67.
- Nixon, R. D. V. (2001). Changes in hyperactivity and temperament in behaviourally disturbed preschoolers after parent-child interaction therapy (PCIT). *Behaviour Change, 18*, 168-176.
- Nixon, R. D. V., Sweeney, L., Erickson, D. B., & Touyz, S. W. (2003). Parent-child interaction therapy: a comparison of standard and abbreviated treatments for oppositional defiant preschoolers. *Journal of Consulting and Clinical Psychology, 71*, 251-260.
- O'Brien, M. (1996). Child-rearing difficulties reported by parents of infants and toddlers. *Journal of Pediatric Psychology, 21*, 433-446.
- Olson, S. L., Bates, J. E., & Bayles, K. (1990). Early antecedents of childhood impulsivity: The role of parent-child interaction, cognitive competence, and temperament. *Journal of Abnormal Child Psychology, 18*, 317-334.
- Patterson, G. R. (1982). *Coercive family process*. Eugene, OR: Castalia.
- Perez, J. C., Bell, S., Adams, R. W., Garzarella, L., & Eyberg, S. M. (2002). *Tracking treatment progress of families with oppositional preschoolers*. Gainesville: University of Florida, Department of Clinical and Health Psychology, Child Study Lab. Downloaded November 26, 2002 from <http://www.hp.ufl.edu/%7Eeyberg/labresearch.htm>.
- Pollock, K. L. (1996). The effectiveness of parent-child interaction therapy conducted in a Head Start workshop (Doctoral dissertation, University of Alabama, Tuscaloosa). *Dissertation Abstracts International, 57*, 4039.
- Prior, M. R., Sanson, A. V., & Oberklaid, F. (1989). The Australian temperament project. In G. A. Kohnstamm, J. E. Bates, & M. K. Rothbart (Eds.), *Temperament in childhood* (pp. 537-554). Oxford, UK: Wiley.
- Rayfield, A., Monaco, L., & Eyberg, S. M. (1999). Parent-child interaction therapy with oppositional children: Review and clinical strategies. In S. W. Russ & T. H. Ollendick (Eds.), *Handbook of psychotherapies with children and families* (pp. 327-343). New York: Kluwer Academic/Plenum.
- Rose, S. L., Rose, S. A., & Feldman, J. F. (1989). Stability of behavior problems in very young children. *Development and Psychopathology, 1*, 5-19.
- Routh, D. K., Schroeder, C. S., & O'Tuama, L. A. (1974). Development of activity level in children. *Developmental Psychology, 10*, 163-168.
- Ruma, P. R., Burke, R. V., & Thompson, R. W. (1996). Group parent training: Is it effective for children of all ages? *Behavior Therapy, 27*, 159-169.
- Schuhmann, E. M., Durning, P. E., Eyberg, S. M., & Boggs, S. R. (1996). Screening for conduct problem behavior in pediatric settings using the Eyberg Child Behavior Inventory. *Ambulatory Child Health, 2*, 35-41.
- Schuhmann, E. M., Foote, R. C., Eyberg, S. M., Boggs, S. R., & 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.
- Sosna, T. D. (1992). The impact of parent-child interaction therapy on the verbalizations and compliance of non-clinical preschool children. *Dissertation Abstracts International, 53*(03), 1617B.
- Switzer, H. L. (1997). The use of parent-child interaction therapy with parents and children referred by a child protective service. *Dissertation Abstracts International, 58*(05), 2702B.
- Terao, S. Y. (1999). Treatment effectiveness of parent-child interaction therapy with physically abusive parent-child dyads (Doctoral dissertation, University of the Pacific, Stockton, CA, 1999). *Dissertation Abstracts International, 60*, 1874.
- Walker, H. M., & McConnell, S. R. (1988). *The Walker-McConnell Scale of Social Competence and School Adjustment: A social skills rating scale for teachers*. Austin, TX: Pro-Ed.

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Table 1
Characteristics of the Child Study Participants and Sample Attrition Rates

Study	Sample Size ^a	Attrition Rate ^b	Child Characteristics		
			Disruptive Behavior Disorder Criteria Met ^c	Age at Baseline	% Male
Bahl et al. (1999)	1	Post: 0% F1: 0%	ODD (100%)	Range: 6 Mean: 6	100%
Borrego et al. (1999)	1	Post: 0% F1: 0% F2: 0%	Clinical Range on ECBI scales (100%)	Range: 3 Mean: 3	100%
Brestan et al. (1997)	30 (14/16)	0%	ODD (100%)	Range: 3-6 Mean: 4.5	83%
Eisenstadt et al. (1993)	31	Post: 23% F1: 55%	ODD (25%) ADHD (13%) CD (4%) Multiple Dx (58%)	Range: 2.5-7 Mean: 4.5	92%
Eyberg et al. (1995)	50 (35/15)	28%	ODD (66%) Multiple Dx (34%)	Range: 3-6 Mean: 4.5	80%
Eyberg et al. (2001)	20	Post: 35% F1: 35% F2: 40%	ODD (25%) ADHD (10%) Multiple Dx (65%)	Range: 3-6 Mean: 4.7	90%
Eyberg & Robinson (1982)	7	0%	Clinical Range on ECBI scales (100%)	Range: 2-7 Mean: 4.9	86%
Funderburk et al. (1998)	84 (12/72)	Post: * F1: 8% F2: 0%	ODD (8%) ADHD (8%) Multiple Dx (84%)	Range: 2-7 Mean: 4.8	100%
McNeil et al. (1999)	32 (18/14)	0%	Clinical Range on ECBI scales (100%)	Range: 2.5-8 Mean: 5	75%
McNeil et al. (1991)	30 (10/20)	0%	ODD (10%) Multiple Dx (90%)	Range: 2-7 Mean: 4.5	100%
Mee (1992)	20	0%	Clinical Range on ECBI scales (100%)	Range: 3-7 Mean: 5.2	100%
Nixon (2001)	55 (34/21)	Post: 0% F1: 0%	ODD (100%)	Range: 3-5 Mean: 3.8	74%
Nixon et al. (2003)	75 (17/58)	Post: 12% F1: *	ODD (100%)	Range: 3-5 Mean: 3.8	71%
Perez et al. (2002)	41	*	ODD (100%)	Range: 3-6 Mean: *	*
Schuhmann et al. (1998)	64 (37/27)	Post: 34% F1: *	ODD (33%) Multiple Dx (67%)	Range: 3-6 Mean: 4.9	81%
Switzer (1997)	53	53%	ODD (32%) ADHD (20%) Multiple Dx (16%) No Diagnosis (32%)	Range: 2.5-7 Mean: 5.2	76%
Terao (1999)	34 (17/17)	0%	Clinical Range on ECBI scales (100%)	Range: 2-7 Mean: 4.9	65%

^a Total sample size, followed by a breakdown of children in treatment (PCIT) group and children in control group(s).

^b Post = Post-treatment assessment, F1 = Follow-up assessment 1, F2 = Follow-up assessment 2

^c ODD = Oppositional Defiant Disorder, CD = Conduct Disorder, ADHD = Attention-Deficit/Hyperactivity Disorder, Multiple Dx = Multiple diagnoses (e.g., ADHD + ODD, etc.), ECBI = Eyberg Child Behavior Inventory

* Data not reported

Table 2
Characteristics of Parents and Families

Study	Parent Characteristics			Family Characteristics		
	Parent(s) Participating in Study ^a	Percent Caucasian	Percent Married	Mean Education Level	Median Family Income	Socioeconomic Status (Hollingshead)
Bahl et al. (1999)	M & F: 100%	100%	100%	—	—	—
Borrego et al. (1999)	M Only: 100%	—	0%	—	—	—
Brestan et al. (1997)	M Only: 47% M & F: 53%	70%	50%	14	—	33
Eisenstadt et al. (1993)	M Only: 75% M & F: 25%	88%	54%	—	\$15,000	—
Eyberg et al. (1995)	—	80%	—	—	—	34
Eyberg et al. (2001)	M Only: 100%	85%	—	—	\$15,000	—
Eyberg & Robinson (1982)	M Only: 57% M & F: 43%	—	43%	13	—	—
Funderburk et al. (1998)	—	92%	—	—	—	—
McNeil et al. (1999)	—	88%	—	—	—	—
McNeil et al. (1991)	M Only: 60% M & F: 40%	90%	60%	—	\$12,000	—
Mee (1992)	M Only: 100%	90%	55%	—	—	—
Nixon (2001)	M Only: 71% M & F: 29%	—	85%	14	Range: \$40-\$69K	—
Nixon et al. (2003)	—	96%	88%	—	Range: \$23-\$41K	—
Perez et al. (2002)	—	—	—	—	—	—
Schuhmann et al. (1998)	—	77%	55%	—	—	35
Switzer (1997)	M Only: 92% M & F: 8%	92%	32%	68% ≥ 1 year college	Range: \$15-\$35K	—
Terao (1999)	—	—	—	—	—	—

^a M Only = Mother only, M & F = Mother and father

Table 3
Characteristics of the Research Designs and PCIT Interventions

Study	Research Design ^a	Length of Follow-Up	Reliability Data Reported?	Use of Blind Raters?	Intervention Characteristics			Outcome Measures	
					Number of Sessions ^b	Tx Fidelity Data: Clinician ^c	Tx Fidelity Data: Parent ^d	Behavioral ^e	Social-Emotional ^f
Bahl et al. (1999)	(S) O ₁ XO ₂ O ₃	1 mo.	N	N	Total: 11 CDI: * PDI: *		M, C, D	<i>CBCL</i> <i>DPICS</i> <i>ECBI</i> <i>TRF</i>	
Borrego et al. (1999)	(S) O ₁ XO ₂ O ₃ O ₄	5 mo. 16 mo.	Y	N	Total: 11 CDI: 5 PDI: 6	C	T	<i>CBCL</i> <i>DPICS</i> <i>ECBI</i>	
Brestan et al. (1997)	(G) O ₁ XO ₂ TX vs. WC	N/A	N/A	N/A	Varied (<u>M</u> = 13.8)	T, O	M	<i>ECBI</i>	
Eisenstadt et al. (1993)	(G) O ₁ XO ₂ O ₃	1.5 mo.	Y	Y	Total: 14 CDI: 7 PDI: 7	C		<i>CBCL</i> <i>DPICS</i> <i>DSM-III-R SI</i> <i>ECBI</i> <i>WWP</i>	<i>DPICS</i> <i>PCSA</i>
Eyberg et al. (1995)	(G) O ₁ XO ₂ TX vs. WC	N/A	Y	N	Varied (<u>M</u> = 13.0)	T, O	M, D	<i>DPICS-II</i> <i>ECBI</i>	
Eyberg et al. (2001)	(G) O ₁ XO ₂ O ₃ O ₄	12 mo. 24 mo.	Y	Y	Total: 14 CDI: 7 PDI: 7	C	D	<i>CBCL</i> <i>DSM-III-R SI</i> <i>DPICS</i> <i>ECBI</i> <i>WWP</i>	<i>PCSA</i>
Eyberg & Robinson (1982)	(G) O ₁ XO ₂	N/A	N	N	Varied (<u>M</u> = 8.9)		C, D	<i>DPICS</i> <i>ECBI</i>	<i>BBAC</i>
Funderburk et al. (1998)	(G) O ₁ XO ₂ O ₃ O ₄ TX vs. C ₁ vs. C ₂ vs C ₃	12 mo. 18 mo.	Y	Y	Total: 14 CDI: 7 PDI: 7	T		<i>COCS</i> <i>ECBI</i> <i>RCTRS</i> <i>SESBI</i>	<i>WMS</i>
McNeil et al. (1999)	(G) O ₁ XO ₂ TX vs. WC	N/A	N/A	N/A	Total: 14 CDI: * PDI: *			<i>CBCL</i> <i>ECBI</i>	
McNeil et al. (1991)	(G) O ₁ XO ₂ TX vs. C ₁ vs. C ₂	N/A	Y	Y	Total: 14 CDI: 7 PDI: 7	T		<i>COCS</i> <i>DPICS</i> <i>ECBI</i> <i>RCTRS</i> <i>SESBI</i>	<i>WMS</i>
Mee (1992)	(G) O ₁ XO ₂	N/A	Y	Y	Varied (<u>M</u> = 14.1)			<i>DPICS</i>	
Nixon (2001)	(G) O ₁ XO ₂ O ₃ TX vs. WC vs. C ₂	6 mo.	N	N	Total: 12 CDI: 5 PDI: 7			<i>DSM-IV SI</i> <i>ECBI</i>	<i>STSC</i>

Table 3, continued

Study	Research Design ^a	Length of Follow-Up	Reliability Data Reported?	Use of Blind Raters?	Intervention Characteristics			Outcome Measures	
					Number of Sessions ^b	Tx Fidelity Data: Clinician ^c	Tx Fidelity Data: Parent ^d	Behavioral ^e	Social-Emotional ^f
Nixon et al. (2003)	(G) O ₁ XO ₂ O ₃ TX vs. WC vs. C ₂ vs. C ₃	6 mo.	Y	Y	Total: 12 CDI: 5 PDI: 7	T, O	D	<i>CBCL</i> <i>DPICS</i> <i>DSM-IV SI</i> <i>ECBI</i> <i>HSQ-M</i>	
Perez et al. (2002)	(G) O ₁ XO ₂	N/A	N/A	N/A	Total: 12 CDI: * PDI: *			<i>ECBI</i>	
Schuhmann et al. (1998)	(G) O ₁ XO ₂ O ₃ TX vs. WC	4 mo.	Y	Y	Varied (<u>M</u> = 13.0)	T, O	M, D	<i>DPICS-II</i> <i>DSM-III-R SI</i> <i>ECBI</i>	
Switzer (1997)	(G) O ₁ XO ₂	N/A	Y	N	Total: 14 CDI: 7 PDI: 7		D	<i>DPICS-II</i> <i>ECBI</i>	
Terao (1999)	(G) O ₁ XO ₂ TX vs. C ₁	N/A	N/A	N/A	Total: 14 CDI: 7 PDI: 7			<i>ECBI</i>	

^a (S) = Single participant design, (G) = Group design, subscripted O = Different assessment phases of a study, X = PCIT Intervention phase of study, TX = Treatment group, WC = Waitlist control group, subscripted C = Control groups other than Waitlist control (e.g., alternative treatment, participants without disruptive behavior disorders)

^b CDI = Child-Directed Interaction phase of PCIT, PDI = Parent-Directed Interaction phase of PCIT

^c T = Practitioner used treatment manual containing session-content outlines, C = Practitioner completed checklists documenting adherence to session content, O = Objective observer coded tapes for adherence to session content.

^d M = Parent was required to meet predetermined mastery criteria as observed during clinic sessions, C = Parent completed daily homework monitoring sheets, D = Significant pre-post differences in targeted parent behavior frequencies (as measured by an independent observer) were documented (e.g. increased praise, decreased commands), T = Graphical trends across time illustrating increases/decreases in targeted parent behavior frequencies were presented.

^e *DPICS* = *Dyadic Parent-Child Interaction Coding System* (Eyberg & Robinson, 1983), *DPICS-II* = *Dyadic Parent-Child Interaction Coding System-II* (Eyberg et al., 1994), *ECBI* = *Eyberg Child Behavior Inventory* (Eyberg & Robinson, 1982), *CBCL* = *Child Behavior Checklist* (Achenbach & Edelbrock, 1983), *TRF* = *Teacher's Report Form* (Achenbach & Edelbrock, 1986), *DSM-IV SI* = *DSM-IV Structured Interview for Disruptive Behavior Disorders* (Nixon, 2001), *DSM-III-R SI* = *DSM-III-R Structured Interview for Disruptive Behavior Disorders* (McNeil et al., 1991), *WWP* = *Werry-Weiss-Peters Activity Rating Scale* (Routh et al., 1974), *SESBI* = *Sutter-Eyberg Student Behavior Inventory* (Funderburk & Eyberg, 1989), *RCTRS* = *Revised Conners Teacher Rating Scale* (Goyette et al., 1978), *COCS* = *Classroom Observation Coding System* (McNeil et al., 1991), *HSQ-M* = *Home Situation Questionnaire-Modified* (Matthey & Barnett, 1999)

^f *PCSA* = *Pictorial Scale of Perceived Competence and Social Acceptance for Young Children* (Harter & Pike, 1984), *BBAC* = *Becker Bipolar Adjective Checklist* (Becker, 1960), *WMS* = *Walker-McConnell Scale of Social Competence and School Adjustment* (Walker & McConnell, 1988), *STSC* = *Short Temperament Scale for Children* (Prior et al., 1989)

*Data not reported

Table 4
Major Findings Regarding Child Behavioral and Social-Emotional Consequences of PCIT

Study	Relation to PCIT ^a	Behavioral Consequences ^b	Social-Emotional Consequences
Bahl et al. (1999)	M	Parent ratings of behavior problem frequency and intensity improved over time and were within normal range at post-tx. Tx gains were maintained at one-month follow up.	
Borrego et al. (1999)	H	Parent ratings of behavior problem frequency and intensity improved over time and were within normal range at post-tx with tx gains maintained at five- and 16-month follow up. Increase in observed compliance from pre-tx (29%) to post-tx (43%) and 16-month follow up (50%). Clinic observations of negative behavior (e.g., whining) were significantly decreased at post-tx, but rebounded during follow up (levels remaining lower than pre-tx).	
Brestan et al. (1997)	H	Tx group exhibited significant reduction in parent-rated behavior problem frequency and intensity, while WL group did not exhibit pre-post assessment change. Positive effects of tx generalized to siblings of target children.	
Eisenstadt et al. (1993)	L	Significant increase in observed compliance from pre-tx (41%) to post-tx (72%). Significant decrease in observed deviant behavior (e.g., whine, cry) at post-tx. Proportion of sample meeting DSM criteria for DBD decreased to 15% at post-tx. Parent ratings of behavior problem frequency and intensity, inattention, and hyperactivity were significantly improved at post-tx. All tx gains were maintained at 1.5-month follow up.	Significant improvement in child-rated self-esteem at post-tx. Significant improvement in Parent-child non-verbal affection at post-tx.
Eyberg et al. (1995)	H	Tx group exhibited significant reduction in parent-rated behavior problem frequency and intensity, while WL group did not exhibit pre-post assessment change; tx group scores fell within normal range at post-tx and positive effects generalized to siblings of target children. Significant increase in observed compliance from pre-tx (21%) to post-tx (46%) for tx group only.	
Eyberg et al. (2001)	H	Majority of children (54%) in original study (Eisenstadt et al., 1993) remained free of a diagnosis of DBD 24 months after tx completion. 100% of families classified as "tx success" at post-tx, 92% at 12-month follow up, and 85% at 24-month follow up. Significantly improved compliance at post-tx were maintained at 12-month follow up (90%) and 18-month follow up (80%). Post-tx improvement on parent ratings of behavior problem frequency and intensity, inattention and hyperactivity was maintained at 12- and 24-month follow up (large effect sizes noted).	Previously reported gains in self-esteem (Eisenstadt et al. 1993) were not maintained at either the 12- or 24-month follow up.
Eyberg & Robinson (1982)	M	Children exhibited a significant decline in observed deviant behavior and significantly greater observed compliance at post-tx (39% vs. 89%); these positive effects generalized to siblings of the target child. Parent ratings of behavior problem frequency and intensity significantly improved and were within normal range at post-tx.	Parents rated children as having a significantly more relaxed disposition at post-tx. Parents rated children as significantly less withdrawn/hostile at post-tx.
Funderburk et al. (1998)	L	Significantly improved observational ratings of compliance and appropriate behavior documented at post-tx in original study (McNeil et al., 1991) were maintained at 12- and 18-month follow up. Parent ratings of frequency/intensity of behavior problems remained within normal range at 12- and 18-month follow up. Teacher ratings of behavior problems, hyperactivity and inattention	Previously reported gains in social competence (McNeil et al. 1991) maintained at 12-month but not at 18-month follow up (i.e., scores no longer within normal range or different from control groups).

Table 4, continued

Study	Relation to PCIT ^a	Behavioral Consequences ^b	Social-Emotional Consequences
Funderburk et al. (1998)	L	<p>Significantly improved observational ratings of compliance and appropriate behavior documented at post-tx in original study (McNeil et al., 1991) were maintained at 12- and 18-month follow up.</p> <p>Parent ratings of frequency/intensity of behavior problems remained within normal range at 12- and 18-month follow up.</p> <p>Teacher ratings of behavior problems, hyperactivity and inattention remained within normal range at 12-month follow up, but not at 18-month follow up (still improved over behavior problem control group).</p>	<p>Previously reported gains in social competence (McNeil et al. 1991) maintained at 12-month but not at 18-month follow up (i.e., scores no longer within normal range or different from control groups).</p>
McNeil et al. (1999)	L	<p>Tx group exhibited significantly greater improvement at post-tx relative to WL group on parent ratings of behavior problem frequency and intensity; ratings were in the normal range for Tx group at post-tx and remained the clinical range for WL group at post-tx.</p>	
McNeil et al. (1991)	L	<p>Tx group exhibited significantly greater improvement at post-tx relative to control groups on parent & teacher ratings and observational measures of behavior problems.</p> <p>Tx group exhibited significant improvement on observational ratings of percent of time on task in the classroom and teacher ratings of hyperactivity at post tx, but amount of improvement was not greater than that exhibited by control groups</p> <p>Observed compliance significantly improved at post-tx in the clinic (41% vs. 70%) and in the classroom (54% vs. 87%); post-tx classroom compliance was on par with normal control group.</p> <p>Magnitude of improvement report by parent was significantly related to magnitude of improvement reported by teacher (.78).</p>	<p>Significant improvement in teacher-rated social competence at post-tx for Tx group, but amount of improvement was not greater than that exhibited by control groups.</p>
Mee (1992)	L	<p>Significantly decreased levels of negative talk (e.g., whine, smart talk, yell) were observed at post-treatment.</p>	
Nixon (2001)	L	<p>Parent ratings of behavior problem intensity/frequency decreased from clinical range to normal range at post tx; scores for WL group remained in clinical range.</p> <p>Tx group significantly less likely to meet DSM-IV criteria for ADHD relative to WL group at post-treatment.</p> <p>ADHD symptom severity ratings were significantly decreased for the tx group at post-tx.</p> <p>Tx group was comparable to normal control group on ratings of oppositional behavior and hyperactivity at six-month follow up.</p>	<p>Tx group rated as exhibiting a more flexible temperament relative to WL group at post-tx.</p> <p>Temperament ratings for tx group improved even more at 6-month follow up.</p>
Nixon et al. (2003)	H	<p>Parent ratings of behavior problem intensity/frequency decreased from clinical range to normal range at post tx; scores for WL group remained in clinical range.</p> <p>ODD symptom severity ratings were significantly decreased for the tx group at post-tx but not for WL group.</p> <p>Observed compliance significantly improved at post-tx (64% vs. 81%); post-tx compliance was on par with normal control group.</p> <p>All tx gains maintained at six-month follow up.</p> <p>Abbreviated PCIT tx and Standard PCIT tx produced comparable outcomes.</p>	
Perez et al. (2002)	L	<p>Parent ratings of behavior problem frequency and intensity exhibited a significant decline over the course of treatment.</p> <p>Magnitude of improvement in behavior problems was similar across CDI and PDI.</p>	

Table 4, continued

Study	Relation to PCIT ^a	Behavioral Consequences ^b	Social-Emotional Consequences
Schuhmann et al. (1998)	H	<p>Tx group exhibited significantly improved compliance at post-tx (23% vs. 47%) while WL group remained unchanged.</p> <p>None of the children in tx group met DSM criteria for ODD at post-tx.</p> <p>Parent ratings of behavior problem intensity/frequency decreased from clinical range to normal range at post-tx; scores for WL group remained in clinical range.</p> <p>All tx gains maintained at four-month follow up.</p>	
Switzer (1997)	M	<p>Significantly improved compliance was observed at post-tx (54% vs. 80%), along with significant decrease in negative behavior.</p> <p>Parent ratings of behavior problem frequency and intensity significantly improved and were within normal range at post-tx.</p>	
Terao (1999)	L	<p>PCIT Tx group exhibited significantly greater reduction in parent-rated behavior problem frequency and intensity relative to alternative Tx group; at post-tx, PCIT Tx group scores were within normal range, while alternative Tx group scores remained in clinical range.</p>	

^a H = High specificity, M = Moderate specificity, L = Low specificity (See text for a more detailed description of specificity ratings.)

^b Tx = Treatment, WL = Waitlist control, DBD = Disruptive Behavior Disorder, ODD = Oppositional Defiant Disorder