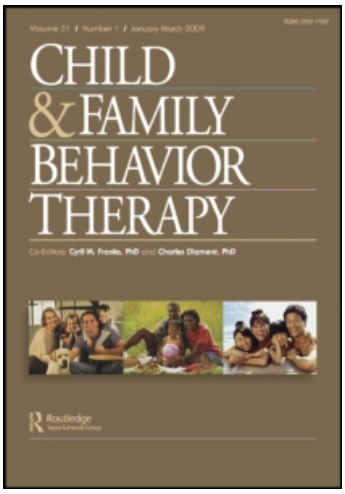

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Parent-Child Interaction Therapy with Behavior Problem Children: One and Two Year Maintenance of Treatment Effects in the Family

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ABSTRACT. Parent-Child Interaction Therapy (PCIT) is an empirically supported treatment for conduct-disordered young children in which parents learn the skills of child-directed interaction (CDI) in the first phase of treatment and parent-directed interaction (PDI) in the second. This study examined the long-term treatment outcome for 13 families who had participated in a treatment study examining the effects of

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treatment phase sequence one and two years earlier. Seven families were in the CDI-First treatment group and six families were in the PDI-First group. Immediately after treatment, 11 of the 13 families had achieved clinically significant changes on both observational and parent report measures, and there is no significant difference between treatment groups. Treatment effects were maintained at one-year follow-up for eight of the 13 families, and at two-year follow-up for nine families, with no long- term impact of phase sequence evident at either follow-up assessment. This study represents the first long-term follow-up of families treated with PCIT. Results suggest that this treatment may be successful in achieving long-term gains for most families of conduct-disordered preschoolers and that phase sequence has little impact on treatment outcome.

KEYWORDS. Parent-child interaction therapy, psychosocial treatment, treatment outcome, preschooler, oppositional defiant disorder, maintenance, long-term follow-up, child behavior problems, family

The stability of early-onset conduct problem behavior throughout childhood is well-documented (Campbell & Ewing, 1990; Egeland, Kalkoske, Gottesman, & Erickson, 1990; Kazdin, 1987; Reid, 1993). In the absence of treatment, child conduct problems intensify following entry into school, putting children with emergent behavior problems at increased risk for peer rejection, academic difficulties, substance abuse, delinquency, school drop-out, and depression (Campbell, 1995; Webster-Stratton, 1990). Studies have also shown that children with conduct problems are at increased risk for abuse by their parents (Reid, Patterson, & Loeber, 1981) and for significant mental health problems as adults (Loeber & Schmaling, 1985; Robins & Price, 1991). Effective short-term treatments for early-onset conduct problems have been developed to decrease these problem behaviors and increase prosocial behaviors rapidly (Brestan & Eyberg, 1998) although there has been limited examination of the maintenance of treatment gains (Eyberg, Edwards, Boggs, & Foote, 1998). In view of the poor prognosis for children with early-onset conduct problems and the stability of these problems when left untreated, treatment research must turn attention to

maintenance. Few studies have conducted follow-ups of young children beyond one year after treatment (e.g., Baum & Forehand, 1981; Forehand & Long, 1988; Funderburk et al., 1998; Long, Forehand, Wierson, & Morgan, 1994; Strain, Steele, Ellis, & Timm, 1982; Webster-Stratton, 1990), and few, if any, have examined the treatment variables that produce differential long-term effects (Kazdin, 1997).

Parent-Child Interaction Therapy (PCIT; Eyberg & Boggs, 1998; Hembree-Kigin & McNeil, 1995) is a brief and effective intervention for young children with conduct problems. PCIT is an empirically supported treatment (Brestan & Eyberg, 1998) consisting of two discrete stages. Child-Directed Interaction (CDI), based on attachment theory, was designed to teach parents to build warm and responsive relationships with their children, and Parent-Directed Interaction (PDI), based on social-learning theory, was designed to teach parents to monitor and apply consequences consistently to change their children's negative behaviors. Many studies have demonstrated statistically and clinically significant improvements in child behavior problems in the laboratory and at home (Eyberg & Matarazzo, 1980; Schuhmann, Foote, Eyberg, Boggs, & Algina, 1998). Similar studies have also shown improved child behavior at school (McNeil, Eyberg, Eisenstadt, Newcomb, & Funderburk, 1991), improved parenting skills and confidence (Schuhmann et al., 1998), decreased parent psychopathology (Eyberg & Robinson, 1982), and improved behavior of siblings (Brestan, Eyberg, Boggs, & Algina, 1997). Evidence of 4-month maintenance of treatment gains in child and family functioning (Schuhmann et. al., 1998) and long-term positive effects on children's classroom behavior (Funderburk et al., 1998) have been documented as well.

One treatment variable that has received little empirical attention in PCIT is the order of delivery of its two phases. The traditional sequence of treatment phases is CDI preceding PDI. This order is based on the premise that discipline is more effective when it takes place within the context of a positive parent-child relationship. More specifically, we conceptualize CDI as reducing the child's anger toward the parent, so that the child's initial changes during PDI are motivated by a desire to please the parent as well as the desire to avoid punishment. Empirical support for this premise, however, has not been established, and some support for implementing change in discipline procedures prior to relationship skills has been offered (Eisenstadt, Eyberg, McNeil, Newcomb, & Funderburk, 1993).

Eisenstadt et al. (1993) examined 20 families who completed an experimental, 14-week time-limited application of PCIT in which half of

the families received the traditional sequence, CDI-First, and half of the families received the reversed sequence, PDI-First. At the midpoint of treatment, children in the PDI phase alone had made more progress than children in the CDI phase alone in reducing noncompliant and disruptive behaviors, although by the end of treatment these behaviors were within normal limits for both groups. Unexpectedly, families who completed treatment in the traditional sequence did not demonstrate better outcomes than families who completed the reversed sequence on any measure. In fact, the few differences that were found favored the reversed sequence. Nevertheless, we expected that children treated in the traditional sequence, who had experienced consistent discipline initially within the context of a more positive parent-child relationship, would maintain better their improved behavior over time.

The primary purpose of the current study was to examine the long-term effectiveness of PCIT, independent of phase sequence, as measured by parent report, child report, and observational measures at one and two years following treatment termination. We predicted that, at both the one- and two-year follow-up evaluations, the scores on all measures would indicate significant improvement over pretreatment levels. The second purpose of this study was to examine the differential maintenance of treatment gains between the PDI-First and the CDI-First treatment groups. Specifically, consistent with our conceptualization of CDI as the foundation for effective discipline, we hypothesized that the traditional sequence group would show better functioning on all outcome measures at the two follow-up assessments.

METHOD

Participants

Participants were 20 families of 3- to 6-year-old children who had been clinic-referred for treatment of conduct problems and had been screened for inclusion in a previous study (Eisenstadt et al., 1993). All children met the following inclusion criteria: (a) diagnosis of Oppositional Defiant Disorder (ODD), Conduct Disorder (CD), or Attention Deficit Hyperactivity Disorder (ADHD) according to the DSM-III-R Structured Interview (McNeil., 1991); (b) scores on Problem and Intensity Scales of the Eyberg Child Behavior Inventory (ECBI) above 11 and 127, respectively (Eyberg & Ross, 1978); and (c) mean compliance ratio on at least one of two baseline clinic observations using the Dyadic Parent-Child

Interaction Coding System (DPICS: Robinson & Eyberg, 1981) of less than .62. Parents and children with a history of severe physical or mental impairments (e.g., deafness, blindness, autism) were not included in the study. Other psychological diagnoses were not assessed in these young children.

The mean age of the 20 children at pretreatment was 56.2 months (*SD* = 14.0). Most (90%) of the children were boys, and the racial/ethnic composition of the families 85% White, not of Hispanic origin; 10% Black, not of Hispanic origin; and 5% Hispanic, Asian, or mixed. Mean family income was $18,674 (*SD* = 17,906), with a median income of $15,000. At pretreatment, five children met the DSM-III-R diagnostic criteria for ODD only, two children met the criteria for ADHD only, nine children met the criteria for both ODD and ADHD, and four children met the criteria for ODD, ADHD, and CD.

Of the 20 families who had completed treatment, 7 families were unavailable for follow-up assessments. Of those unavailable for follow-up assessments, 2 had moved out of the state, 4 indicated they did not wish to participate, and 1 family could not be located. Analysis of the pretreatment demographic characteristics of families available for both follow-up assessments (n = 13) and those unavailable for both follow-up assessments (n = 7) revealed no significant difference between the groups on family income, distance to clinic, or child age, race, or diagnoses. However, the two groups were significantly different on method of payment, $\chi^2 = 9.81$, $p = .01$. The majority (62%) of families available for the follow-up assessments had insurance, and 38% of the families had Medicaid. The majority (57%) of the families not available for the follow-up assessments paid for treatment with their own funds, 29% had Medicaid, and 14% had insurance.

The families were balanced with respect to treatment phase sequence, with 7 of the 13 families receiving CDI-First and 6 families receiving PD-First. The children's mean age was 56.8 months (*SD* = 12.1). The 13 children were boys, and the racial/ethnic composition of the families was 84% White, not of Hispanic origin; 8% Black, not of Hispanic origin; and 8% Hispanic, Asian, or mixed. The majority of families (69%) were classified as mildly to severely disadvantaged on Hollingshead's four-factor index of social status, and 62% were single-parent families. The two groups did not differ significantly with respect to child age, sex, or race, nor were they significantly different with respect to meeting criterion skill levels for CDI, Fisher's Exact Test, p = .56, or PDI, Fisher's Exact Test, p = .56.

Measures

DSM-III-R Structured Interview for Disruptive Behavior Disorders. The DSM-III-R Structured Interview (McNeil et al., 1991) was designed to determine whether a child meets the Diagnostic and Statistical Manual of Mental Disorders-III-R (American Psychological Association, 1987) criteria for ODD, CD, or ADHD. Parent responses are scored based on the observed frequency and duration of each symptom categorized under these disorders. For the child to receive a specific DSM-III-R diagnosis, the minimum number of required symptoms must be present. Interrater reliability for this measure was determined by the comparison of data collected during the initial interview and data coded from the videotaped interview by a trained research assistant uninformed as to the child's group status. High levels of inter-rater agreement (> 98%) have been found for this measure in other studies (Eyberg, Boggs, & Algina, 1995; McNeil et al., 1991; Schuhmann et al., 1998). In the present study, there was agreement reliability of 100 percent for duration of symptoms and 99 for the presence versus absence of a disorder.

Dyadic Parent-Child Interaction Coding System (DPICS). The DPICS (Eyberg & Robinson, 1983) was designed to assess the quality of parent-child social interaction in the laboratory. It provided an observational measure of parent and child behaviors during three 5-minute standard situations that varied in the degree of parental control required. Adequate reliability, discriminative validity, and treatment sensitivity have been established in several studies (Eyberg & Robinson, 1982; Robinson & Eyberg, 1981). Coders were two graduate students unaware of the study's purpose or hypotheses who attained 80% agreement with a criterion training tape prior to coding the participants in the study.

Child categories were clustered into summary variables labeled child verbal positive and child deviant behavior. Child verbal positive behavior consisted of a child's laugh or self-praise, and child deviant behavior consisted of yell, whine, cry, smart talk, or destructive behavior. Additional child categories were examined separately, including alpha compliance (ratio of compliance to total commands that provide an opportunity for compliance) and physical negative behavior. Parent categories were clustered into summary variables labeled parent follow, parent lead, parent affection, and parent negative behavior. Parent follow consisted of descriptive and reflective statements. Parent lead consisted of questions or commands. Parent affection consisted of praise or physical positive behavior. Parent negative behavior consisted of criti-

cism or physical negative behavior. Reliabilities for the individual and summary categories used in the present study were examined using Pearson *r* correlations. Interrater reliability estimates for the variables, calculated for 50% of the observations in each situation, ranged from .77 (child alpha compliance) to 1.00 (child physical negative behavior).

Eyberg Child Behavior Inventory (ECBI). The ECBI is a 36-item parent report measure of conduct problem behavior in children between the ages of 2 and 16 (Eyberg & Pincus, 1999). The ECBI assesses behavior on two scales. The Intensity Scale measures the frequency with which conduct problem behavior occurs. The Problem Scale measures the number of behavior problem items that are reported as problems for the parent. The ECBI manual documents many studies establishing the reliability, stability, and discriminative validity of the two ECBI scales as well as their sensitivity to the effects of intervention (Eyberg & Pincus, 1999).

Child Behavior Checklist (CBCL). The CBCL is a 118-item parent report measure that assesses social competencies and behavior problems of children ages 4 to 18 (Achenbach, 1991). The behavior problem items have been factor analyzed into narrowband scales and two broadband scales of internalizing and externalizing behavior problems. In this study, only the Externalizing Scale was used. Many studies have established the reliability, stability, and discriminative validity of this scale (Achenbach, 1991).

Werry-Weiss-Peters Activity Rating Scale. This measure was designed to assess a child's hyperactivity and attention problems in different settings (Werry, 1968). The scale used in this study was a modified version of the original scale standardized for children between the ages of 3 and 9 (Routh, Schroeder, & O'Tuama, 1974). The Werry-Weiss-Peters Scale has been found to discriminate between hyperactive and normal children (Sprague, Barnes, & Werry, 1970) and to reflect changes accompanying drug treatment (Barkley, 1977).

Pictorial Scale of Perceived Competence and Social Acceptance for Young Children (PCSA). The PCSA is a downward extension of the Perceived Competence Scale for Children (Harter, 1982) and is appropriate for use with children ages 4 to 7 (Harter & Pike, 1984). This study used the preschool and kindergarten version which contains four subscales (cognitive competence, physical competence, peer acceptance, and maternal acceptance), each consisting of six items. For the four individual subscales, alpha coefficients ranged from .50 to .88, and the reliability of the total scale was reported to be in the mid to high .80s (Harter & Pike, 1984).

Parenting Stress Index (PSI). The PSI is a 101-item measure consisting of 13 subscales grouped into Child and Parent Domains (Abidin, 1995). The Child Domain assesses child behavior problems that lead to frustration in trying to develop a relationship with the child. The Parent Domain reflects views of the parents concerning their own functioning in the parenting role (Abidin, 1995). Reliability and validity of the domain scores have been documented, and the domain scores have been shown to be sensitive to reductions in stress following parent training (Abidin, 1995).

Therapy Attitude Inventory (TAI). The TAI is used to measure parent satisfaction with the process and outcome of parent training and parent-child treatments (Brestan, Jacobs, Rayfield, & Eyberg, 1999). Parents are asked to respond to 10 items that address the impact of parent training on such areas as confidence in discipline skills, quality of the parent-child interaction, the child's behavior, and overall family adjustment. The TAI has demonstrated internal consistency, stability, and discriminative validity. It has also shown significant correlations with multiple-method measures of treatment outcome (Brestan et al., 1999).

Procedure

The mothers and children who completed PCIT (Eisenstadt et al., 1993) were invited to participate in the one- and two-year follow-up assessments. Each assessment consisted of two, 2-hour clinic sessions scheduled one week apart. During the first visit, the DSM-III-R Structured Interview was administered to the mothers and they completed a demographic questionnaire, the PSI, and the TAI. Mother-child interactions were observed and videotaped in three structured situations varying in the amount of parent control required. The mothers were asked to take the ECBI, CBCL, and Werry-Weiss-Peters Activity Rating Scale home to complete and to return the completed forms at the second session. In the second visit, the completed measures were collected, parent-child interactions were again videotaped, and the PCSA was administered to the child.

RESULTS

To investigate the impact of PCIT on long-term outcome, we examined statistically significant changes in parent reports, child reports, and observational measures over time. We also explored the effects of group

membership (CDI-First versus PDI-First) on outcome measures. Finally, we assessed major outcome variables for clinically significant changes from pretreatment levels for the entire sample and for each group at each follow-up assessment.

Parent Report

At the beginning of treatment, all children in the sample met diagnostic criteria for ODD, ADHD, CD, or some combination of these diagnoses. At posttreatment, 11 of the 13 children (92%) no longer met criteria for any of these diagnoses. During the two-year follow-up period, six children again met criteria for at least one of these diagnoses. Specifically, at Year 1 follow-up, five children met criteria for at least one of these diagnoses. At Year 2 follow-up, three children continued to meet criteria for at least one of these diagnoses, and one child who had not met criteria at Year 1 follow-up was found to meet criteria for Conduct Disorder at Year 2 follow-up.

Means and standard deviations of each of the parent report measures (ECBI, CBCL, WWP, and PSI) at each of the four assessments are presented in Table 1. To assess changes over time, the data were analyzed with one-factor repeated measures analyses of variance (ANOVA). We found statistically significant time effects for all measures: ECBI Problem scores, F (3,9) = 21.80, $p < .01$; ECBI Intensity scores, F (3,9) = 20.56, $p < .01$; CBCL Externalizing scores, F (3,9) = 35.28, $p < .01$; Werry-Weiss-Peters scores, F (3,9) = 15.74, $p < .01$; the PSI Child Domain scores, F (3,7) = 15.09, $p < .01$, and the PSI Parent Domain scores, F (3,7) = 9.92, $p < .01$. As shown in Table 1, treatment changes on parent-report measures were maintained at Year 1 follow-up except for scores on the PSI Child Domain. At Year 2 follow-up, treatment changes were maintained on all parent-report measures except PSI Child and Parent Domain scores. Effect sizes calculated to examine the magnitude of change across time are presented in Table 1. For all parent-report measures, large effect sizes were found for comparisons of the pretreatment scores to posttreatment, Year 1, and Year 2 follow-up scores.

Parents were also given the TAI to assess their satisfaction with treatment. Posttreatment scores had shown that parents were highly satisfied with the treatment their family received (M = 47.84, SD = 3.65; Eisenstadt et al., 1993). Mean TAI scores at Year 1 follow-up (M = 44.34, SD = 3.95) were significantly lower than the posttreatment scores, t(12) = 2.88, p = .01, but the Year 2 follow-up scores (M = 44.54, SD =

TABLE 1. Means, Standard Deviations, and Effect Sizes for Parent Report Measures for the Combined Sample

Measure		Assessment Point			
		Pre-treatment	Post-treatment	Year 1 Follow-up	Year 2 Follow-up
ECBI Intensity	*M*	178.38	103.69*	112.46*	121.23*
	SD	29.14	20.48	16.51	20.06
	ES		3.01	2.89	2.32
ECBI Problem	*M*	24.46	6.77*	10.00*	8.77*
	SD	6.33	6.86	10.21	6.37
	ES		2.68	1.75	2.47
CBCL-Externalizing	*M*	75.62	60.62*	63.38*	63.92*
	SD	6.40	7.48	10.83	8.60
	ES		2.16	1.42	1.56
Werry-Weiss-Peters	*M*	27.85	15.92*	17.62*	18.92*
	SD	7.48	8.11	6.60	5.33
	ES		1.53	1.45	1.39
PSI Child Domain	*M*	149.54	113.00*	121.62	122.25
	SD	19.88	21.69	23.39	12.12
	ES		1.76	1.29	1.71
PSI Parent Domain	*M*	148.92	122.58*	122.69*	128.58
	SD	31.70	27.36	26.51	26.17
	ES		0.89	0.90	0.70

Note. $n = 13$ for assessments at pre- and posttreatment and the Year 1 follow-up. Due to missing data, means for Year 2 follow-up are based on $n = 12$. ES = effect size.
* Different from pretreatment score at $p \leq .001$.

4.84) did not differ significantly from the posttreatment scores, $t(12) = 1.97$, $p = .07$, or from scores at Year 1 follow-up, $t(12) = -.18$, $p = .86$. Therefore, despite decreases in the mean level of satisfaction at Year 1 follow-up relative to posttreatment scores, the parents continued to view treatment positively and reported high levels of satisfaction up to two years later.

Child Report

Means and standard deviations for the Harter subscale and total scores were assessed using Wilcoxon's Matched-Pairs Signed Rank Tests due to non-normal score distributions on these measures. There was no significant difference between pretreatment scores and any posttreatment or follow-up scores for child reports of perceived competence and social acceptance.

Observational Measures

Means and standard deviations for observational measures at each of the four assessments are presented in Table 2. Using a one-way repeated measures ANOVA, statistically significant differences were found among the four repeated measurements of child deviant behaviors, and parent physical and verbal negative behavior (ps < .005). Differences among repeated measurements of child alpha compliance and parent leading and affectionate behaviors were not significant (ps < .04). Specific pairwise comparisons were examined using Wilcoxon's Matched-Pairs Tests, and alpha levels were adjusted using Bonferonni corrections for each family of tests. Pre- to posttreatment improvements were not statistically significant for measures of child deviant behaviors or parent following or negative behaviors (ps < .03). Changes were also not statistically significant for the comparisons of pretreatment to Year 1 or Year 2 follow-up. However, as shown in Table 2, medium to large effect sizes were obtained across time for all categories.

INDIVIDUAL TREATMENT SUCCESS

Because multiple measures of outcome were used, we adapted a method developed by Eyberg and Johnson (1974) to define treatment success for an individual family. According to this method, a family must show clinically significant changes on a majority of measures to be considered successful. In the present study, we used the 17 major outcome variables, including 9 parent-report measures and 8 observational measures. Clinically significant change on parent-report measures was defined as a score below the cut-off separating the clinical and normal range. Because cut-off scores had not been established for the observational variables used in this study, a criterion of 30% change relative to the pretreatment scores was used to define clinically signifi-

TABLE 2. Means, Standard Deviations, and Effect Sizes for DPICS Summary Variables[a] for the Combined Sample

		Assessment Point			
		Pre-treatment	Post-treatment	Year 1 Follow-up	Year 2 Follow-up
Child Variables					
Verbal Positive	*M*	5.46	8.77	3.38	11.22
	SD	6.02	6.77	3.71	17.51
	ES		0.52	0.68	0.49
Alpha Compliance	*M*	0.63	0.89	0.90	0.80
	SD	0.22	0.07	0.08	0.18
	ES		1.73	1.73	0.85
Physical Negative	*M*	0.54	0.00	0.15	1.22
	SD	1.13	0.00	0.38	1.64
	ES		0.96	0.52	0.48
Deviant Behavior	*M*	53.46	16.15	9.31	26.67
	SD	51.73	12.26	6.93	47.44
	ES		1.17	1.27	0.54
Parent Variables					
Follow	*M*	112.92	150.69	139.92	150.00
	SD	36.59	48.33	63.48	57.38
	ES		0.89	0.75	0.79
Affection	*M*	49.23	101.46	58.85	71.78
	SD	33.09	47.26	34.94	39.34
	ES		1.30	1.54	0.62
Lead	*M*	230.15	83.23	97.31	107.00
	SD	93.06	50.01	57.59	78.88
	ES		2.05	1.95	1.43
Phys and Verb Negative	*M*	32.62	6.15	6.15	12.11
	SD	21.21	5.55	9.03	15.85
	ES		1.98	1.75	1.11

Note. $n = 13$ for assessments at pre- and posttreatment, and Year 1 follow-up. Due to missing observational data for four families at Year 2 follow-up, the means are based on $n = 9$. DPICS = Dyadic Parent-Child Interaction Coding System.

[a] Summary variables represent the sum of all behaviors in these composite categories coded during two 15-minute observations filmed one week apart. Summary variables combine frequencies across the three DPICS standard situations: Child-Directed Interaction, Parent-Directed Interaction, and Clean-Up.

cant change on these measures. To be successful on parent report measures, a family had to show clinically significant change on at least six of the nine measures. A family's success on observational measures was defined as clinically significant change on at least six of the eight variables. Of the 13 families, 11 (85%) were fully successful on both parent and observational measures at posttreatment, and two families were partially successful, achieving success on either parent or observational measures, but not both. At Year 1 follow-up, eight families remained fully successful, four families were partially successful, and one family was unsuccessful, failing to achieve success on either parent or observational measures. At Year 2 follow-up, nine families were fully successful, two families were partially successful, and two families were unsuccessful.

CDI-First versus PDI-First Families

Results of χ^2 and *t* tests show two that the CDI-First ($n = 7$) and PDI-First ($n = 6$) groups did not differ at pretreatment on child gender, child age, annual family income, maternal WAIS-R Information score, or ECBI intensity score. Group differences in outcome on parent self-report measures were assessed with 2 (group) $\times$ 4 (time) repeated measures ANOVAs and revealed no significant group by time interactions on any measure. To determine group differences on observational measures, we used the Mann-Whitney U Test due to non-normal distributions of scores. Again, there was no difference on any observational measure between the two groups at any assessment point.

Measures of mothers' satisfaction with treatment were examined separately for the treatment groups. As reported by Eisenstadt et al. (1993), the posttreatment scores for the CDI-First and the PDI-First families had not differed and indicated that parents were highly satisfied with both treatment conditions. Nonsignificant differences in the TAI scores continued at the Year I follow-up, $t(11) = 1.42$, $p = .138$, and the Year II follow-up, $t(11) = .03$, $p = .980$. Both groups reported high treatment satisfaction at each assessment ($M = 44.34$, $SD = 3.95$ and $M = 44.54$, $SD = 4.84$, respectively).

DISCUSSION

This study, the first long-term follow-up of families treated with PCIT, evaluates the long-term effects of treatment phase sequence. Because the original treatment study (Eisenstadt et al., 1993) found no dif-

ference in posttreatment outcome as a function of phase order, our primary goal was to examine maintenance of treatment gains for the combined sample of families completing PCIT. The results largely support our prediction that the long-term follow-up scores would show statistically significant improvements from pretreatment levels. Specifically, two years after completion of PCIT, the mothers continued to report child behavior problems and parenting stress at posttreatment levels, and the majority of children (7 of 13, or 54%) remained free of diagnosed disruptive behavior disorders. Although changes in the observational measures during parent-child interactions between pretreatment and follow-up assessments were not statistically significant, the large effect sizes suggest that a larger sample may be needed to demonstrate statistical changes in observed DPICS behaviors during the brief interaction periods.

In addition to examining the statistical significance of the findings, we examined the clinical significance and defined success for the individual family by taking into account change on the range of outcome measures judged to encompass treatment outcome. Clinical significance adds to group level results a dimension of meaningfulness of change for the child and family (Kazdin & Kendall, 1998). Success, defined as clinically significant change on multiple indices of outcome, broadens the scope of meaningful change. On the parent report measures, which had empirically derived cut-points delimiting the normal range, change for an individual family was considered clinically significant if the score were within normal limits after treatment. Change on observational measures, which did not have cut-points established, was considered clinically significant if the scores were improved at the follow-up point by 30% over pretreatment level for the family. Using these criteria for success, the majority of families remained successful up to two years following treatment completion. The findings highlight the effectiveness of PCIT in achieving long-term improvements in parent-child interactions that are meaningful in daily life. Consistent with these results, the parents reported high satisfaction with the process and outcome of PCIT. The treatment satisfaction scores at Year 1 and Year 2 follow-ups compare favorably with previously reported TAI scores (Brestan et al., 1999).

The posttreatment results suggest that PCIT is an effective treatment for the behavior problems of children diagnosed with ADHD, in addition to ODD (Eisenstadt et al., 1993). In the follow-up sample, 11 (85%) of the children met criteria for ADHD at pretreatment, and several parents reported interest in pursuing stimulant medication for their chil-

dren's behavior if PCIT alone proved to be insufficient. Notably, two years following treatment completion, medication was being prescribed for only two children in the sample. This functional outcome for the preschoolers with comorbid ADHD suggests that PCIT may be a suitable option for young children whose parents are opposed to stimulant medication. It will be important for future studies to assess differential outcomes associated with comorbid diagnoses, such as ADHD and ODD. For young children with ADHD, it will also be important to examine whether, in the long run, adjunctive treatment with medication offers any treatment outcome advantage.

In addition to examining the long-term effectiveness of PCIT, we also examined the effects of treatment phase sequence on treatment maintenance. Phase sequence did not result in differential outcomes between the two groups on observational or questionnaire measures at either follow-up assessment. It appears that the immediate posttreatment findings suggesting possible superiority of the reversed sequence (PDI before CDI; Eisenstadt et al., 1993) were temporary and did not generalize to the long-term maintenance of treatment gains, at least when treatment conditions were randomly assigned.

The effect of matching treatment phase sequence to patient factors may be an important next step in the progression of this line of research. Traditionally, CDI is conducted first to provide a positive context for parent-child interaction and lay the foundation for the discipline strategies that are taught during PDI (Hanf & Kling, 1974). However, it is possible, that although families in which the parent is highly demanding and critical may benefit most from CDI-First, families in which the child's behavior is severely out of control will benefit most from PDI-First. Matching specific treatments to families with particular characteristics is beginning to receive attention in studies of child and adolescent psychotherapy (Kazdin & Kendall, 998; Silverman, Ginsburg, & Kurtines, 1995), and tailoring the sequence of treatment in PCIT is a subject that requires additional study.

The present study has several limitations that need to be addressed. First, we used a time-limited PCIT protocol so that we could equate the length of the CDI and PDI phases for comparison purposes. In clinical practice, PCIT is not time-limited but, rather, performance-based. Families typically continue in treatment until the parent and child demonstrate mastery of behavioral interaction criteria and the child no longer meets diagnostic criteria for ODD. Therefore, due to design considerations, we were unable to tailor the length of the treatment phases to the families' individual needs and abilities.

Second, during this follow-up period of study, we did not have a non-treated control group of conduct-disordered children and families, so we were unable to assess the effects of maturation, statistical regression, or history on the targeted constructs. Control groups with clinic-referred children are difficult to design for treatment maintenance studies because of concerns about withholding effective treatments for a long period of time (Eyberg et al., 1998). Yet, for treating conduct-disordered children, the strong documentation of stability in preschoolers' conduct into the early school years (Campbell & Ewing, 1990) and into adolescence (Campbell, 1995), and the tendency for their behavior to worsen over time without treatment (McMahon & Estes, 1997), suggest that the children's disruptive behavior would not have spontaneously remitted over time without treatment.

Third, our small sample size affected the choice of analyses. Non-normal distributions of behavioral data were accentuated due to the sample size, and these distributions necessitated the use of non-parametric statistics. The sample size also limited the power of the statistical analyses. Still, we applied stringent significance levels for several analyses due to the large number of measures used to assess maintenance, permitting greater confidence that the obtained findings are not due to chance. Further, the medium to large effect sizes of changes between baseline and follow-up on all measures suggests that the improvements in long-term functioning after PCIT are substantial.

Fourth, after attrition from the original sample of 20 families, the final sample of 13 children consisted of all boys. Although boys are more likely to be referred for treatment of behavior problems than are girls (Webster-Stratton, 1996), there is growing interest in ways that the development and course of conduct-disordered behavior differs between boys and girls (Reid, 1993). Until these differences are delineated, caution must be used in generalizing these research findings to families with girls seen for PCIT.

A strength of our sample is its high percentage of low income and single parent families, which has been associated with poor prognosis (e.g., Kazdin, 1990; Webster-Stratton & Hammond, 1990). The children also presented a high rate of comorbidity of disruptive behavior disorders. The severity of child and family problems in the sample is representative of real world families referred for treatment of conduct problem behavior. Another strength of this study is our use of multiple measures of change in both child and family. In view of our small sample, the use of multiple measures allowed us to evaluate the impact of the treatment from the convergence of measures, across methods, for

individual families and, in this way, to increase our confidence in the findings. Notably, these findings are the first to demonstrate the long-term effectiveness of PCIT for conduct-disordered children and their families.

This study provides several directions for future research on maintenance following treatment for young conduct-disordered children and their families. For example, the significant improvements in parenting stress that are maintained until sometime during the second follow-up year call for longer-term follow-up assessments to determine whether they are signaling impending relapse in child behavior and family functioning. More frequent assessments will also be important for a more precise understanding of the process of change during the maintenance period. Understanding the course of change will allow the development of maintenance treatments that are targeted to critical needs as they occur in children with conduct-disordered behavior and their families.

NOTE

1. Univariate F tests were used to examine incremental changes on parent measures across time. Because of the number of analyses, only differences significant at $p < .001$ were considered significant.

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