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Accepted version. *Counseling Outcome Research and Evaluation*, Vol. 6, No. 1 (June 2015): 3-17. DOI.
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Early Pathways Therapy for Young Children in Poverty: A Randomized Controlled Trial

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Abstract: Early Pathways is a home-based, parent and child therapy program for the treatment of disruptive behaviors among young children living in poverty. In this study, 199 clinically referred children were randomly assigned to an immediate treatment (IT) or wait-list control (WL) conditions. Results indicated that parents in the IT condition reported significant improvements in their child's disruptive and prosocial behaviors and increased nurturing and decreased use of corporal and verbal punishment by their parents compared to the WL families. Gains were maintained for children in both the IT and WL conditions at 3-month follow-up.

Keywords: behavior problems, young children, poverty, home-based, efficacy, treatment, speciality

Research has shown that psychopathology in early childhood is comparable to that found in school-age children (Egger & Angold, 2006). Approximately 9–15% of preschool aged children exhibit symptoms severe enough to qualify for an externalizing disorder and 11–15% of preschoolers exhibit symptoms severe enough to qualify for an internalizing disorder (Egger & Angold, 2006; Keenan, Shaw, Walsh, Delliquadri, & Giovannelli, 1997). Externalizing problems include behaviors such as physical aggression, verbal aggression, oppositional behaviors, hyperactivity, impulsivity, and weak attentional control (Qi & Kaiser, 2004), while internalizing problems have been defined as including symptoms of anxiety or depression such as withdrawal, fearfulness, or loss of interest in activities that were previously enjoyed (Eisenberg et al., 2001). Externalizing behaviors concerns are often not transient and demonstrate evidence of longitudinal stability even when their presentation occurs at young ages. Longitudinal research tracking children from preschool age to early adolescence suggests that 17–27% of children experience persistent externalizing behavioral concerns (Cote, Vaillancourt, LeBlanc, Nagin, & Tremblay, 2006; Fanti & Henrich, 2010). For a more complete review on the research on common externalizing and internalizing behavior disorders in preschoolers, please see Egger and Angold (2006).

Externalizing Behaviors in Children Living in Poverty

Children in poverty are at particular risk for both developing and maintaining externalizing behavior problems (Cote et al., 2006; Fanti & Henrich, 2010; Qi & Kaiser, 2003). Psychopathology rates are higher among preschool children from families living in poverty (Keenan et al., 1997), with prevalence rates of externalizing behavior problems in low-income preschoolers enrolled in Head Start programs range from 16% to 30% (Qi & Kaiser, 2003). Moreover, low-income children have disproportionately more unmet mental health needs than their higher socioeconomic status (SES) counterparts, particularly those

who are of minority status (Santiago, Kaltman, & Miranda, 2013). Low family income is associated with multiple environmental risk factors, such as exposure to violence, unsafe physical environments, reduced psychosocial stimulation, and family instability (Evans, 2004). These environmental factors create a developmental context that can interfere with a developing child's self-regulation, negatively bias social information processing, or model antisocial behavior, placing children at increased risk of developing externalizing behavior problems (Dearing, McCartney, & Taylor, 2006; Dodge & Pettit, 2003; Hinshaw, 2002). The harmful effect of poverty on the development of externalizing behaviors has been found to be most significant when children are chronically poor (Dearing et al., 2006).

Poverty is also cited as a risk factor for the stability of high-intensity externalizing behavioral problems (Cote et al., 2006; Fanti & Henrich, 2010). The quality of the parent-child relationship may contribute to the stability of the externalizing behaviors in children. Families living in poverty have been found to use more punitive and less responsive parenting practices, and a poor parent-infant relationship (characterized by high negative regard, low positive regard, and low sensitivity) is a risk factor for increased externalizing behaviors in early childhood and later in adulthood (Evans, 2004; Lorber & Egeland, 2009). Given the heightened risk for children in poverty developing externalizing behavior problems that can persist throughout childhood and into adulthood, empirically validated programs that are specifically developed for very young children with significant behavior problems living in poverty are needed.

Interventions for Young Children With Externalizing Behaviors

Available parent-child therapy (PCT) programs have been proven to be efficacious for the treatment of externalizing behaviors in early childhood. Programs such as Parent Child Interaction Therapy (PCIT; Eyberg & Boggs, 1989) and the Incredible Years Parenting Program (IYP; Webster-Stratton, 1992) have strong empirical support for the treatment of behavioral problems in younger children. Researchers have completed some preliminary work on their treatment effectiveness with lower SES and racially/ethnically diverse groups of

children with promising results (e.g., Fernandez, Butler, & Eyberg, 2011; Reid, Webster-Stratton, & Beauchaine, 2001). Additionally, the Child FIRST program has demonstrated efficacy in reducing externalizing behaviors in a diverse sample of young children from low-income families (Lowell, Carter, Godoy, Paulicin, & Briggs-Gowan, 2011). However, there is a need for more intervention research with this underserved population.

The *Early Pathways (EP) Program: Home-Based Therapy for Young Children in Poverty* was developed specifically to address externalizing behaviors in young children living in impoverished backgrounds. This program has been field tested in two large-scale, community-studies with diverse families living in poverty (Fox, Mattek, & Gresl, 2013; Gresl, Fox, & Fleischmann, 2014) and the initial outcomes were positive for the children and their caregivers. Additionally, a culturally adapted version of the EP program was implemented with successful outcomes with an all Latino sample using a randomized control methodology (Fung & Fox, 2014). However, the original EP program has not been studied with a diverse population of young children from families in poverty using a rigorous randomized control methodology, which would strengthen its potential as an evidence-based program and its use with a wider population of children. Randomized controlled studies are considered the most rigorous means of detecting a causal relationship between the treatment and the outcome (Sibbald & Roland, 1998). Thus, the inclusion of such a study will serve to critically examine the effect that EP has on treatment outcomes with a diverse sample of children.

Attrition

Although the need for such a study is clear, there are inherent challenges associated with treatment of toddlers and preschoolers living in poverty, particularly problems surrounding attrition. Research has found that poverty is positively related to higher drop-out rates (Armbruster & Fallon, 1994; Fox & Holtz, 2009; Kazdin & Mazurick, 1994). For example, when PCIT was implemented with predominantly low-income African American families, the drop-out rate was 56–67%; however, the sample sizes (ranging from 14 to 18 participants)

were relatively small (Fernandez et al., 2011). Contextual factors, such as lack of reliable transportation, loss of phone services, distance from service providers, difficulty keeping appointments, and frequent relocation, most often contribute to early dropout (Kruzich, Jivanjee, Robinson, & Friesen, 2003).

To help address barriers to treatment and reduce attrition rates, EP was specifically adapted to meet the typically lower educational attainment of caregivers in poverty. The largest change was designing EP to be delivered in the children's homes rather than at a clinic, university, or laboratory site. Home-based therapy has several advantages to traditional clinic-based therapy for families in poverty including increased engagement, the provision of services to individuals who would otherwise be unable to attend sessions at a clinic, the ability to better tailor the services to fit the unique needs of the family and their home setting (e.g., determining an appropriate time-out location in a small apartment with several individuals in residence), and the opportunity to model appropriate treatment strategies for parents and to immediately address behavioral concerns as they naturally occur in child's home environment while providing feedback to caregivers (Gresl et al., 2014; Lowell et al., 2011). A number of adaptations to the program itself also were made and are described in the Method section of this article.

Research Questions and Hypotheses

Research Question 1: Do children in the immediate treatment (IT) group decrease challenging behaviors from pretest to posttest as measured by the Early Child Behavior Screen–Challenging Behavior Scale (ECBSCBS) compared to the wait-list (WL) group?

Hypothesis 1: Children's challenging behaviors in the IT group will be significantly lower than the WL group, based on the results of the ECBS-CBS.

Research Question 2: Do children in the IT group increase prosocial behaviors from pretest to posttest as measured by the Early Child Behavior Screen–Positive Behavior Scale (ECBS-PBS) compared to the WL group?

Hypothesis 2: Children's prosocial behaviors in the IT group will be significantly higher than the WL group, based on the results of the ECBS-PBS.

Research Question 3: Do parents of children in the IT group decrease their use of verbal and corporal punishment, as measured by the Parent Behavior Checklist (PBC), compared to the WL group?

Hypothesis 3: Parents' use of verbal and corporal punishment will be significantly lower for the IT group compared to the WL group, based on the results of the PBC.

Research Question 4: Do parents of children in the IT group increase their frequency of nurturing behaviors, compared to the WL group?

Hypothesis 4: Parents' use of nurturing will be significantly higher for the IT group compared to the WL group, based on the results of the PBC.

Research Question 5: Do parents and children in the IT group increase their engagement and warmth during play, based on an increase in the total scores on the Parent-Child Play Assessment (PCPA), as compared to the WL group?

Hypothesis 5: Parent and child engagement and warmth during play will be significantly higher for the IT group compared to the WL group, based on the total scores on the PCPA.

Research Question 6: Will treatment gains in decreasing the children's challenging behaviors, increasing the children's prosocial behaviors, decreasing the parents' use of corporal and verbal punishment, and increasing parental nurturing be maintained for both groups at the 3-month follow-up after treatment completion, in comparison to the initial pretreatment baseline?

Hypothesis 6: Treatment gains in decreasing the children's challenging behaviors, increasing the children's prosocial behaviors,

decreasing the parents' use of corporal and verbal punishment, and increasing parental nurturing will be significant for both groups at the three months of follow-up after treatment was completed in comparison to the initial pretreatment baseline.

Method

Participants

Participants included 199 children between the ages of 1 and 5 consecutively referred to a clinic specializing in serving young children with externalizing behavior problems in poverty (Fox, Keller, Grede, & Bartosz, 2007) by over 60 referral sources including pediatricians, public health nurses, birth-to-three agencies, the child welfare bureau, children's hospitals, among others. Children with prior diagnoses of Autism Spectrum Disorders were excluded from the study and were referred for more intensive services. Children who were not receiving public assistance, which required that their annual family income was below the federal poverty level, were also excluded from the study. Although the EP program has demonstrated effectiveness with populations that include children who meet the federal definition of poverty and those that do not qualify, the original program was designed specifically to meet the needs of families in poverty. Thus, children who did not meet the federal definition of poverty were not included in our current study. These children, however, still received the full range of services at the clinic. The average age for a child in this sample was 2.88 years (SD $\frac{1}{4}$ 1.09). The sample was predominantly composed of male (70.4%), African American (38.7%), and Latino/a (41.2%) children. The primary caregivers' average age was 28.16 years (SD $\frac{1}{4}$ 6.89). The primary caregiver was typically the mother (95.5%) and most caregivers were unmarried (73.1%). There were no significant differences on any demographic variables between the WL and IT groups.

EP Program

The EP treatment program included four core elements: (a) strengthening the parent-child relationship through child-led play; (b)

helping parents maintain developmentally appropriate expectations for their child and learn cognitive strategies to respond calmly and thoughtfully to their child's challenging behaviors; (c) using positive reinforcement, teaching strategies, and establishing family routines to strengthen the child's prosocial behaviors; and (d) using limit-setting strategies to reduce the child's challenging behaviors, such as redirection, ignoring, or time-out. These psychoeducational components normally were introduced in the first four to six treatment sessions, depending on the parents' learning style and ability to grasp and implement the concepts being taught. Additional sessions included problem-solving strategies to adapt the treatment techniques to the child's unique home situation and instruction in skills to improve the child's listening and to create a safe and predictable home routine.

The EP treatment program is designed for implementation over the course of 8–10 sessions. The initial sessions are focused on strengthening the parent–child relationship, while the latter sessions introduce discipline strategies. The first session includes an initial intake session in which the parent is oriented to EP and all parent report measures are completed. An observation of the parent–child play is directly observed and the quality of this interaction is rated. The concept of child-led play is introduced and initial treatment goals are formed. Additionally, the family is connected with advocacy resources as needed. The second session involves reviewing the results of the intake session and developing a treatment plan. Child-led play is reviewed, and parents are coached in-session regarding ways in which to engage with their child during the play session. This coaching first involves the clinicians modeling the play and then parents practicing and received feedback during the play interaction. Parents are required to conduct child-led play once daily for 15 min as a part of the treatment. Additionally, clinicians work with parents to identify ways to effectively praise their children by helping them clarify the type of reinforcement they would like to use (e.g., social, tangible, and edible), the timing of the praise (ideally as close to compliance as possible), and the frequency in which the praise should occur. Finally, psychoeducation is provided to help differentiate between their child's behavior and temperament/personality. Parents are strongly encouraged to separate the child from their behavior. For example, instead of saying "You are a bad boy for hitting," parents were

coached to say, "You should not hit others." The third session includes psychoeducation on the child's language, cognitive, and social-emotional development based on child's developmental age to ensure that expectations for the child are appropriate. Next, the concept of a negative behavior cycle is introduced and includes the following: a brief statement of the child's challenging behavior (tantrums), what the parent thinks when the behavior occurs ("My child does not respect me"), how the parent feels when the behavior occurs ("I am really angry"), how the parent reacts when the behavior occurs (yelling), and what the child learns from this cycle (to continue the tantrum in the future for more attention). Ways in which the parent can alter this negative behavior cycle are explored in session through a cognitive behavioral technique where parents are taught to Stop, Think, Ask, and Respond (STAR) before addressing their child's challenging behaviors and to interrupt the negative behavior cycle. This technique prompts parents not to respond immediately to their child's negative behaviors (unless a safety concern is present such as a child reaching for a hot burner on the stove), think about how their child's behavior is affecting their own thoughts and feelings, ask themselves about the challenging behavior in context of their child's developmental level, and respond in a manner that is thoughtful, deliberate, and in line with their goals for their child. During the fourth session, parents are coached on how to give effective requests. They are taught to use the STAR technique before making a request, consider their timing (waiting for a natural break in play), establish eye contact, break down larger tasks into smaller steps, use statements and not questions, repeat directions only once, follow through with consequence for noncompliance, and use positive reinforcement following compliance. Following this session, parents are encouraged to conduct daily 5-min "listening sessions" that practice effective commands with their children in addition to the child-led play. Session 5 focuses on establishing home routines and focuses on ways to prepare children if their routine becomes disrupted (e.g., prompting children ahead of time of a doctor's appointment). Once a positive parent-child relationship and structured environment are in place, the sixth session focuses on discipline strategies. Discipline strategies modeled and practiced in session include redirection, ignoring, natural consequences, and time out, and always consider the child's developmental level. The final two sessions include reviewing

and refining treatment strategies and completing posttest paper work. Based on the clinician's judgment, more sessions can be added to meet the parent's goals for their child. For a more thorough explanation of all treatment strategies, refer to the EP Treatment Manual (Fox & Gresl, 2014) or the web-based 10-hr training course for professional mental health practitioners (www.marquette.edu/early-pathways).

A number of important adaptations were made in the EP program to tailor it to families living in poverty. First, significant time was spent initially establishing rapport and trust with the families. This step often resulted in the identification of unique challenges faced by these families (e.g., limited care from a pediatrician and rarely any care from a dentist, high lead levels in children, lack of stable housing, involvement by child protective services, unsafe neighborhoods, children not enrolled in school or therapy programs despite obvious speech and other delays, children witnessing intimate partner abuse, parents needing mental health services to address their own past trauma or mental health problems, several people living in a small space, limited food, absence of toys, etc.). Consequently, clinicians often assumed an early advocacy role and connected the family with available community resources to begin to meet these often overwhelming needs and reduce family stress. Some families were also provided with a parent mentor to help them navigate the complex service delivery programs. Rules were established early in the treatment sessions, such as the child and caregiver must be present for all sessions, no TV, visitors, cell phone use, or other distractions, involving other appropriate caregivers including grandparents living in the home as well as older siblings, and contacting the clinician ahead of time for any absences. All families were contacted the day before a session to remind them of the appointment. By the third session, each family was reviewed regarding their attendance and level of engagement. Clear policies about unexcused absences were reviewed and when necessary, services were postponed (family crisis) or in some cases terminated (family moved or could not be contacted). Often these families were reengaged at a later time when they were more ready to participate. All handouts and program materials were written at a lower reading level and the clinicians provided all materials needed to implement the program to the family (e.g., toys,

reinforcers, door handle covers, cabinet locks, and child-proof gates to protect the child's safety). Clinicians used a structured training format that included a brief explanation for the rationale of a technique such as quiet time, modeling the technique for the caregiver, having caregiver practice the technique with their children, and finally the clinician providing positive and corrective feedback to the caregiver. Simple and realistic treatment plans were provided at the end of each session for the parent to implement between sessions such as use nondirective play with the child once/day for 15 min. Parents were provided recording sheets that required simple check marks regarding whether or not they implemented the treatment plan. Clinicians were flexible in implementing EP. For example, if a child was very aggressive at intake and had the potential to cause harm to a new infant sibling, a quiet time may be introduced right away to protect the child and infant although normally, limit-setting procedures were not introduced until later in the program. Clinicians also were instructed in culturally sensitive practices. For example, Latino fathers often felt that early child rearing was the mothers' responsibility. As such, although fathers were encouraged to participate, their wish to remain in the background during sessions was respected. Parent feedback about their perceptions of the EP program near the end of their participation also was incorporated. A detailed EP manual was developed for training purposes and constantly underwent changes as new information or clinicians' insights were obtained.

Treatment sessions occurred once per week for 1 to 2 hrs. Each week, a daily practice sheet tracking treatment goals was provided for the parent. Subsequent sessions began by reviewing and documenting progress toward treatment goals and completing the ECBS-CBS (Holtz & Fox, 2012). Therapy was terminated when the clinician and the parent agreed that treatment goals had been met. Three months following treatment termination, a follow-up session was conducted in the child's home. When necessary, additional booster sessions were provided.

Measures

Intake. The initial 2-hr intake evaluation session included a parent interview to gain information regarding the child's background,

strengths, family composition and mental health history, child's health history, daily routines and living skills, and specific externalizing problem behaviors. Multiple parent-report measures were administered and a parent-child play interaction as directly observed. The intake evaluation concluded with the parent and therapist identifying goals for treatment and scheduling the first treatment session.

ECBS. The ECBS (Holtz & Fox, 2012) is a 20-item self-report screening instrument developed specifically for very young children in poverty. The ECBS items were written at a 3.9-reading grade level and included 10 prosocial behavior items (e.g., "listens to you" and "shares toys") and 10 challenging behavior items (e.g., "hits others" and "has temper tantrums"). All items are rated on a 3-point Likert-type rating scale (1 ¼ almost never, 2 ¼ sometimes, 3 ¼ often). Total scores on the Prosocial Behavior Scale ranged from 10 to 30, with higher scores indicating a greater frequency of positive behaviors. Total scores on the Challenging Behavior Scale (CBS) ranged from 10 to 30, with higher scores indicating a greater frequency of disruptive behaviors. Internal consistencies using coefficient as were .87 for the Challenging Scale and .92 for the Prosocial Scales. The CBS demonstrated adequate levels of concurrent validity ($r = .75$) with the Eyberg Child Behavior Inventory (ECBI; Eyberg & Pincus, 1999). In addition, the CBS demonstrated adequate levels of sensitivity (82%) and specificity (80%) based on its relationship with the ECBI. For the current sample, the coefficient α for the CBS was .88 and the Prosocial Behavior Scale was .77. The ECBS-CBS was administered at pretest, all individual treatment sessions, posttest, and follow-up. The rationale for including this measure at all sessions was to provide a brief assessment of the child's behavior throughout treatment and as a safeguard for families who dropped out of treatment prematurely. The ECBS Prosocial Scale was administered at pretest, posttest, and follow-up only.

PBC. The PBC (Fox, 1994) is a self-report measure, designed to assess the behaviors of parents of young children between the ages of 1 and 5. Two subscales of the PBC were used including Discipline and Nurturing. The Discipline Scale consisted of 10 items that assessed parental response to the child's problem behaviors (e.g., "I yell at my child for whining"). The Nurturing Scale consisted of 10 items that

measured specific parent behaviors that promoted the child's psychological growth (e.g., "My child and I play together on the floor"). Items were rated using a 4-point frequency scale (1 ¼ almost never/never, 2 ¼ sometimes, 3 ¼ frequently, and 4 ¼ almost always/always). Total scores for each subscale were converted into t-scores based on the child's age. Higher scores on discipline indicate more frequent use of verbal and corporal punishment (e.g., yelling and spanking). Higher scores on nurturing indicate more frequent use of nurturing activities (e.g., reading with child and playing with child). From a representative sample of 1,140 mothers, the following internal consistencies using coefficient as were reported: Discipline ¼ .91 and Nurturing ¼ .82. Test-retest reliabilities for each of the subscales were Discipline ¼ .87 and Nurturing ¼ .81 (Fox, 1994). The PBC was administered at Time (T) 1, T2, and T3.

PCPA. The PCPA is a clinician-rated behavior observation coding system that measures the quality of parent-child interactions during a 10- to 15-min observation of child-led play. Sample items include the clinician's rating of the child's interest in play, parent's responsiveness, and child's positive and negative affect during the play interaction. The scale consisted of 11 items that were rated on a 3-point Likert-type scale (0 ¼ poor, 1 ¼ fair, and 2 ¼ good). Veteran clinicians trained newer clinicians and students on how to score each item of the play assessment (e.g., what constitutes a poor vs. fair vs. good rating) to help ensure consistency among raters. This assessment was developed as part of the EP program as another means to assess progress outside of parent report. In order to compute interrater reliability for the PCPA for this study, two trained clinicians were present in the home to independently observe the parents and children playing together (n ¼ 66 clinician pairs). ks ranged from .63 (parent engagement) to .92 (reciprocity). The average k for the 5 child items was .76 and .80 for the 6 parent items. Total scores can range from 0 to 22, with higher scores indicating better play interaction. The PCPA was administered at T1 and T2.

Family satisfaction survey. The family satisfaction survey is a 7-item consumer satisfaction measure. This measure was provided anonymously to families who completed treatment. On a 7-point

Likert-type scale, parents were asked to rate the quality of services received (1 ¼ poor to 7 ¼ excellent), how the services contributed to their child's improvement (1 ¼ not at all to 7 ¼ a lot), how the clinic helped them to improve management of their child (1 ¼ not at all to 7 ¼ a lot), if parents would use the clinic again if needed (1 ¼ no, definitely not to 7 ¼ yes, definitely), current status of the child's referral concern (1 ¼ considerably worse to 7 ¼ greatly improved), if parents would recommend the clinic to others (1 ¼ no, definitely not to 7 ¼ yes, definitely), and the parent's confidence in managing their child's behavior in the future (1 ¼ not at all confident to 7 ¼ very confident). Total scores can range from 7 to 49, with higher scores indicating greater satisfaction with services. The coefficient α for this study was .83. This survey was administered at the end of treatment, T2.

Procedures

The Internal Review Board at a Midwestern university approved this study and written informed consents were obtained from the legal guardians of all children. For participants who spoke Spanish, a translated version of the informed consent was provided and an interpreter or bilingual counselor was present at all sessions. Participants were randomly assigned to IT or WL groups using a computer-derived random numbers table. The parent who identified as the primary caregiver filled out all parent report measures for the study (95.5% were the children's mothers). The participants' flow through the study is shown in a consort diagram in Figure 1. For the IT and WL groups, preintervention measures were completed at the time of first intake (T1). The second time period represented a different stage in the study for the IT and WL groups. T2 for the IT group was a posttest measure taken after the intervention, whereas T2 for the WL group was a second pretest session. Participants allocated to the WL group were required to wait at least 4 to 6 weeks for treatment services after their initial intake. We were concerned that a longer wait period would result in a higher attrition rate for the WL group as indicated from previous community-based studies with this population. The WL group then received the full treatment program followed by a posttest. T3 represented the 3-month follow-up after treatment sessions ended. All sessions, including intake, posttest, and follow-up

occurred in the participants' homes. Clinicians included licensed professional counselors and graduate students in community counseling, counseling psychology, or clinical social work. All clinicians received extensive training and supervision. The didactic training component included a review of the EP program treatment manual, policy and procedures manual, and training videos. All new clinicians and students shadowed veteran clinicians and gradually assumed a more active role in implementing treatment strategies and leading sessions. An extensive treatment fidelity checklist was completed by the primary supervisor to ensure that new clinicians and students were prepared to implement the treatment program and procedures with fidelity. As students worked with several different clinicians, the fidelity checklist was reviewed and agreed upon by all supervisors for each student at weekly staff meetings. Students always attended treatment sessions with a veteran staff member, in part due to the unsafe neighborhoods where the children lived. All new staff and graduate students received weekly individual supervision sessions by veteran clinicians; a licensed psychologist supervised the entire staff weekly.

Data Analysis Plan

Analyses of covariance (ANCOVAs), with pretreatment scores as covariates, were used to determine whether the immediate group differed from the delayed group on posttest measures. All results reflected intent-to-treat (ITT) analyses by including all families who had available data regardless of whether they dropped out of treatment. In other words, the ITT analysis includes every subject who was randomized into the study. This analysis is more conservative than a dose-effect comparison. For the ITT analysis, the Last Observation Carried Forward method was used to account for data that were missing. Please see Gupta (2011) for further discussion of ITT analyses. The flow of participants through the study is shown in Figure 1. Treatment gains were also analyzed at a 3-month follow-up after both groups had received treatment to examine whether change was significantly different than baseline, T1.

Results

The assumptions for the ANCOVAs were met. The ITT analysis of Hypothesis 1 indicated that parents in the IT group reported significantly fewer challenging behaviors concerns on the ECBS Challenging Scale at T2 than parents in the WL group, $F(1, 196) = 45.62, p < .001, d = .72$. The effect size for this measure was large, indicating that there was a significant decrease in reported disruptive behaviors for parents in the IT group following treatment. This suggests less challenging externalizing behaviors were occurring for children who received treatment. Small effect sizes were observed for the remaining outcome variables. With regard to Hypothesis 2, children in the IT group displayed more prosocial behaviors on the ECBS Prosocial Scale than children in the WL group, $F(1, 196) = 11.88, p = .001, d = .31$. Children in the IT group engaged in behaviors such as sharing toys with others and listening with greater frequency than those in the WL group. ITT analysis results for Hypothesis 3, indicated that parents in the IT group reported significantly less use of harsh discipline on the PBC Discipline Scale at T2 than parents in the WL group, $F(1, 196) = 10.32, p = .002, d = .31$. In other words, parents in the IT group reduced their previous reliance on corporal and verbal punishment as a means of discipline compared to those in the WL group. For Hypothesis 4, a small effect size was observed for nurturing behaviors on the PBC Nurturing Scale, with IT parents endorsing more nurturing behaviors at T2 than parents in the WL group, $F(1, 196) = 8.44, p = .004, d = .30$. Results for Hypothesis 5 indicated that the clinicians' rating of the parent-child play interaction was more positive for the IT group at T2 than the WL group, $F(1, 196) = 15.88, p < .001, d = .43$, on the PCPA. IT parents at T2 had more positive parent interactions (e.g., higher engagement and more sensitivity to the child) and child interactions (e.g., positive affect and interest in the play). At the initial posttest for the IT group, a total of 60 children from both groups had dropped from the study (attrition rate = 30.2%). Table 1 lists means, standard deviations, analyses, and significance levels for T1 and T2 comparisons.

Similar to the ITT T1 to T2 analyses, results comparing ITT T1 to T3 analyses (Hypothesis 6) were significant, with a large effect size

observed for the ECBS-CS, $F(1, 198) = 175.04, p < .001, d = .88$, and small effect sizes for all other measures (see Table 2). The follow-up results at 3 months after both groups had received treatment indicated that treatment gains were still significant for both child and parent outcome measures. In other words, 3 months after treatment was completed, children continued to have less disruptive behaviors and more prosocial behaviors. Additionally, parents continued to use less frequent harsh verbal and corporal punishment and increased their level of nurturing from the initial T1 baseline. Of those who completed treatment, a posttest satisfaction survey was provided. Their total scores ranged from 31 to 49 ($M = 45.09; SD = 4.08$). These findings suggested that families were highly satisfied with EP.

Discussion

Poverty has a negative impact on both behavioral and cognitive functioning (Holmes & Kiernan, 2013; Linver, Brooks-Gunn, & Kohen, 2002) and serves as a significant risk factor for both the development and maintenance of high-intensity externalizing behaviors (Cote et al., 2006; Fanti & Henrich, 2010). In fact, children who live in persistent poverty beginning in early childhood are more likely to meet criteria for a psychiatric disorder upon school entry (Carter et al., 2010). Despite the need for early intervention services, children who live in poverty, particularly those from ethnic minority backgrounds, continue to have disproportionately unmet mental health needs (Santiago et al., 2013).

As a means of helping to bridge this gap in care, EP was developed as a home-based therapy program focused on fostering healthy parent-child interactions and promoting positive parenting practices and discipline. Although poverty has a negative impact on both behavioral and cognitive functioning, research has shown that families that have strong parent-child relationships are more resilient to negative cognitive and behavioral outcomes (Holmes & Kiernan, 2013; Linver et al., 2002). Additionally, lower levels of maternal distress and positive parenting practices (i.e., parents who were observed to use less authoritarian parenting) serve as significant mediators of positive cognitive and behavioral outcomes for young children in poverty (Linver et al., 2002). A home-based therapy

approach may help increase accessibility to children who otherwise might not be able to receive treatment. However, using a homebased model represents a significant departure from traditional service delivery in clinic or university laboratory settings. During our first year of operation as a clinic serving this population, we attempted a traditional approach of providing mental health services for young children from families in poverty at a clinic site. We served only 25 children the first year and encountered significant difficulties getting families in for an initial intake evaluation. It quickly became clear that engaging these families for the time needed to make changes in their children's behaviors was not successful. Moreover, unlike parents from middle income and higher education levels, our families had significant difficulty transferring strategies taught at the clinic to their homes. As additional evidence of the need to provide services in the home, our clinic has now grown from serving 25 children the first year to nearly 500 children a year.

A unique strength of this study is that it is one of the first studies where all of the participants representing diverse populations were living in poverty and receiving a home-based treatment program. This study adds to the positive outcomes of previous studies supporting the use of EP with very young children in poverty (e.g., Fox et al., 2013; Fung, Fox, & Harris, 2014; Gresl et al., 2014) by examining treatment outcomes using a randomized treatment control methodology. After EP treatment, parents reported significant improvements in their child's disruptive behaviors and an increase in their child's positive prosocial behaviors. Additionally, and importantly, the quality of the parent-child relationship also improved on both parent measures and the clinician measure. A large portion of the EP work is targeted at improving the quality of the parent-child relationship and teaching effective strategies to parents when their child displays aggressive or noncompliant behaviors. During EP, improvement in the parent-child relationship is targeted from several different angles (e.g., teaching childled play, emphasis on developmentally appropriate expectations, and education on positive reinforcement strategies) and is an ongoing component of the treatment program. Additionally, EP has a module built in to help parents manage their own emotional response to their child's

misbehavior so they can respond in a manner that is consistent with the goals they set for their child in therapy. Parents who completed EP reported significantly less use of verbal and corporal punishment and increased levels of nurturing behaviors. Additionally, clinicians reported a significant improvement in the quality of the parent-child social interaction. The families that completed EP also reported they were highly satisfied with the treatment they received.

Limitations and Future Research

A limitation of this research is, despite the reduction of attrition compared to studies with similar sample demographics, attrition was still a concern. This was of particular concern for the 3-month follow-up data and in light of this high attrition rate, follow-up data should be interpreted cautiously. However, in order to address this concern, ITT analyses were used to provide the most conservative estimate of treatment effectiveness. Finally, the majority of participants did complete the clinician report PCPA measure; however, a small subset did not. Although, this measure adds additional information to the traditional parent report measures, the findings from this measure should be interpreted with more caution. Additionally, this measure was not able to be collected at T3 follow-ups and inclusion of these follow-up data in future studies could help to strengthen the support for EP.

Given the limited research and training provided to therapists for working with very young children from families in poverty, professionals that wish to serve this population may benefit from the EP program. Additionally, future research should test the EP program outside the original study site location. Providing this research would further strengthen the efficacy of the EP program and also provide important information on how the program may need to be adapted for different regions of the country or other cultural/ethnic groups.

Many questions remain to be answered in serving this at-risk population. First, what are the essential elements of our program and clinical approach that produce successful outcomes? Second, how do we determine early in treatment those families who are likely to

drop out prematurely? Third, for families who drop out early from treatment, are there alternative treatment strategies that will facilitate their retention? Fourth, what level of education and training are required by clinicians to successfully implement the EP program? Fifth, how clinician-friendly is the homebased approach used in the EP program for practitioners in the field, particularly those who are individual providers and are reimbursed for contact hours only (not travel time, no shows, etc.)?

Despite these challenges and numerous others, this is important work. If we are to provide our mental health expertise to families most in need, we will need significantly more researchers, clinicians, and university-training programs to accept and even embrace these challenges that come with serving those most in need. Given that poor long-term outcomes are associated with untreated mental health concerns in young children, and that poverty is a risk factor placing children at an elevated risk for psychopathology, the importance of providing evidence-based treatment for this population is underscored. Further research and continued clinical work are necessary to meet the needs of this unique population.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This research was supported in part by grants from Brighter Futures of Milwaukee, Charles D. Jacobus Family Foundation, Exchange Clubs of Greater Milwaukee Charitable Foundation, Greater Milwaukee Foundation, Helen Bader Foundation, Hearst Foundation, Roger and Cindy Schaus Family and United Way.

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Figure 1. Participant flowchart from random group assignment through follow-up evaluations.

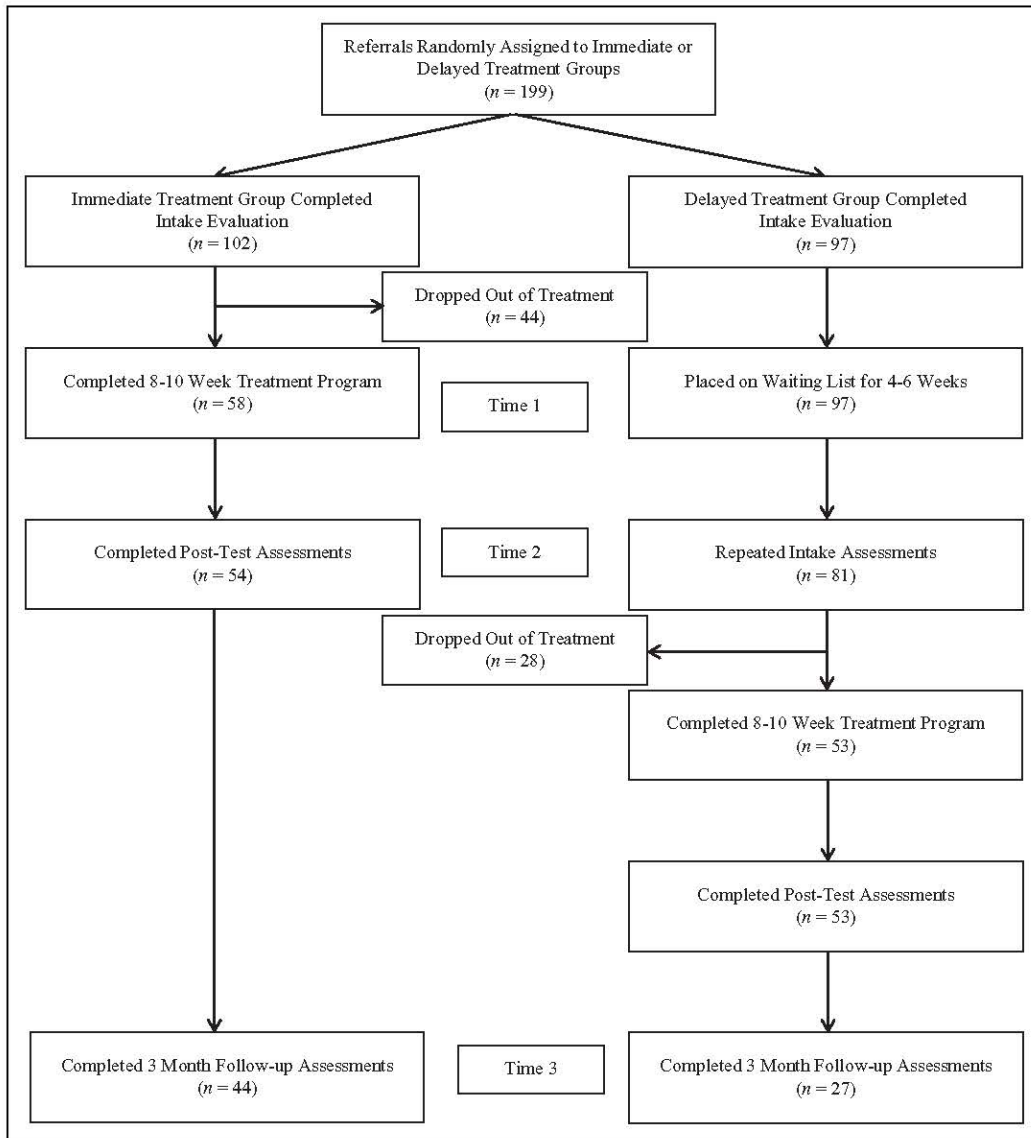


Table 1. Analysis of Covariance for Outcomes from Intake to Time 2 for IT and WL Groups.

N Measure	Group	N	Time 1 ^a		Time 2 ^b			F	p	d ^d
			M	SD	M	M ^c	SD			
ECBS-CS	IT	102	22.76	4.52	18.97	19.13	5.03	45.62	<.001	.72
	WL	97	22.02	3.07	22.58	22.41	4.01			
ECBS-PS	IT	102	22.26	2.92	23.53	23.34	3.19	11.88	.001	.31
	WL	97	23.21	4.00	22.20	22.34	3.21			
PBC-DS	IT	102	46.52	10.21	42.31	41.57	10.96	10.32	.002	.31
	WL	97	44.77	11.36	43.90	44.68	9.19			
PBC-NS	IT	102	50.23	13.06	52.19	51.57	11.37	8.44	.004	.30
	WL	97	48.16	13.14	47.29	47.96	12.44			
PCPA	IT	102	14.40	4.61	16.53	16.28	4.46	15.88	<.001	.43
	WL	97	13.67	4.12	14.07	14.32	4.69			

Note. ECBS-CS ¼ Early Child Behavior Screen–Challenging Scale; ECBS-PS ¼ Early Child Behavior Screen–Prosocial Scale; PBC-DS ¼ Parent Behavior Checklist–Discipline Scale; PBC-NS ¼ Parent Behavior Checklist–Nurturing Scale; PCPA ¼ Parent–Child Play Assessment; IT ¼ immediate treatment; WL ¼ wait-list control. Degrees of freedom for all analyses ¼ (1, 196).

^aTime 1 ¼ Intake data for both IT and WL groups. ^bTime 2 ¼ Posttest data for IT group and Second Intake for WL group.

^cAdjusted Time 2 scores based on analyses of covariance. ^dCohen's d ¼ effect size between IT and WL groups at Time 2 based on adjusted mean scores.

Table 2. Repeated Measures Analysis of Variance for Outcomes from Intake to 3-Month Follow-Up.

Measure	N	Time 1		Time 3		F	p	d
		M	SD	M	SD			
ECBS-CS	199	22.98	4.26	18.96	4.82	175.04	<.001	.88
ECBS-PS	199	22.15	2.99	23.63	3.42	52.08	<.001	.46
PBC-DS	199	45.67	10.80	40.87	10.01	55.66	<.001	.47
PBC-NS	199	49.23	13.11	51.38	11.80	6.76	.010	.17

Note. ECBS-CS ¼ Early Child Behavior Screen–Challenging Scale; ECBS-PS ¼ Early Child Behavior Screen–Prosocial Scale; PBC-DS ¼ Parent Behavior Checklist–Discipline Scale; PBC-NS ¼ Parent Behavior Checklist–Nurturing Scale; PCPA ¼ Parent–Child Play Assessment. Degrees of freedom for all analyses ¼ (1, 198).