

UC Santa Barbara

UC Santa Barbara Previously Published Works

Title

A Natural Helper Intervention to Address Disparities in Parent Child-Interaction Therapy: A Randomized Pilot Study.

Permalink

<https://escholarship.org/uc/item/91b7d7cx>

Journal

Journal of clinical child psychology, 52(3)

Authors

Garcia, Dainelys

Barnett, Miya

Rothenberg, W

et al.

Publication Date

2023

DOI

10.1080/15374416.2022.2148255

Peer reviewed



Published in final edited form as:

J Clin Child Adolesc Psychol. 2023 ; 52(3): 343–359. doi:10.1080/15374416.2022.2148255.

A Natural Helper Intervention to Address Disparities in Parent Child-Interaction Therapy: A Randomized Pilot Study

Dainelys Garcia¹, Miya L. Barnett², W. Andrew Rothenberg^{1,3}, Niza A. Tonarely¹, Camille Perez¹, Natalie Espinosa¹, Hanan Salem¹, Betty Alonso⁴, Juliette San Juan⁴, Abigail Peskin¹, Eileen M. Davis¹, Bridget Davidson¹, Allison Weinstein¹, Yanet M. Rivera⁴, Lilian M. Orbano-Flores⁴, Jason F. Jent¹

¹University of Miami Miller School of Medicine, Mailman Center for Child Development, 1600 NW 12 Ave, Miami, FL, USA 33136

²Department of Counseling, Clinical, & School Psychology, University of California, Santa Barbara, Santa Barbara, CA, USA 93106-9490

³Duke University Center for Child and Family Policy, 302 Towerview Rd, Durham, NC, USA 27708

⁴ConnectFamilias, 1111 SW 8 Street, Miami, FL, USA 33130

Abstract

Objective: Parent-child interaction therapy is an effective intervention to address child externalizing behaviors. However, disparities in access and retention are pervasive, which relate to the availability of PCIT in low-income communities, inadequate workforces to provide culturally appropriate care, and distrust in services due to systemic discrimination. This study incorporated natural helpers who had been trained as community health workers into PCIT delivery to improve disparities in engagement and outcomes.

Method: Families from three low-income, predominately Latino/a/x and Black neighborhoods in Miami qualified for services if they had a child aged 2–8 with clinically-elevated externalizing behaviors. Families were randomly assigned into either Standard-PCIT group (N=30 families; 80% boys, 57% Latino/a/x, 27% Black) or a PCIT plus Natural helper (PCIT+NH) group (N=51 families; 66% boys, 76% Latino/a/x, 18% Black). Families in the PCIT+NH group received home visits and support addressing barriers to care from a natural helper. Path analyses within an intention-to-treat framework examined group-differences in treatment engagement, child behavior, and parenting skills and stress.

Results: Families in both groups demonstrated large improvements in child externalizing behavior, caregiver stress, and parenting skills from pre-to-post-treatment. Externalizing behavior improved significantly more in the PCIT+NH group compared to the Standard-PCIT group. There were no significant group differences in parenting skills or caregiver stress. Though differences in engagement were not significant, the PCIT+NH group had a small effect on treatment retention.

Correspondence concerning this article should be addressed Dainelys Garcia, Ph.D., Department of Pediatrics, Miller School of Medicine, University of Miami, 1601 NW 12th Ave, Miami, FL 33136; ngarcia09@miami.edu.

Disclosure Statement for Authors

There is no real or potential conflict of interest related to this research for any of the authors involved.

Conclusions: Natural helpers may help to address structural barriers that systematically impact communities of color, apply treatment in naturalistic environments, and promote improved treatment outcomes.

Keywords

Parent-Child Interaction Therapy; Community Health Workers; Natural Helpers; Mental Health Disparities

Black, Indigenous, and people of color (BIPOC) are more likely to experience inequities related to social determinants of health (e.g., food and housing, safe neighborhoods and schools, economic stability, employment opportunities, experiences of discrimination and racism), which are linked to poor health outcomes and ultimately result in disparities in care (Castro-Ramirez et al., 2021). Specifically, BIPOC families are less likely to access, engage in, and benefit from evidence-based behavioral health interventions (Alegria et al., 2010; Aratani & Cooper, 2012; Baker et al., 2011). A range of individual, provider, and structural barriers contribute to the inadequate access to behavioral health services faced by BIPOC families, including stigma related to mental health services, cost of services, distance to service location, and the availability of providers who can provide linguistically and culturally appropriate care (Alegria et al., 2010; Lindsey et al., 2013; McKay & Bannon, 2004; Yeh et al., 2003; Young & Rabiner, 2015). These access barriers can be exacerbated for immigrant families who have limited English proficiency, experience difficulties navigating local healthcare systems, and fear that providing personal information (e.g., undocumented status) to healthcare systems may make them vulnerable to immigration authorities (Derr, 2016). Further, BIPOC families who live in low-income neighborhoods may experience additional vulnerabilities such as community violence and systemic racism, which are risk factors for increased child internalizing and externalizing behavior difficulties (Fowler et al., 2009; Hodgkinson et al., 2017; Loyd et al., 2019).

To address disparities in access to care, it is important to consider service access points (Maguire-Jack & Klein, 2015), person-centered, culturally responsive care approaches (McCabe et al., 2020), and innovative workforce service-delivery models that serve to better engage marginalized populations (Author). The current study examined an evidence-based behavioral parenting intervention, Parent-child interaction therapy (PCIT), that provided services within neighborhood community agencies. The PCIT program partnered with ConnectFamilias, a nonprofit community-based agency, to incorporate natural helpers (“lay people to whom others naturally turn for advice, emotional support, and tangible aid”; (Israel, 1985) p. 68), who had been trained as community health workers (CHWs). This service delivery model was designed to improve treatment engagement, retention, and outcomes for predominantly low-income, Latino/a/x and Black families within a large metropolitan area in the Southeastern United States.

PCIT targets child behavior through caregiver-child interactions via a dyadic in-vivo coaching model (S. Eyberg & Funderburk, 2011). PCIT is delivered in two phases: Child-Directed Interaction (CDI) and Parent-Directed Interaction (PDI). CDI focuses on increasing caregiver positive strategic attention and verbalizations and PDI focuses on increasing

effective commands and follow-through to child compliance/non-compliance. PCIT has been shown to reduce child externalizing (Kaminski & Claussen, 2017; Thomas et al., 2017) and internalizing behaviors (Chase & Eyberg, 2008), as well as increase adaptive behaviors (Solomon et al., 2008).

Despite positive clinical outcomes following PCIT with BIPOC families, significant challenges remain in engaging and retaining BIPOC families in services, especially within under-resourced and minoritized communities (Fernandez & Eyberg, 2009; Lanier et al., 2011; Lyon & Budd, 2010; Smith et al., 2022; Werba et al., 2006). Structural barriers found to negatively impact PCIT engagement and retention include: (a) inadequate transportation and living in communities that are more likely to experience mental health provider shortages and limited availability of providers who can provide linguistically and culturally appropriate care, which reduces access to PCIT and increases risk of dropping out of treatment and (b) criteria-based PCIT protocol requirements for caregivers to demonstrate proficiency with targeted parenting skills (S. Eyberg & Funderburk, 2011) before they advance from CDI to PDI and before they graduate from treatment (Fernandez & Eyberg, 2009; Lyon & Budd, 2010; Quetsch et al., 2020; Werba et al., 2006). Particularly for BIPOC families, skill requirements often result in delayed transition to the PDI phase and exceeding the typical length of treatment, potentially due to skills being less culturally familiar or acceptable (McCabe & Yeh, 2009; Ramos et al., 2018). Challenges with accessing services and protocol requirements that hinder treatment progress highlight the critical need to address structural barriers for BIPOC families who could potentially benefit from PCIT.

Multiple strategies have been tested to increase BIPOC families' engagement and retention in PCIT with variable success. The use of low-cost incentives or technology enhancements have been shown to have little to no impact on treatment engagement (e.g., attendance, homework completion), retention, or clinical outcomes for BIPOC families (Jent et al., 2021; Quetsch et al., 2020). Cultural adaptations of PCIT for Mexican American families yielded similar outcomes to standard PCIT related to treatment engagement, retention, and outcomes (McCabe & Yeh, 2009). However, given the cost of cultural adaptations, the time it takes to develop them, and the risk of over-applying group values to families with complex intersecting cultural identities, PCIT research has begun to explore person-centered, culturally responsive approaches to treatment that incorporate families' self-identified relevant cultural factors (McCabe et al., 2020; Author). For example, a recent randomized controlled trial explored the impact of including the American Psychiatric Association Cultural Formulation Interview (CFI; (APA, 2013), a semi-structured interview designed to assess the impact of cultural background on presenting concerns and inform treatment planning, as part of the PCIT baseline assessment with predominately BIPOC families within community treatment settings. Families who received the CFI were more satisfied with the initial assessment and completed CDI at a higher rate than families who receive the standard assessment. The CFI was found to be especially beneficial for Spanish-speaking families, who demonstrated higher rates of attendance, homework completion, and treatment retention than families receiving the standard assessment (Author). Despite recent efforts to improve treatment engagement, retention, and outcomes for BIPOC families in PCIT, the majority of strategies examined to date focus on ways to address culture without addressing structural barriers that impact access to care.

One innovative strategy that has been proposed to increase access and engagement in behavioral parenting training for BIPOC families is the integration of CHWs into treatment teams (Author). The utilization of CHWs within healthcare systems have been associated with improved health outcomes, healthcare cost savings, and a reduction in health disparities (Kangovi et al., 2020; Landers & Levinson, 2016). Within behavioral health, CHWs have been identified as a unique point of intervention for addressing structural barriers to engagement for BIPOC families because they typically share aspects of their own intersectional cultural identity (e.g., race, ethnicity, gender identity, education, socioeconomic status, parental status, geographic location) with the families they serve (Gustafson et al., 2018). When such models are developed in conjunction with community-based organizations that have local expertise and trust with the target community, there is an opportunity to improve: (1) treatment engagement by working with the community organization to ensure that services are culturally and linguistically responsive to the needs of the community; and (2) the reputation of the behavioral health provider, which may lead to improvements in service utilization (Callejas et al., 2010).

In an effort to explore innovative approaches to PCIT service delivery models that promote equity in engagement, retention, and outcomes for BIPOC families, a CHW intervention, referred to as the PCIT plus natural helper (PCIT+NH) model (see Author for more details on model development) was developed. The PCIT+NH model was developed out of a collaboration between our university-based PCIT program and ConnectFamilias, a community-based organization with a well-established natural helpers program serving predominantly Latino/a/x families, using a community-based participatory research framework (Faridi et al., 2007). An initial open trial was conducted in community-based embedded clinics (i.e., clinics embedded in underserved and low-income neighborhoods within trusted community agencies) to examine the initial effectiveness of criteria-based PCIT + NH to improve engagement, retention, and child and caregiver outcomes. Preliminary findings suggest the addition of natural helpers increased recruitment of more racially, ethnically, and economically diverse families when compared to the traditional population served by the same program and resulted in significant improvements in child behavior and caregiver outcomes (i.e., caregiver stress, parenting skills; Author).

Given encouraging open trial findings, the current study extended prior work by evaluating the effect of a time-limited (i.e., 18 weeks) PCIT+NH model on treatment engagement, retention, and child and caregiver outcomes via a pilot randomized controlled trial, which allows for model refinement prior to conducting a subsequent full scale randomized controlled trial. First, we examined caregiver satisfaction and working alliance with the natural helpers. Then, we evaluated how the PCIT+NH model impacted treatment engagement (i.e., alliance with the therapist, satisfaction, and homework completion), retention (i.e., completion of CDI and PCIT), and child (i.e., externalizing behaviors, observed child compliance) and caregiver (i.e., parenting skill acquisition, parenting stress, family conflict and cohesion) outcomes, compared to Standard-PCIT. We hypothesized that, relative to caregivers receiving Standard-PCIT, caregivers receiving PCIT+NH would show stronger treatment engagement and retention and demonstrate a positive treatment response (i.e., decreased child externalizing behaviors, parenting stress, and family conflict, increased child compliance, parenting skill acquisition, and family cohesion. Exploratory

analyses further evaluated the impact of PCIT+NH on caregiver perceptions of children's internalizing and adaptive behaviors.

Methods

Participants

Participants for this study included 81 children between the ages of 2 and 8 years and their primary caregiver who received services between December 2018 and March 2020. Participants were from a large urban county in the Southeastern U.S. with a large immigrant population. Child participants had a mean age of 4.68 years ($SD = 1.61$) and were predominantly male ($n = 58$; 71.60%). Approximately 98% of children were identified as a member of a racially and/or ethnically minoritized group by their primary caregiver. Only 2 of the 81 families (2.5%) had children who identified both White and non-Hispanic. In other words, 97.5% of families in our sample had children who were from minoritized populations. Additional demographic characteristics of the sample can be found in Table 1. Three natural helpers (100% female, 2 age 20–29, 1 age 40–49, 2 identifying as White Hispanic/Latino/a/x, 1 identifying as White Non-Hispanic/Latino/a/x, 1 primarily Spanish speaker, 1 bilingual Spanish and English speaker, 1 primarily English speaker) served the 51 families in the PCIT+NH group. Additionally, 4 PCIT therapists (100% female, 75% White Hispanic/Latino/a/x, 25% Black, 0% White Non-Hispanic) served families in both the PCIT+NH and Standard-PCIT groups.

Study inclusion criteria consisted of (a) a child 2–8 years old (Thomas et al., 2017), (b) the primary caregiver being fluent in English or Spanish, and (c) elevated child disruptive behavior on the Eyberg Child Behavior Inventory Intensity Scale (ECBI; Intensity Raw Score ≥ 131 ; (S. Eyberg & Pincus, 1999) or the Externalizing Problems subscales or composite of the Behavior Assessment System for Children, Third Edition (BASC-3; T-Score ≥ 60 ; (Reynolds & Kamphaus, 2015). 38.75% of children met eligibility on both the ECBI and BASC-3, 30.00% met eligibility based on the ECBI, and 31.25% met eligibility based on the BASC-3. Exclusion criteria included previously completing PCIT. Families who did not meet inclusion criteria were given referrals and resources.

Study Design and Procedure

Families that met study inclusion criteria via phone screening were randomized (using an online random number generator) to either the PCIT+NH ($n = 51$) or Standard-PCIT ($n = 30$) group (see Figure 1) during their baseline assessment. The trial was designed as a parallel randomized trial. Study staff were not masked to group assignment. Due to the need to discontinue data collection on March 16, 2020, when a stay-at-home order was instituted as a result of the COVID-19 pandemic, more families were randomized to the PCIT+NH group.

Recruitment.—Families were recruited through several means, including referrals from health professionals (e.g., pediatricians, speech therapists), schools/daycares, self-referral, and university and community-based agencies, such as ConnectFamilias and Touching Miami with Love, a faith-based nonprofit community-based agency that provides

educational and support programs for children and families. Natural helpers assisted with the study's recruitment procedures for both treatment groups through sharing brochures and discussing study benefits (e.g., at local resource fairs), identifying families who would benefit from PCIT, assisting families with navigating entry into PCIT (e.g., completion of forms), and facilitating "warm hand-offs" with the PCIT team.

Communities Served.—Families enrolled in the study presented for treatment at three PCIT clinics embedded within nonprofit neighborhood community agencies (i.e., ConnectFamilias and Touching Miami with Love) that provide support for children and families within three predominately low-income, Latino/a/x and Black neighborhoods and have a longstanding academic-community partnership with the PCIT program. The PCIT clinics provided services free of charge, regardless of income, to families of children aged 2 to 8 years through a grant from a local children's service council to increase the reach of parenting interventions to underserved and low-income communities.

Assessments.—If inclusion criteria were met following the screening process, families were contacted by the PCIT therapist to schedule the 2-session baseline assessment, which consisted of obtaining written consent (and child assent, if needed), completion of an adapted version of the Cultural Formulation Interview (CFI; (APA, 2013), which provides guidance to therapists on cultural factors that might impact treatment, electronic questionnaires about child and family functioning, and a 20-minute behavioral observation. The CFI was adapted for this study in an effort to be responsive to family, therapist, and community-based agency feedback regarding interview length (reduced to 13 items from 17 items) and language (e.g., "Sometimes people have various ways of dealing with problems like [PROBLEM]. What has [INDIVIDUAL] done on his/her own to cope with his/her [PROBLEM]?" was changed to "Sometimes people have various ways of managing problems. How have you/your family managed [PROBLEM]?" At the end of the baseline assessment, families were informed of their group status. Families randomized to the PCIT+NH group were provided a detailed description of the natural helper's role and expectations for participation (i.e., additional weekly session with the natural helper). Given the embedded nature of the PCIT clinics, when natural helpers were available during the baseline assessment, they introduced themselves and scheduled their first session with families. Of the 81 families enrolled, 77 (n = 50; 98.04% in the PCIT+NH group and n = 27 90.00% in the Standard-PCIT group) completed the 2-session baseline assessment and 42 (PCIT+NH: n = 29; 69.05%; Standard-PCIT: n = 13; 43.33%) completed a post-treatment assessment. The post-treatment assessment consisted of electronic questionnaires and a 20-minute behavioral observation. Natural helpers assisted families in completing forms, if needed.

Shared Intervention Components.—Families in both the PCIT+NH and Standard-PCIT groups received weekly, one-hour sessions with a bilingual PCIT therapist for a maximum of 18 weeks in one of three embedded PCIT clinics. PCIT skills were taught to caregivers during two didactic sessions before starting each treatment phase. Each didactic session was followed by coaching sessions (with a typical range of 2–5 sessions for CDI and a typical range of 3–9 sessions for PDI). Therapists coached caregivers on the targeted

CDI and PDI skills in-vivo from behind a one-way mirror via a wireless headset. Masters and doctoral level therapists with backgrounds in clinical psychology and mental health counseling delivered the PCIT protocol in a time-limited manner (within a maximum of 18 weeks). Therapists received training and weekly supervision with a PCIT Trainer certified by PCIT International.

Intervention Components Unique to the PCIT + NH Group.—In addition to the weekly PCIT session, families in the PCIT+NH group received an average of 5.92 sessions (approximately once every other week throughout treatment) with the natural helpers in their home for 30–45 minutes and had an average of 2.80 telephone or videoconferencing appointments throughout treatment (Supplemental Table 1). During sessions, natural helpers worked with families to (1) explain parenting principles in a culturally and responsive manner (e.g., navigating intergenerational parenting within the same household); (2) support them in their skill acquisition (e.g., observing at-home caregiver-child interactions, providing strength-based feedback, and engaging in role plays to practice targeted skills); and (3) troubleshoot structural barriers to service and other basic life needs (e.g., transportation, scheduling homework practice, food and housing assistance, work or immigrant visa, asylum navigation). Upon reflection following study completion, natural helpers in the current study noted their role was to build meaningful relationships with families and understand their needs in order to promote treatment engagement and help families apply PCIT skills meaningfully to their unique situation. No harms or unintended effects emerged in the trial.

Natural Helper Training.: The natural helper training program was developed through a community-academic partnership with ConnectFamilies. Natural helpers received seven, four-hour sessions of training upon hire (See Author for more information on natural helper recruitment and training). After the initial training and meeting both skill criteria and 80% inter-rater agreement on child-led play criterion coding, natural helpers attended weekly consultation with the PCIT therapists to discuss each family’s progress and problem-solve barriers. Natural helpers also attended bi-weekly group implementation meetings to discuss recruitment strategies, complete skill and coding practice exercises, review session videos, and address logistical concerns.

Measures

Treatment engagement.

Working Alliance Inventory – Short Revised (WAI-SR).: The WAI-SR (Hatcher & Gillaspay, 2006) is a 12-item self-report questionnaire used to evaluate working alliance (e.g., “My therapist and I collaborate on setting goals for my therapy”). Therapy-related experiences are rated on a five-point Likert scale from 1 (*seldom*) to 5 (*always*), with higher raw scores indicating a stronger working alliance, and items are summed to create a total working alliance score. The WAI-SR has shown good internal consistency for the domains ($\alpha = 0.81–0.90$) and total score ($\alpha = 0.91$) and has demonstrated convergent and predictive validity in culturally diverse outpatient settings (Hatcher & Gillaspay, 2006; Munder et al., 2010). In the current study, all caregivers completed a *therapist* WAI-SR and caregivers

in the PCIT+NH group completed a modified *natural helper* WAI-SR to assess working alliance with both their *therapist* and *natural helper* at post-treatment.

Therapy Attitude Inventory (TAI): The TAI (S. Eyberg, 1974) is a 10-item self-report questionnaire measuring overall caregiver satisfaction with parenting programs (e.g., “Regarding the progress my child has made in his/her general behavior I am...”). Caregivers rate satisfaction on a Likert scale from 1 (“very dissatisfied” to 5 “very satisfied”), with higher scores representing greater satisfaction. The TAI has demonstrated excellent internal consistency ($\alpha = 0.91$; (Brestan et al., 1999) and moderate external validity (Brestan et al., 1999). In the current study, the TAI Total score (i.e., the sum of all 10 items) was used as a measure of treatment satisfaction at post-treatment.

Homework completion: Caregivers completed daily CDI and/or PDI skills practice (S.M. Eyberg & Funderburk, 2011) and reported the number of practice days using a homework sheet (consistent with the PCIT protocol) that was submitted weekly. CDI and PDI homework completion rates were calculated by dividing caregiver-reported number of days engaged in practice by the number of available days between sessions. Evidence for validity of this measure comes from prior PCIT studies that demonstrate higher homework completion enhances skill acquisition and helps families complete treatment more quickly (Stokes et al., 2016).

Treatment Retention.—Supplemental Table 1 reports the number of CDI and PDI sessions completed by families. PCIT services were provided through a grant from a local children’s service council. As part of the grant, CDI and PCIT completion were defined as the following:

CDI Completion: CDI completion was defined as completing 5 sessions or meeting CDI skill criteria (i.e., 10 behavioral descriptions, 10 reflections, 10 labeled praises, and fewer than 3 questions, commands, and criticisms within a 5-minute observation).

PCIT Completion: treatment completion was defined as reaching 18 weeks of treatment or meeting PCIT graduation criteria (i.e., CDI skill criteria described above, PDI skill criteria [75% effective command rate and 75% correct follow-through after child compliance/non-compliance], child behavior within the normal range, and caregivers reporting feeling confident in their skills to manage their child’s behaviors (Eyberg & Funderburk, 2011). Both CDI and PCIT treatment completion are valid predictors of caregiver skill acquisition and child behavioral improvement in socioeconomically and racially diverse families (e.g., Davis et al., 2022; Fernandez & Eyberg, 2009)

Child Outcomes.

Eyberg Child Behavior Inventory (ECBI): The ECBI ((S. Eyberg & Pincus, 1999) is a 36-item caregiver report measure of disruptive behaviors in children ages 2–16 (e.g., “refuses to do chores when asked”). The ECBI is composed of two scales. The Intensity Scale assesses the frequency of behavior problems (1=*never* to 7=*always*). The Problem Scale assesses caregiver perceived behavior problems (1 = *yes*, 0 = *no*). A raw score of

131 or higher (T -score > 60) on the Intensity Scale and 15 or higher (T -score > 60) on the Problem Scale is considered clinically significant. The ECBI has demonstrated acceptable levels of reliability and validity in racially and/or ethnically diverse populations ($\alpha = 0.94$, test-retest = 0.75; (Gross et al., 2007), stability over time, and sensitivity to treatment change (e.g., Author et al., 2021; Author et al., 2019). In the current study, the ECBI was used for eligibility purposes and as an outcome measure of child externalizing behavior (collected at pre- and post-treatment).

Behavior Assessment System for Children, Third Edition, Parent Rating Scale

(BASC-3 PRS): The BASC-3 PRS ((Reynolds & Kamphaus, 2015) is a caregiver-report measure of emotional, behavioral, and adaptive functioning of children ages 2–21.

Caregivers rate the frequency of behaviors (e.g., “disobeys”) on a four-point Likert scale (0=*never* to 3=*almost always*). T -scores 69 or higher are considered clinically significant while 60 to 69 are considered at-risk. The BASC-3 PRS has well-established validity and reliability ($\alpha = 0.83$ – 0.96 , test-retest = 0.87–0.92; (Reynolds & Kamphaus, 2015), and has demonstrated convergent validity and sensitivity to treatment change (Author et al., 2022; Author et al., 2019). In the current study, the BASC-3 PRS t -scores were used to for eligibility purposes and as an outcome measure of child externalizing, internalizing, and adaptive behavior (collected at pre- and post-treatment).

Caregiver Outcomes.

Dyadic Parent-Child Interaction Coding System, Fourth Edition (DPICS-IV):

The DPICS-IV ((Sheila M. Eyberg et al., 2014) is a behavioral observation tool used to code and assess caregiver behaviors and the quality of caregiver and child interactions. PCIT therapists trained to 80% coding reliability coded the three 5-minute DPICS-IV observations: (1) child-led play (CLP), (2) parent-led play (PLP), and (3) clean-up (CU). The frequency of positive parenting practices (e.g., labeled praises, reflections, and behavior descriptions) and negative parenting practices (e.g., questions, commands, and criticisms) were coded during CLP observations. During PLP and CU observations, caregiver verbalizations were coded to generate rates of: (1) caregiver effective commands, (2) caregiver correct follow-through on effective commands (i.e., praises for child compliance or time out warnings following noncompliance), and (3) child compliance to effective commands. The DPICS-IV demonstrates acceptable reliability and validity of the coding categories (Sheila M. Eyberg et al., 2014) and is sensitive to changes in parent skill acquisition and treatment success in myriad diverse samples, including families from our clinic (Author et al., 2022; Author et al., 2021). In the current study, the DPICS-IV was used as an outcome measure of caregiver skill acquisition (collected at pre- and post-treatment).

Parenting Stress Index, Fourth Edition: Short Form (PSI-SF-4):

The PSI-SF-4 ((Abidin, 2012) is a 36-item self-report questionnaire used to measure caregiver stress and difficulties in the caregiver-child relationship for caregivers of youth between ages 0–12 (e.g., “my child makes more demands on me than most children”). The PSI-SF-4 yields a Total Stress score and subscale scores in 3 domains: (1) Parental Distress (PD), (2) Parent-Child Dysfunctional Interaction (P-CDI), and (3) Difficult Child (DC). Caregivers rate their level of agreement on a five-point Likert scale from 1=*strongly agree* to 5=*strongly*

disagree to generate *T*-scores and percentiles, with higher scores indicating higher levels of stress. Percentile scores between 81 and 84 on the P-CDI subscale or between 81 and 89 on all other scales indicate a high stress score. Percentile scores above 84 on the P-CDI subscale or above 89 on all other scales are considered clinically significant. The PSI-SF-4 has well-established validity and good internal consistency ($\alpha = 0.96$; (Abidin, 2012) and captures improvements in caregiver stress in the diverse families served by our clinic (Davis et al., 2022). In the current study, the PSI-SF-4 Total Stress and three domain *t*-scores were used as outcome measures of caregiver stress (collected at pre- and post-treatment).

Family functioning.

Bloom's Family Processes Scale. The Bloom's Family Processes Scale (Bloom, 1985a) assesses family conflict and cohesion using a 5-item conflict subscale (e.g., "we fight a lot in our family") and a 5-item cohesion subscale (e.g., "there is a feeling of togetherness in our family"). Caregivers rated their level of agreement on a five-point Likert scale (1=*strongly agree* to 5=*strongly disagree*). Bloom's Family Processes Scale has demonstrated acceptable levels of reliability and validity ($\alpha = 0.76$ to $\alpha = 0.85$ (Bloom, 1985) including in families similar to those served in our clinic (e.g., Author et al. 2017). In the current study, conflict and cohesion subscales were created by averaging the 5 items in each domain and used as outcome measures of family conflict (collected at pre- and post-treatment).

Analytic Plan

Our analyses proceeded in a series of iterative steps in accordance with best practices (McDonald, 2014). These same steps were repeated to analyze each dependent variable. In Step 1, we examined whether randomization succeeded by examining whether the PCIT+NH and Standard-PCIT groups significantly differed on baseline variables according to independent groups *t*-tests (for continuous measures) and chi-square tests (for categorical measures; McDonald, 2014). In Step 2, we analyzed the effects of data missingness by comparing participants missing data on dependent variables to those that had complete data using independent groups *t*-tests and reported any significant differences (McDonald, 2014). Additionally, we utilized an intention-to-treat analytic framework wherein we included all families who began participating in the study, even if they withdrew before completing the intervention [PCIT+NH ($n = 51$) and Standard-PCIT ($n = 30$)]. In Step 3, we examined whether the intervention made a difference in engagement, retention, and child and caregiver outcomes by identifying differences between the PCIT+NH and Standard-PCIT groups. Specifically, utilizing full-information maximum likelihood estimation procedures (FIML) within a path analytic approach, we examined whether intervention group status predicted differences in engagement, retention, and child and caregiver outcome variables at post-treatment even after controlling for baseline levels of the outcome variable (Bauer & Curran, 2019). All models analyzed in the results were fully saturated. Importantly, given significant number of families who terminated treatment early in the Standard-PCIT group, we emphasize and interpret effect sizes at post-treatment, where statistically significant differences between groups may be more difficult to detect due to low Standard-PCIT group size. Effect sizes are interpreted according to Cohen's (Cohen, 1988) benchmarks of $d = 0.2$ or $r^2 = .02$ is a small effect, $d = 0.5$ or $r^2 = .13$ is a medium effect, $d = 0.8$ or $r^2 = .26$ is a large effect.

Results

The CONSORT diagram depicting the flow of participants through the study can be found in Figure 1. Descriptive statistics for all primary study variables can be found in Supplemental Table 1 (engagement variables), Supplemental Table 2 (retention variables), and Supplemental Tables 3 and 4 (child and caregiver outcome variables, respectively).

Examining Whether Randomization Succeeded

It appears that randomization succeeded in most cases. The PCIT+NH intervention and Standard-PCIT groups did not significantly differ on any child or caregiver demographic characteristics (Table 1) except caregiver gender (more women in the Standard-PCIT group), caregiver race (more White caregivers in the PCIT+NH group, more Black and Multiracial caregivers in the Standard-PCIT group), caregiver ethnicity (more Hispanic/Latino/a/x caregivers in the PCIT+NH group), and caregiver English Language proficiency (more caregivers fluent in English in the Standard-PCIT group). Therefore, we performed sensitivity analyses (available upon request) wherein caregiver gender, race, ethnicity, and English language proficiency were included in all analyses as control variables. There were no substantive changes in the magnitude of results when these control variables were included, but model fit significantly degraded, so the final models we present below do not include these control variables. Finally, there were no significant differences between groups on any child (Supplemental Table 3) or caregiver (Supplemental Table 4) outcome variables at baseline, except for scores on the PSI Parent-Child Dysfunction subscale (higher scores on the Standard-PCIT group).

Examining Missing Data

Participants missing data on any child or caregiver outcomes at post-treatment did not differ from those with complete data on any baseline child or caregiver outcome measures. However, families with missing data were more likely to have caregivers who were younger ($t(79) = 2.27, p = .03$), less educated ($t(79) = 3.15, p < .01$), single, divorced, or separated ($t(35) = 1.35, p = .02$), and have caregivers (*Fisher's Test* $p = .02$) and children (*Fisher's Test* $p < .01$) who identified as a race other than white. Families with versus without missing data did not differ on any other demographic variables reported in Table 1. As mentioned in the Analytic Plan, we utilized FIML to ensure all 81 families, including those with missing data, were included in all analyses.

Engagement Outcomes

Alliance.—Caregivers reported strong working alliances with their *natural helper* in the PCIT+NH group, as they reported an average alliance score of 57.69 out of 60 possible points. Further, caregivers in both the PCIT+NH and Standard-PCIT groups reported strong working alliances with their *therapist* (57.82 points in the PCIT+NH group and 56.40 points in the Standard-PCIT group). While there was not a significant difference between the PCIT+NH and Standard-PCIT groups, the magnitude of the 1.42-point higher score in the PCIT+NH group was consistent with a “small” effect (Supplemental Table 1, Table 2, (Cohen, 1988).

Satisfaction.—Caregivers also reported high satisfaction with therapy in both the PCIT+NH and Standard-PCIT groups (47.52 out of 50 possible points in the PCIT+NH group and 47.00 out of 50 possible points in the Standard-PCIT group). There was no significant difference in satisfaction scores between the two groups, and the magnitude of difference was not large enough to be considered a “small” effect (Table 2, (Cohen, 1988).

Homework completion.—Homework completion in both the PCIT+NH and Standard-PCIT groups was moderate. The PCIT+NH group completed homework between 61%–68% of the time, while the Standard-PCIT group completed homework between 53%–63% of the time, depending on the type of homework (i.e., CDI, CDI during PDI, PDI; Supplemental Table 1). There was no significant difference in homework completion between the groups. However, the difference in PDI homework completion between the two groups (8.33% higher in the PCIT+NH group) was consistent with a “small” effect (Table 2, (Cohen, 1988).

Retention Outcomes

Completion of CDI and PCIT.—As reported in Supplemental Table 2, 74.51% of the PCIT+NH group completed the CDI phase, and 56.86% completed PCIT, whereas only 56.66% of the Standard-PCIT group completed the CDI phase and 43.33% completed PCIT. Surprisingly, neither of these differences were statistically significant. However, it is notable that the 17.85 percentage point difference in CDI phase completion and 13.53 percentage point difference in PCIT completion were both consistent with a “small” effect (Table 2, (Cohen, 1988). Specifically, intervention group membership accounted for 2% and 4% of variance in CDI completion and PCIT completion, respectively (Table 2).

Child Outcomes

Externalizing behaviors.—Children in the PCIT+NH group significantly improved in their BASC-3 Externalizing scores from baseline to post-treatment, $t(22) = 6.42, p < .01$ (Supplemental Table 3), whereas children in the Standard-PCIT group did not, $t(11) = 1.87, p = .09$. Scores were, on average, 5.55 points lower at post-treatment in the PCIT+NH group as compared to the Standard-PCIT group (Table 3), even after controlling for baseline scores, a statistically significant and small-to-medium effect. In fact, this difference amounted to over half a standard deviation difference between the two groups, with PCIT+NH group membership uniquely predicting 7% of total variance in BASC-3 Externalizing T -scores (Table 3). As another point of comparison, 88.89% of the children in the PCIT+NH group who scored in the “at-risk” or “clinically elevated” range at baseline ($n = 27$) scored “within normal limits” by post-treatment, whereas 63.64% in the Standard-PCIT group with elevated baseline scores did so.

Children in both the PCIT+NH [*ECBI Problem* $t(27) = 5.90, p < .01$; *ECBI Intensity* $t(30) = 9.22, p < .01$] and the Standard-PCIT [*ECBI Problem* $t(12) = 5.13, p < .01$; *ECBI Intensity* $t(14) = 5.77, p < .01$] groups significantly improved on both the ECBI Problem and Intensity subscales from baseline to post-treatment (Supplemental Table 3). ECBI subscale scores were, on average, 2.14 points higher (Problem) and 1.40 points lower (Intensity) at post-treatment in the PCIT+NH group, compared to the Standard-PCIT group (Table 3), even after controlling for baseline scores. Neither of these differences was statistically

significant, though the magnitude of the difference in Problem scores reached the threshold for a “small” effect (Table 3; (Cohen, 1988). In other words, children in both the PCIT+NH group and the Standard-PCIT group significantly improved in their ECBI problem and intensity subscale scores from the beginning to end of treatment. However, improvements on the ECBI problem subscale were slightly (but not statistically significantly) larger in the Standard-PCIT group, and improvements on the ECBI intensity subscale were slightly (but not statistically significantly) larger in the PCIT+NH group. Thus, both groups improved over time on both the ECBI problems subscale and the ECBI intensity subscale, and these improvements were statistically indistinguishable from one another across groups. Notably, both groups had post-treatment ECBI Problem and Intensity scores that were well within normal limits (Supplemental Table 3). As another point of comparison, 88.24% of the children in the PCIT+NH group who scored in the “clinically elevated” range at baseline scored “within normal limits” by post-treatment, whereas 90.48% in the Standard-PCIT group with elevated baseline scores did so.

Child compliance.—Children in the PCIT+NH group significantly improved in their therapist-observed compliance to caregiver direct commands from baseline to post-treatment [$t(28) = -2.81, p < .01$; Supplemental Table 3], while children in the Standard-PCIT group did not [$t(13) = -0.44, p = .67$]. Child compliance was, on average, 22.15 percentage points higher in the PCIT+NH group, compared to the Standard-PCIT group, even after controlling for baseline compliance (Table 3). This difference was statistically significant and represents a small-to-medium in effect, amounting to over half a standard deviation difference between groups, with PCIT+NH group membership uniquely predicting 6% of total variance in compliance (Table 3).

Internalizing behaviors.—Children in both the PCIT+NH [$t(22) = 5.14, p < .01$] and the Standard-PCIT [$t(11) = 3.01, p = .01$] groups significantly improved in their BASC-3 Internalizing T -scores from baseline to post-treatment (Supplemental Table 3). Scores were, on average, 1.80 points lower at post-treatment in the PCIT+NH group, compared to the Standard-PCIT group (Table 3), even after controlling for baseline scores. However, this difference was not statistically significant or notable in its effect size. As another point of comparison, 81.82% of the children both groups who scored in the “clinically elevated” range at baseline scored “within normal limits” by post-treatment.

Adaptive behaviors.—Children in both the PCIT+NH [$t(22) = -4.91, p < .01$] and the Standard-PCIT [$t(11) = -3.36, p < .01$] group significantly improved in their BASC-3 Adaptive T -scores from baseline to post-treatment (Supplemental Table 3). Scores were, on average, 0.89 points higher at post-treatment in the PCIT+NH group, compared to the Standard-PCIT group (Table 3), even after controlling for baseline scores. However, this difference was not statistically significant, and the magnitude of this difference was very small.

Caregiver Outcomes

Skill acquisition.—Caregivers in both groups significantly increased their total positive parenting practices [PCIT+NH $M_{Baseline} = 3.92$ verbalizations, $M_{Posttreatment} = 29.27$

verbalizations, $t(29) = -11.20, p < .01$; Standard-PCIT $M_{Baseline} = 3.69$ verbalizations, $M_{Posttreatment} = 30.00$ verbalizations $t(14) = -9.52, p < .01$] and decreased their negative parenting practices [PCIT+NH $M_{Baseline} = 25.41$ verbalizations, $M_{Posttreatment} = 4.63$ verbalizations $t(29) = 9.55, p < .01$; Standard-PCIT $M_{Baseline} = 28.52$ verbalizations, $M_{Posttreatment} = 3.53$ verbalizations $t(14) = 6.44, p < .01$; Supplemental Table 4] from baseline to post-treatment. When comparing these parenting practice improvements across groups, improvements were very slightly, but not statistically significantly, larger in the Standard-PCIT group. Thus, both groups improved over time with regards to increasing positive, and decreasing negative parenting practices, and these improvements were statistically indistinguishable from one another across groups. On average, total positive parenting practices was lower by 0.71 behaviors, and total negative parenting practices was higher by 2.23 behaviors at post-treatment in the PCIT+NH group compared to the Standard-PCIT group (Table 3), even after controlling for baseline scores. Neither of these differences was statistically significant, though the magnitude of the difference in negative parenting practices reached the threshold for a “small” effect (Table 3; (Cohen, 1988). As another point of comparison, 56.67% and 73.33% of parents in the PCIT+NH group met PCIT skill milestones on positive parenting skills (i.e., over 30 skills demonstrated) and negative parenting skills (i.e., 3 or fewer skills demonstrated), whereas 53.33% and 73.33% did so in the Standard-PCIT group.

Caregivers in both groups significantly increased their use of effective commands [PCIT+NH $t(28) = -6.22, p < .01$; Standard-PCIT $t(13) = -2.78, p = .02$] and their rate of correct follow through [PCIT+NH $t(28) = -9.43$, Standard-PCIT $t(13) = -4.45, p < .01$; Supplemental Table 4] from baseline to post-treatment. The average effective command rate was 10.61 percentage points higher, and the average correct follow-through rate was 18.18 percentage points higher at post-treatment in the PCIT+NH group compared to the Standard-PCIT group (Table 3), even after controlling for baseline scores. Neither of these differences was significant (Table 3), although they were between “small” and “medium” in effect (Cohen, 1988). Thus, intervention group membership uniquely predicted 2% of total variance in effective command rate and 5% in correct follow-through rate (Table 3). As another point of comparison, 58.62% and 62.07% of caregivers in the PCIT+NH group met PCIT skill criteria on effective command rate (i.e., 75% of commands given considered “effective”) and follow through rate (i.e., correctly following through on 75% of effective commands given), whereas 42.86% and 35.71% did so in the Standard-PCIT group.

Parenting stress.—In the PCIT+NH group, parenting stress was significantly reduced from baseline to post-treatment on all four PSI subscales examined (see Supplemental Table 4), including Total Stress [$t(30) = 5.33, p < .01$], Parental Distress [$t(30) = 4.53, p < .01$], Parent-Child Dysfunctional Interaction [$t(30) = 3.32, p < .01$], and Difficult Child [$t(30) = 6.77, p < .01$]. In contrast, in the Standard-PCIT group, parenting stress was significantly reduced from baseline to post-treatment on two of four subscales, including Total Stress [$t(12) = 2.51, p = .03$] and Difficult Child Score [$t(12) = 3.37, p < .01$], but not Parental Distress or Parent-Child Dysfunctional Interaction. Importantly, in both groups and across the four subscales, post-treatment parenting stress was within normal limits. The differences

between the groups in post-treatment scores were not significant, and the magnitude of these differences was not notable.

Family conflict and cohesion.—Families in the PCIT+NH group significantly reduced their family conflict ($t(24) = -2.87, p < .01$) but did not significantly increase their family cohesion ($t(24) = 1.53, p = .14$) from baseline to post-treatment. In contrast, families in Standard-PCIT group did not significantly reduce their family conflict ($t(10) = -1.54, p = .15$) or increase their family cohesion ($t(10) = 1.73, p = .12$) from baseline to post-treatment. The differences between the groups in post-treatment family conflict and cohesion scores were not statistically significant, and the magnitudes of these differences were not notable.

Discussion

The current pilot randomized controlled trial sought to evaluate the extent to which the addition of a CHW model to PCIT (PCIT+NH) impacts treatment engagement, retention, and child and caregiver outcomes compared with standard, time-limited PCIT. Though it has been proposed that CHWs, such as natural helpers, may provide important auxiliary services to address mental health service disparities for BIPOC families, very limited research has established their success in doing so (Author). This pilot randomized controlled trial makes an important contribution to the literature by evaluating how one auxiliary model impacted engagement, retention, and clinical outcomes in PCIT. Across all variables examined, it appears that the PCIT+NH group performed as well as or better than Standard-PCIT. On no occasion were Standard-PCIT group skill improvements statistically significantly larger than PCIT+NH group improvements. In contrast, PCIT+NH group improvements were significantly larger than Standard-PCIT with regards to observed (i.e., child compliance rate) and caregiver-reported measures of child externalizing behavior (i.e., BASC Externalizing T-Score). Findings provide continuing evidence that parenting interventions like PCIT are effective if BIPOC families engage in them (Kaminski & Claussen, 2017; Thomas et al., 2017). Findings also provide initial evidence for incremental benefits to the addition of natural helpers into services.

Regarding treatment engagement, both interventions appear equally effective in generating strong working alliances and therapy satisfaction for families. Additionally, both interventions appear to help caregivers engage in similar levels of homework completion. While homework completion rates in the PCIT+NH group were about 4–8% points higher, rates were not high enough for this difference to be statistically significant. Nonetheless, rates of homework completion in both groups were greater than other PCIT studies reporting averages of 39.1–62.7% for CDI homework and 47.4–77% for PDI homework, which could be attributed to the various efforts to address cultural and structural barriers to treatment across both treatment groups (Lyon & Budd, 2010; Stokes et al., 2016). PCIT homework completion has been shown to be an indicator of greater satisfaction (Danko et al., 2016), retention, and caregiver skill acquisition, and shorter time in treatment (Stokes et al., 2016), making it an important variable to assess throughout treatment.

Similar to trends found for treatment engagement, findings suggest that the PCIT+NH intervention is *probably* more effective in helping families complete both the CDI phase of

treatment and PCIT in its entirety, as evidenced by higher rates of completion (PCIT+NH group 13% - 17% higher) and effect sizes that are small in magnitude. However, these differences were not found to be statistically significant. Overall retention rates for PCIT+NH and Standard-PCIT were 57% and 43%, respectively, which is comparable to other evidenced-based parenting programs with retention rates between 40–60% (Harpaz-Rotem et al., 2004; Lieneman et al., 2019; Lyon & Budd, 2010; Quetsch et al., 2020; Wierzbicki & Pekarik, 1993). Within this study, participants completed an average of 8.3 and 9.3 sessions within the Standard-PCIT and PCIT+NH groups, respectively. (Lieneman et al., 2019) found that, among families who terminated treatment early, those who attended at least four sessions showed significant improvements in child behavior problems, while those who attended fewer than four sessions did not. Therefore, while attrition rates remain high within this study, it is important to consider the differences in those who terminate treatment because progress has been made and goals have been met versus those who terminate because of treatment barriers or other reasons. It is possible that, while attrition rates were not significantly different between the two groups, the addition of a natural helper contributed to families completing at least four sessions. We suspect that the high attrition rate in the Standard-PCIT group might have made the sample size small enough to make detection of statistically significant effects related to retention more difficult.

Regarding child behavior outcomes, results suggest that both interventions lead to improvements in children's caregiver-reported externalizing, internalizing, and adaptive behaviors. However, the PCIT+NH group appears to improve child externalizing behavior to a greater degree, as evidenced by significant differences between the PCIT+NH and Standard-PCIT groups on both observed (i.e., child compliance rate) and caregiver-reported measures of externalizing behavior. While the mechanism is unclear, it is possible that the addition of a natural helper increased BIPOC caregiver buy-in and acceptability of the skills and provided additional opportunities for caregiver skill practice, leading to improvements in child compliance and externalizing behaviors. These findings are inconsistent with a prior meta-analysis that demonstrated that PCIT programs that alter content of the program (e.g., adjunct sessions, cultural changes) result in smaller reductions in children's externalizing behaviors relative to the Standard-PCIT model (Thomas et al., 2017). These conflicting results might be related to the focused nature of the natural helper's role in the current study. For the purposes of this trial, natural helpers were provided with training specifically in how to help caregivers use the PCIT skills taught to them by their therapists.

In addition to improvements in child behavior, it appears that both interventions teach caregivers CDI and PDI skills and reduce parenting stress to a relatively equal extent and have a relatively small effect on family conflict and cohesion. The one difference between these groups may be in the realm of PDI skills, where caregivers in the PCIT+NH group achieved rates of effective commands and correct follow-through that were 10–18 percentage points higher than Standard-PCIT (equivalent to a small-to-medium effect). However, as with the retention variables, this interpretation is up for debate, because even though the effect size differences are notable, these differences across groups in PDI skills were not found to be statistically significant. Nonetheless, it is possible that the addition of the natural helper is particularly helpful during the PDI phase, which introduces discipline tools that may be perceived as less culturally familiar or acceptable. Cultural background

and social economic status have been found to interact to shape acceptability of parenting practices (Heffer & Kelley, 1987), suggesting BIPOC families may benefit from additional support aligning parenting skills with cultural values as they acquire these new skills.

Strengths, Limitations, & Future Directions

It is important to note a number of strengths of the current study. Various changes were made to address cultural and structural barriers to PCIT across both treatment groups, including using session-limited treatment, embedding services within trusted community-based settings, the availability of highly-trained, bilingual PCIT therapists, and using an adapted version of the CFI as a routine part of assessment, which allowed therapists to provide person-centered culturally responsive services (e.g., incorporating family values when identifying and monitoring treatment goals). Further, all services were free and funded by a local children's service council. While these strengths may have improved the accessibility and acceptability of PCIT for BIPOC families in this trial, the findings may not generalize to other settings. It is possible that including CHWs, such as natural helpers, may be even more valuable in settings that do not have this same focus on addressing culture and structural barriers, but there is also the potential that systems without these capacities (e.g., inadequate number of bilingual therapists) would not be able to benefit from the PCIT+NH model. Additionally, sample size in the current study was uneven and limited due to recruitment stopping in response to stay-at-home orders due to COVID-19. Moreover, though all measures used in the current study were widely used and found valid and reliable when used in similar populations, due to the way we set up our data collection system, we are unable to report the internal consistency for measures used in the current sample. We have since redesigned our data collection system to ensure we can do so in the future. Lastly, although children in both groups significantly improved in terms of disruptive behavior, caregivers in both groups had difficulty meeting full CDI graduation criteria (PCIT+NH group = 50% met criteria, Standard-PCIT group = 53% met criteria) and PDI graduation criteria (PCIT+NH group = 52%, Standard-PCIT group = 29% met criteria). While it is possible that an 18-week PCIT+NH model may not be enough time for some caregivers to fully acquire the PCIT skills, it is also possible that without a time-limited model caregivers may have experienced delayed transition to the PDI phase and extended length of treatment due to skills being less culturally familiar or acceptable (McCabe & Yeh, 2009; Ramos et al., 2018), placing them at a higher risk for terminating treatment early. It will be important for future work should examine impacts of Natural Helpers on skill acquisition over longer periods of time.

Though this pilot trial had these limitations, this trial is a critical first step as calls to incorporate CHWs within children's mental health services increase, but research on their impact on engagement and clinical outcomes remain limited (Author). The PCIT+NH model demonstrated one innovative way to integrate CHWs within an evidence-based practice for young children and their families. For evidence-based practices, such as PCIT, to fulfill their public health potential it is critical that more families, especially from systemically marginalized groups, be able to access and engage in services. Findings from this trial help identify future directions to enhance equity in access and outcomes. Importantly, it is critical to identify strategies to make sure CHW models, such as PCIT+NH, can be

implemented and sustained within community settings. One especially important area to investigate is how these models can be financed in settings that require insurance coverage, as CHW services are rarely reimbursable (Author). First, it may be important to establish the cost-benefit of incorporating CHWs into services, as these data can inform the types of financing strategies that can be used to implement and sustain services (Dopp et al., 2021). Additionally, a larger sample could be especially valuable to understand whether the integration of natural helpers/CHWs differentially impacts BIPOC families from different cultural backgrounds. For example, one CHW model found that Spanish-speaking Latino families were most likely to benefit from navigational services (Feinberg et al., 2021).

In sum, CHWs and natural helpers are a critical workforce to help make evidence-based services culturally acceptable and accessible for BIPOC families. Preliminary positive findings from this trial support the need for further research and policy support to understand how to best partner with CHWs to enhance equity in access to and the quality of mental health services. Specifically, we believe findings from this trial and our prior work offer many recommendations that can make the field more anti-racist, inclusive, and equitable. We will offer two such recommendations here.

First, we would recommend that every provider that has the funding capacity to do so consider piloting the use of natural helpers from BIPOC communities to increase access to behavioral health interventions. By partnering with local community organizations to integrate natural helpers into our treatment protocol, we reached a sample wherein 45% of families identified as a race other than white (compared to 30% of our usual clinic population) 49% reported an education level lower than a bachelor's degree (compared to 28% of our usual clinic population), and 37% reported an income less than \$20,000 (compared to 16% of our usual clinic population; Author et al., 2022). Natural helpers also reduced the treatment completion gap between families in our typical clinic population (who usually complete PCIT 68% of the time), and families from the three embedded PCIT clinics (who usually complete PCIT 43% of the time). Simply put, natural helpers have been our most powerful allies in our fight to break structural barriers to treatment access in our community and have served as a vital bridge in our mission to center community voices as we attempt to respond to community needs.

Second, many questions abound about the role natural helpers should play in the provision of behavioral health services (Author). We think our findings recommend one such answer: natural helpers can be integrated into treatment itself by regularly visiting families in treatment to help them practice skills they are learning in treatment and problem solve. Our findings in this and other studies (e.g., Author et al., 2022) demonstrate that allowing natural helpers to play this role enhances treatment effectiveness. Natural helpers on our clinical team improve the mental health of the children they are serving in treatment (as evidenced by our externalizing behavior findings). In conclusion, though our preliminary findings certainly need to be replicated, we believe use of natural helpers represent a rare strategy that simultaneously breaks down structural barriers to treatment access and enhances treatment effectiveness with culturally responsive, person-centered care (McCabe et al., 2020). Therefore, we believe advocating for greater use and study of natural helper models in our field will make it more anti-racist, inclusive, and equitable.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgements

This work was supported by The Children's Trust (grant no. 1610-7570 and 1621-7440). The time and effort for M.L.B. to prepare this manuscript was supported by the National Institute of Mental Health (K01MH110608).

References

- Abidin RR (2012). Parenting stress index (4th ed.). PAR.
- Alegria M, Vallas M, & Pumariega AJ (2010). Racial and ethnic disparities in pediatric mental health. *Child and Adolescent Psychiatric Clinics of North America*, 19(4), 759–774. 10.1016/j.chc.2010.07.001 [PubMed: 21056345]
- APA. (2013). Cultural Formulation Interview. American Psychiatric Association [APA]. https://www.psychiatry.org/FileLibrary/Psychiatrists/Practice/DSM/APA_DSM5_Cultural-Formulation-Interview.pdf
- Aratani Y, & Cooper JL (2012). Racial and Ethnic Disparities in the Continuation of Community-Based Children's Mental Health Services. *The Journal of Behavioral Health Services & Research*, 39(2), 116–129. 10.1007/s11414-011-9261-z [PubMed: 22076314]
- Baker CN, Arnold DH, & Meagher S. (2011). Enrollment and Attendance in a Parent Training Prevention Program for Conduct Problems. *Prevention Science*, 12(2), 126–138. 10.1007/s11121-010-0187-0 [PubMed: 21052834]
- Bauer DJ, & Curran PJ (2019). Structural Equation Modeling R Demonstration Notes (Version 2019.3). Curran-Bauer Analytics.
- Bloom BL (1985a). A Factor Analysis of Self-Report Measures of Family Functioning. *Family Process*, 24(2), 225–239. 10.1111/j.1545-5300.1985.00225.x [PubMed: 4018243]
- Bloom BL (1985b). A Factor Analysis of Self-Report Measures of Family Functioning. *Family Process*, 24(2), 225–239. 10.1111/j.1545-5300.1985.00225.x [PubMed: 4018243]
- Brestan EV, Jacobs JR, Rayfield AD, & Eyberg SM (1999). A Consumer Satisfaction Measure for Parent-Child Treatments and Its Relation to Measures of Child Behavior Change. *Behavior Therapy*, 30(1), 17–30. 10.1016/S0005-7894(99)80043-4
- Callejas LM, Hernandez M, Nesman T, & Mowery D. (2010). Creating a front porch in systems of care: Improving access to behavioral health services for diverse children and families. *Evaluation and Program Planning*, 33(1), 32–35. 10.1016/j.evalprogplan.2009.05.010 [PubMed: 19604581]
- Castro-Ramirez F, Al-Suwaidi M, Garcia P, Rankin O, Ricard JR, & Nock MK (2021). Racism and Poverty are Barriers to the Treatment of Youth Mental Health Concerns. *Journal of Clinical Child and Adolescent Psychology*, 50(4), 534–546. 10.1080/15374416.2021.1941058 [PubMed: 34339320]
- Chase RM, & Eyberg SM (2008). Clinical presentation and treatment outcome for children with comorbid externalizing and internalizing symptoms. *Journal of Anxiety Disorders*, 22(2), 273–282. 10.1016/j.janxdis.2007.03.006 [PubMed: 17467229]
- Cohen J. (1988). *Statistical Power Analysis for the Behavioral Sciences* (2nd ed.). Lawrence Erlbaum Associates.
- Danko CM, Garbacz LL, & Budd KS (2016). Outcomes of Parent-Child Interaction Therapy in an urban community clinic: A comparison of treatment completers and dropouts. *Children and Youth Services Review*, 60, 42–51. 10.1016/j.childyouth.2015.11.007
- Derr AS (2016). Mental health service use among immigrants in the United States: A systematic review. *Psychiatric Services (Washington, D.C.)*, 67(3), 265–274. 10.1176/appi.ps.201500004 [PubMed: 26695493]
- Dopp AR, Kerns SEU, Panattoni L, Ringel JS, Eisenberg D, Powell BJ, Low R, & Raghavan R. (2021). Translating economic evaluations into financing strategies for implementing evidence-

based practices. *Implementation Science* : IS, 16(1), 66. 10.1186/s13012-021-01137-9 [PubMed: 34187520]

Eyberg S. (1974). *Therapy Attitude Inventory (TAI)*.

Eyberg S, & Funderburk B. (2011). *Parent-Child Interaction Therapy Protocol 2011*. PCIT International.

Eyberg SM, Chase RM, Fernandez MA, & Nelson MM (2014). *Dyadic Parent-Child Interaction Coding System (DPICS) Clinical Manual (4th Edition)*. PCIT International, Inc.

Eyberg SM, & Funderburk BW (2011). *Parent-child interaction therapy protocol*. PCIT International.

Eyberg S, & Pincus D. (1999). *Eyberg Child Behavior Inventory and Sutter-Eyberg Behavior Inventory-Revised: Professional manual*. Psychological Assessment Resources.

Faridi Z, Grunbaum JA, Gray BS, Franks A, & Simoes E. (2007). Community-based participatory research: Necessary next steps. *Preventing Chronic Disease*, 4(3).

Feinberg E, Augustyn M, Broder-Fingert S, Bennett A, Weitzman C, Kuhn J, Hickey E, Chu A, Levinson J, Sandler Eilenberg J, Silverstein M, Cabral HJ, Patts G, Diaz-Linhart Y, Rosenberg J, Miller JS, Guevara JP, Fenick AM, & Blum NJ (2021). Effect of Family Navigation on Diagnostic Ascertainment among Children at Risk for Autism: A Randomized Clinical Trial from DBPNet. *JAMA Pediatrics*, 175(3), 243–250. 10.1001/jamapediatrics.2020.5218 [PubMed: 33427861]

Fernandez MA, & Eyberg SM (2009). Predicting treatment and follow-up attrition in parent-child interaction therapy. *Journal of Abnormal Child Psychology*, 37(3), 431–441. 10.1007/s10802-008-9281-1 [PubMed: 19096926]

Fowler PJ, Tompsett CJ, Braciszewski JM, Jacques-Tiura AJ, & Baltes BB (2009). Community violence: A meta-analysis on the effect of exposure and mental health outcomes of children and adolescents. *Development and Psychopathology*, 21(1), 227–259. 10.1017/S0954579409000145 [PubMed: 19144232]

Gross D, Fogg L, Young M, Ridge A, Cowell J, Sivan A, & Richardson R. (2007). Reliability and validity of the Eyberg Child Behavior Inventory with African-American and Latino Parents of Young Children. *Research in Nursing and Health*, 30(2), 213–223. 10.1002/nur.20181 [PubMed: 17380522]

Gustafson EL, Atkins M, & Rusch D. (2018). Community Health Workers and Social Proximity: Implementation of a Parenting Program in Urban Poverty. *American Journal of Community Psychology*, 62(3–4), 449–463. 10.1002/ajcp.12274 [PubMed: 30222866]

Harpaz-Rotem I, Leslie D, & Rosenheck RA (2004). Treatment retention among children entering a new episode of mental health care. *Psychiatric Services*, 55(9), 1022–1028. 10.1176/appi.ps.55.9.1022 [PubMed: 15345762]

Hatcher RL, & Gillaspay JA (2006). Development and validation of a revised short version of the Working Alliance Inventory. *Psychotherapy Research*, 16(1), 12–25. 10.1080/10503300500352500

Heffer RW, & Kelley ML (1987). Mothers' Acceptance of Behavioral Interventions for Children: The Influence of Parent Race and Income. *Behavior Therapy*, 2, 153–163. 10.1016/S0005-7894(87)80039-4

Hodgkinson S, Godoy L, Beers LS, & Lewin A. (2017). Improving mental health access for low-income children and families in the primary care setting. *Pediatrics*, 139(1). 10.1542/peds.2015-1175

Israel BA (1985). Social Networks and Social Support: Implications for Natural Helper and Community Level Interventions. *Health Education Quarterly*, 12(1), 65–80. 10.1177/109019818501200106 [PubMed: 3980242]

Jent JF, Rothenberg WA, Weinstein A, Stokes J, Barnett M, Srivatsa N, Dandes E, & Garcia D. (2021). Comparing Traditional and Ebook-Augmented Parent-Child Interaction Therapy (PCIT): A Randomized Control Trial of Pocket PCIT. *Behavior Therapy*. 10.1016/j.beth.2021.02.013

Kaminski JW, & Claussen AH (2017). Evidence Base Update for Psychosocial Treatments for Disruptive Behaviors in Children. *Journal of Clinical Child and Adolescent Psychology*, 46(4), 477–499. 10.1080/15374416.2017.1310044 [PubMed: 28459280]

Kangovi S, Mitra N, Grande D, Long JA, & Asch DA (2020). Evidence-based community health worker program addresses unmet social needs and generates positive return on investment. *Health Affairs*, 39(2), 207–213. 10.1377/hlthaff.2019.00981 [PubMed: 32011942]

- Landers S, & Levinson M. (2016). Mounting evidence of the effectiveness and versatility of community health workers. *American Journal of Public Health* (1971), 106(4), 591–592. 10.2105/AJPH.2016.303099
- Lanier P, Kohl PL, Benz J, Swinger D, Moussette P, & Drake B. (2011). Parent-child interaction therapy in a community setting: Examining outcomes, attrition, and treatment setting. *Research on Social Work Practice*, 21(6), 689–698. 10.1177/1049731511406551
- Lieneman CC, Quetsch LB, Theodorou LL, Newton KA, & McNeil CB (2019). Reconceptualizing attrition in parent–child interaction therapy: “dropouts” demonstrate impressive improvements. *Psychology Research and Behavior Management*, 12, 543–555. 10.2147/PRBM.S207370 [PubMed: 31413647]
- Lindsey MA, Chambers K, Pohle C, Beall P, & Lucksted A. (2013). Understanding the Behavioral Determinants of Mental Health Service Use by Urban, Under-Resourced Black Youth: Adolescent and Caregiver Perspectives. *Journal of Child and Family Studies*, 22(1), 107–121. 10.1007/s10826-012-9668-z [PubMed: 23355768]
- Loyd AB, Hotton AL, Walden AL, Kendall AD, Emerson E, & Donenberg GR (2019). Associations of ethnic/racial discrimination with internalizing symptoms and externalizing behaviors among juvenile justice-involved youth of color. *Journal of Adolescence*, 75, 138–150. 10.1016/j.adolescence.2019.07.012 [PubMed: 31398475]
- Loyd AR, & Budd KS (2010). A Community Mental Health Implementation of Parent–Child Interaction Therapy (PCIT). *Journal of Child and Family Studies*, 19(5), 654–668. 10.1007/s10826-010-9353-z [PubMed: 20877583]
- Maguire-Jack K, & Klein S. (2015). Parenting and proximity to social services: Lessons from Los Angeles County in the community context of child neglect. *Child Abuse and Neglect*, 45, 35–45. 10.1016/j.chiabu.2015.04.020 [PubMed: 26026359]
- McCabe KM, & Yeh M. (2009). Parent-child interaction therapy for Mexican Americans: A randomized clinical trial. *Journal of Clinical Child and Adolescent Psychology*, 38(5), 753–759. 10.1080/15374410903103544 [PubMed: 20183659]
- McCabe KM, Yeh M, & Zerr AA (2020). Personalizing behavioral parent training interventions to improve treatment engagement and outcomes for culturally diverse families. In *Psychology Research and Behavior Management* (Vol. 13, pp. 41–53). Dove Medical Press Ltd. 10.2147/PRBM.S230005 [PubMed: 32021508]
- McKay MM, & Bannon WM (2004). Engaging families in child mental health services. *Child and Adolescent Psychiatric Clinics of North America*, 13(4), 905–921. 10.1016/j.chc.2004.04.001 [PubMed: 15380788]
- Quetsch LB, Girard EI, & McNeil CB (2020). The impact of incentives on treatment adherence and attrition: A randomized controlled trial of Parent-Child Interaction Therapy with a primarily Latinx, low-income population. *Children and Youth Services Review*, 112, 104886. 10.1016/j.childyouth.2020.104886
- Ramos G, Blizzard AM, Barroso NE, & Bagner DM (2018). Parent Training and Skill Acquisition and Utilization Among Spanish- and English-Speaking Latino Families. *Journal of Child and Family Studies*, 27(1), 268–279. 10.1007/s10826-017-0881-7 [PubMed: 29456439]
- Reynolds CR, & Kamphaus RW (2015). *Behavior assessment system for children—Third Edition (BASC-3)*. Pearson.
- Smith EP, Yzaguirre MM, Dwanyen L, & Wieling E. (2022). Culturally Relevant Parenting Approaches Among African American and Latinx Children and Families: Toward Resilient, Strengths-Based, Trauma-Informed Practices. *Adversity and Resilience Science*, 0123456789. 10.1007/s42844-022-00059-9
- Solomon M, Ono M, Timmer S, & Goodlin-Jones B. (2008). The effectiveness of parent-child interaction therapy for families of children on the autism spectrum. *Journal of Autism and Developmental Disorders*, 38, 1767–1776. 10.1007/s10803-008-0567-5 [PubMed: 18401693]
- Stokes JO, Jent JF, Weinstein A, Davis EM, Brown TM, Cruz L, & Wavering H. (2016). Does Practice Make Perfect? The Relationship Between Self-Reported Treatment Homework Completion and Parental Skill Acquisition and Child Behaviors. *Behavior Therapy*, 47(4), 538–549. 10.1016/j.beth.2016.04.004 [PubMed: 27423169]

- Thomas R, Abell B, Webb HJ, Avdagic E, & Zimmer-Gembeck MJ (2017). Parent-Child Interaction Therapy: A meta-analysis. *Pediatrics*, 140(3), 20170352. www.aappublications.org/news
- Werba BE, Eyberg SM, Boggs SR, & Algina J. (2006). Predicting outcome in parent-child interaction therapy success and attrition. *Behavior Modification*, 30(5), 618–646. 10.1177/0145445504272977 [PubMed: 16894233]
- Wierzbicki M, & Pekarik G. (1993). A Meta-Analysis of Psychotherapy Dropout. *Professional Psychology: Research and Practice*, 24(2), 190–195. 10.1037/0735-7028.24.2.190
- Yeh M, McCabe K, Hough RL, Dupuis D, & Hazen A. (2003). Racial/Ethnic differences in parental endorsement of barriers to mental health services for youth. In *Mental Health Services Research* (Vol. 5, Issue 2, pp. 65–77). 10.1023/A:1023286210205 [PubMed: 12801070]
- Young AS, & Rabiner D. (2015). Racial/ethnic differences in parent-reported barriers to accessing children's health services. *Psychological Services*, 12(3), 267–273. 10.1037/a0038701 [PubMed: 25602502]

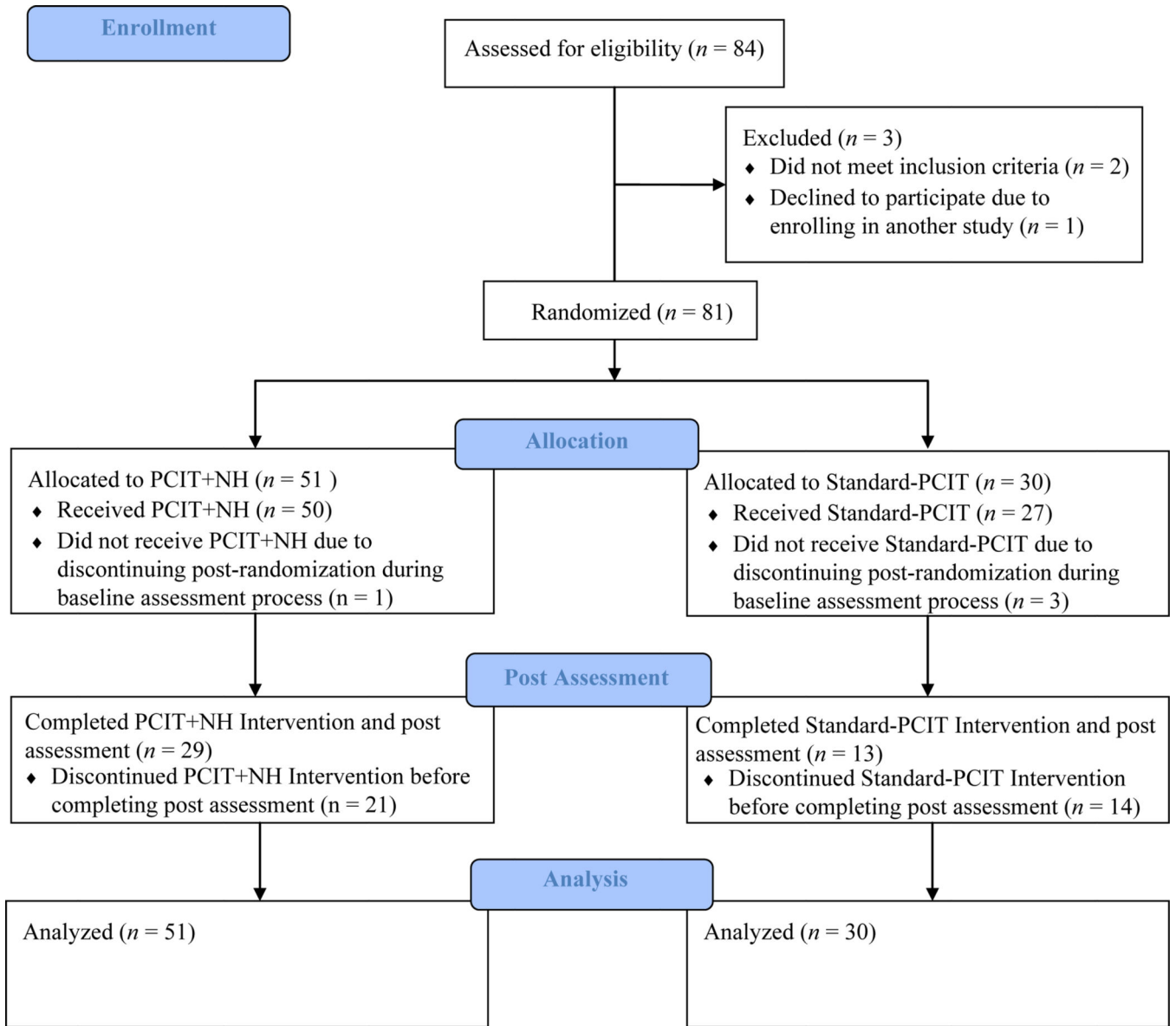


Figure 1.
Flow of Participants Through the Study
Note. PCIT+NH = parent-child interaction therapy plus natural helper.

Author Manuscript
Author Manuscript
Author Manuscript
Author Manuscript

Table 1

Participant Demographic Characteristics

Children	PCIT+NH (<i>n</i> = 51 families)		Standard-PCIT (<i>n</i> = 30 families)		<i>t</i> or <i>c</i> ²	<i>p</i>
	% or <i>M</i>	<i>N</i> or <i>SD</i>	% or <i>M</i>	<i>N</i> or <i>SD</i>		
Age (In Years)	4.50	1.53	4.99	1.72	1.35	.18
Sex (% Male)	66.67%	34	80.00%	24	1.65	.20
Race					N/A	.87
American Indian or Alaskan	1.96%	1	0.00%	0	--	--
Black	17.65%	9	26.67%	8	--	--
Pacific Islander	1.96%	1	0.00%	0	--	--
White	56.86%	29	46.67%	14	--	--
Other	9.80%	5	10.00%	3	--	--
Multiracial	11.76%	6	16.67%	5	--	--
Ethnicity – Hispanic/Latino/a/x Origin	76.47%	39	56.67%	17	N/A	.08
Child Born in USA (% Yes)?	83.33%	35	85.19%	23	N/A	.26
Child Proficient in English (% Yes)?	68.63%	35	83.33%	25	2.13	.14
Child Has Health Insurance (% Yes)?	94.12%	51	96.67%	29	N/A	1.0
Autism Spectrum Disorder Dx (% Yes)	9.80%	5	13.33%	4	N/A	0.87
Child DCF Report on File?	15.69%	8	10.00%	3	N/A	0.74
Caregivers						
Age (In Years)	35.84	6.34	34.49	6.10	-0.94	.35
Sex (% Female)	100.00%	51	90.00%	27	N/A	.05
Race					N/A	.05
American Indian or Alaskan	0.00%	0	3.33%	1	--	--
Black	15.69%	8	33.33%	10	--	--
Pacific Islander	1.96%	1	0.00%	0	--	--
White	66.67%	34	36.67%	11	--	--
Other	7.84%	4	10.00%	3	--	--
Multiracial	7.84%	4	16.67%	5	--	--
Ethnicity – Hispanic/Latino/a/x Origin	78.43%	40	53.33%	16	5.58	.02
Highest Level of Education					-0.47	.64
High School/GED or Less	19.61%	10	20.00%	6	--	--
Some College/Associate Degree	29.42%	15	40.00%	12	--	--
Bachelor's Degree	35.29%	18	26.67%	8	--	--
Graduate Degree	15.69%	8	13.33%	4	--	--
CG Proficient in English (% Yes)?	68.63%	35	90.00%	27	N/A	.03
Household Income					N/A	.96
Less than \$20,000	36.84%	7	28.57%	2		
\$20,000–\$34,000	31.58%	6	28.57%	2		
\$35,000–\$49,999	10.53%	2	14.29%	1		

Children	PCIT+NH (<i>n</i> = 51 families)		Standard-PCIT (<i>n</i> = 30 families)		<i>t</i> or χ^2	<i>p</i>
	% or <i>M</i>	<i>N</i> or <i>SD</i>	% or <i>M</i>	<i>N</i> or <i>SD</i>		
\$50,000–\$74,999	15.79%	3	14.29%	1		
\$75,000–\$99,999	0.00%	0	0.00%	0		
Over \$100,000	5.26%	1	14.29%	1		
CG Marital Status (% Married or Domestic Partnership)	62.16%	23	68.00%	17	N/A	0.18
# of Children in CG Care with Disability	0.75	0.56	0.80	0.48	0.45	.66
# of Children Living in Home	1.85	0.83	1.70	1.06	–0.70	.49
# of Adults Living in Home	2.09	0.78	2.17	1.09	0.38	0.71

Note. PCIT+NH = parent-child interaction therapy plus natural helper; Dx = diagnosis; CG = caregiver. For “Child Born in the USA,” “Household Income,” and “Marital Status” the percentages are reported out of the total number or caregivers who reported on those measures; some caregivers in both groups refused to answer those questions. For variables with some response options that have less than 5 responses, Fisher’s Exact t-test results are reported, which include a probability but not a test statistic.

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 2

Path Analysis Examining Effects of PCIT+NH on Engagement & Retention Outcomes

Effects	Post-Treatment			
	<i>B or Odds Ratio</i>	<i>SE</i>	<i>p</i>	<i>Unique R² Explained</i>
Alliance with Therapist IE	1.42	1.66	.39	.02
TAI Total Score IE	0.52	1.11	.64	.01
CDI HW Completion % IE	5.21	5.15	.31	.01
CDI in PDI HW Completion % IE	3.80	6.42	.55	.01
PDI HW Completion % IE	8.33	7.62	.27	.03
Total Weeks in PCIT IE	0.57	1.85	.76	.00
# of CDI Sessions IE	0.44	0.42	.30	.01
# of PDI Sessions IE	0.60	0.82	.46	.01
# of PCIT Sessions IE	1.04	1.13	.36	.01
Completed CDI IE	2.24	1.09	.26	.04
Completed PCIT IE	1.72	0.80	.37	.02

Note. “Intervention Effect” is effect of PCIT+NH (scored as a “1”) compared to Standard-PCIT (scored as a “0”). Bolded parameters significant at $p < .05$. IE = Intervention Effect; PCIT = parent-child interaction therapy; NH = natural helper, CDI = child-directed interaction; PDI = parent-directed interaction; TAI = therapy attitude inventory, HW = homework

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript

Table 3

Path Analysis Examining Effects of PCIT+NH on Child & Caregiver Outcomes

Effects	Post-Treatment			
	<i>B</i>	<i>SE</i>	<i>p</i>	Unique <i>R</i> ² Explained
BASC Externalizing T-Score IE	-5.55	2.86	.05	.07
Baseline Level	0.45	0.11	<.01	.31
BASC Internalizing T-Score IE	-1.80	2.26	.43	.01
Baseline Level	0.50	0.08	<.01	.52
BASC Adaptive T-Score IE	0.89	2.41	.71	.00
Baseline Level	0.92	0.13	<.01	.61
ECBI Problem Raw Score IE	2.14	2.64	.42	.03
Baseline Level	0.45	0.20	.02	.12
ECBI Intensity Raw Score IE	-1.40	10.29	.89	.00
Baseline Level	0.67	0.16	<.01	.28
Child Compliance Rate IE	22.15	11.14	.05	.06
Baseline Level	0.38	0.13	<.01	.18
Caregiver Positive Parenting Practices IE	-0.71	3.60	.84	.00
Baseline Level	-0.05	0.62	.93	.00
Caregiver Negative Parenting Practices IE	2.23	2.01	.27	.04
Baseline Level	0.25	0.07	<.01	.23
Caregiver Effective Command Rate IE	10.61	11.08	.34	.02
Baseline Level	0.16	0.33	.63	.01
Caregiver Correct Follow-Through Rate	18.18	11.67	.12	.05
Baseline Level	N/A	N/A	N/A	N/A
PSI Total Stress Score IE	-3.50	6.94	.61	.00
Baseline Level	0.64	0.15	<.01	.28
PSI Parental Distress Score IE	-6.21	6.06	.31	.01
Baseline Level	0.80	0.11	<.01	.53
PSI Parent-Child Dysfunctional IE	-4.41	6.63	.51	.00
Baseline Level	0.51	0.12	<.01	.31
PSI Difficult Child Score IE	1.85	7.81	.81	.01
Baseline Level	0.79	0.21	<.01	.27
Family Conflict Score IE	-0.15	0.22	.50	.00
Baseline Level	0.45	0.14	<.01	.25
Family Cohesion Score IE	0.14	0.17	.42	.01
Baseline Level	0.27	0.10	<.01	.18

Note. “Intervention Effect” is effect of PCIT+NH (scored as a “1”) compared to Standard-PCIT (scored as a “0”). Bolded parameters significant at $p < .05$. IE = Intervention Effect; BASC = behavioral assessment system for children; ECBI = eyberg child behavior inventory; PSI = parenting stress index; CDI = child-directed interaction; “positive parenting practices” total = labeled praise + behavior descriptions + reflections. “negative parenting practices” total = questions + command + negative talk. N/A = not applicable. “N/A” provided as value in “Caregiver Correct Follow Through Rate” model because all caregivers scored a 0% on baseline correct follow-through rate, and the consequent lack of variability made the model inestimable with this baseline follow-through rate included in the model. Therefore, it was excluded from the model.